

Environment Plan Summary

Gorgon CO2 Injection Additional Optimisation Drilling and Construction

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1 Introduction

1.1 Overview

This public disclosure summary document of the *Gorgon Project, Carbon Dioxide Injection Additional Optimisation Drilling and Construction Environment Plan* (Ref. 1) has been prepared in accordance with 11(8) of the Western Australian Petroleum Pipelines (Environment) Regulations 2012 (PP(E)R). This public disclosure summary has also been developed to align with the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) *Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia* (Ref. 2).

Chevron Australia Pty Ltd (CAPL) prepared the Environment Plan (EP) (Ref. 1) to document the assessment and management of potential environmental impacts and risks associated with drilling and construction activities within the existing Pipeline Licence—PL93—Licence Area on Barrow Island.

1.2 Location

CAPL is the operator for the Gorgon Gas Development (also known as the Gorgon Project) on behalf of the Gorgon Joint Venture (GJV). Offshore production wells and pipeline infrastructure associated with the Jansz–Io and Gorgon gas fields gathers and transports gas to the Gorgon Gas Treatment Plant (GGTP) on Barrow Island, where it is processed.

Carbon dioxide (CO_2), which occurs naturally in the feed gas, is separated during the production process and injected in a supercritical state into deep rock formations below Barrow Island.

The CO_2 Injection System Wells on Barrow Island are located within the Pipeline Licence—PL93—Licence Area (Figure 1-1) and are spread across three CO_2 injection DCs (DC-A, DC-B, and DC-C) and two pressure management DCs (DC-D and DC-E).

The drilling and construction activities covered by the EP will occur at an expanded DC-A and a new pressure management DC (DC-F) to be established on cleared land adjacent to the GGTP (Table 1-1). Additional impressed current cathodic protection (CP) facilities (shallow anode wells, cabling and testing cabinets) are to be installed within existing cleared areas and connected to the wells at DC-F by cables laid within cleared areas alongside existing road/infrastructure corridors (Figure 1-1). Required clearing of vegetation is limited to <1 ha to expand the existing cleared area at DC-A (Figure 1-1).

Table 1-1: Location of Drill Centres

Drill Centre	Drill Centre Coordinates
DC-A	338 757.5 mE 7 701 985.4 mN
DC-F	337 960.3 mE 7 699 689 mN

GDA 1994; UTM Zone 50

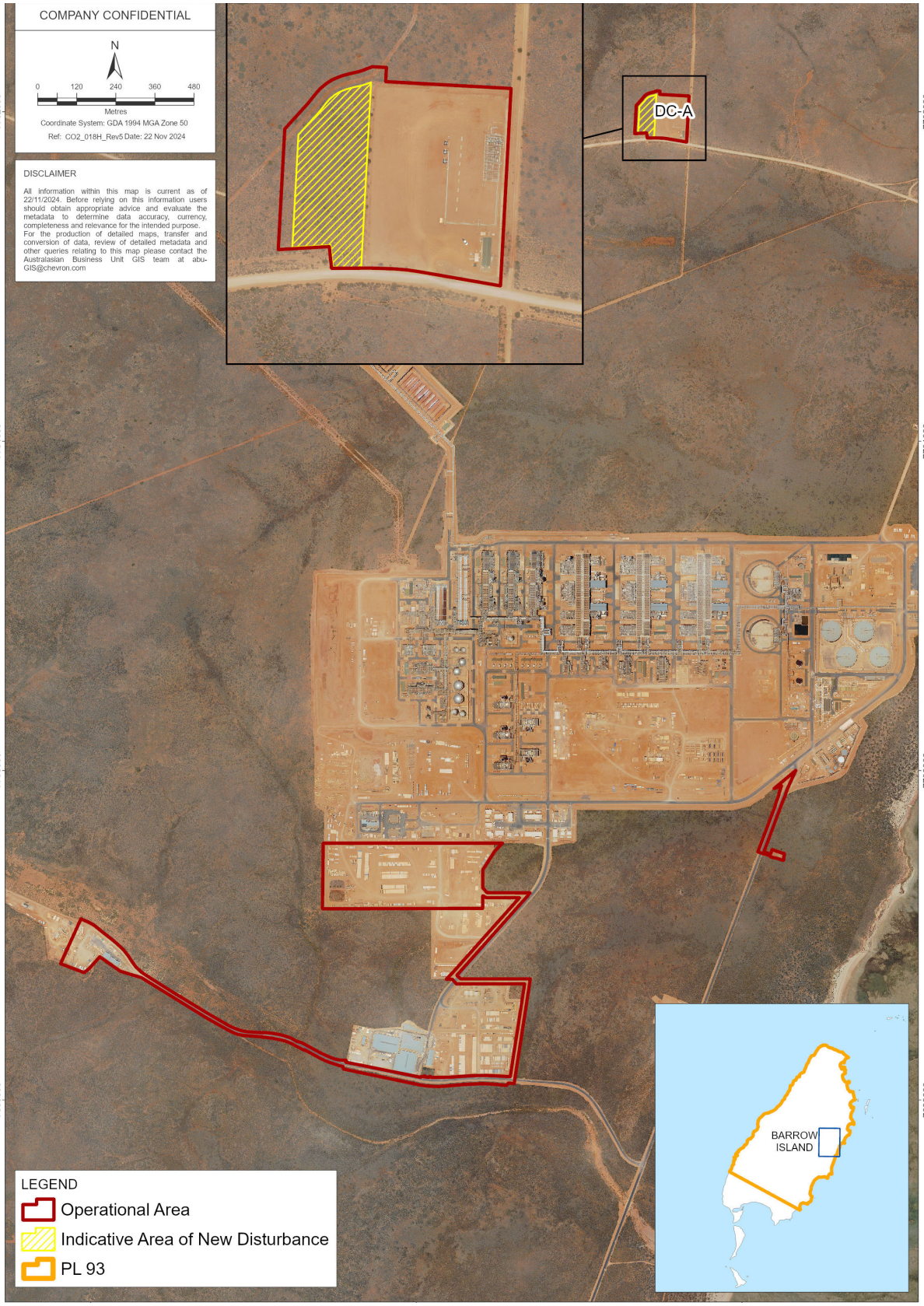


Figure 1-1: Operational Area

1.3 Scope

Under PL93 and the Petroleum Pipelines (Environment) Regulations 2012 (PP(E)R), the scope of the EP is limited to the petroleum activity as described in Section 2, which occurs within the Operational Area (as defined in Section 2.1.1).

The activities excluded from the scope of the EP are:

- transport of personnel, equipment and materials to/from the defined Operational Area
- commissioning, operation and maintenance of the installed CO_2 injection and pressure management facilities, addressed by the CO_2 Injection System Pipeline and Wells Operations Environment Management Plan (Ref. 1) and CO_2 Injection System Well Maintenance Environment Plan (Ref. 2) and including the temporary isolation of existing wells at DC-A to support the works at DC-A covered by the EP
- monitoring for environmental harm associated with construction and drilling activities at the CO_2 Injection System DCs. This activity is managed under the Terrestrial and Subterranean Monitoring Plan (Ref. 5) required under conditions of the EP Act (Ministerial Statement [MS] 800) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approvals
- rehabilitation of the Operational Area. Under MS 800 this activity is managed via the Post-Construction Rehabilitation Plan (Ref. 6) and the Project Site Rehabilitation Plan [yet to be developed], and requires consultation with the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)
- decommissioning of the CO_2 Injection System wells and infrastructure. Under MS 800, CAPL is required to prepare a Decommissioning and Closure Plan at least 4 years prior to the anticipated date of decommissioning and closure
- management of aspects that are addressed via project-wide management plans, systems and/or procedures approved under the EP Act and/or EPBC Act or EP Act Part V approvals, including quarantine, fire and wastes
- investigation and/or management of potentially contaminated soils and groundwater, which is undertaken in accordance with the *Contaminated Sites Act 2003* and relevant National Environment Protection Measure (NEPM) requirements.

1.4 Licence Holder and Operator Details

CAPL is nominated as the operator on behalf of the GJV title holders (Table 1-2) for Pipeline Licence PL 93, granted under the *Petroleum Pipelines Act 1969* (WA).

Table 1-2: Titleholder Details

Titles	Details	Titleholders	Operator	Address
PL 93	CO_2 Injection System Pipeline Licence Onshore	• Chevron Australia Pty Ltd • Shell Australia Pty Ltd • Mobil Australia Resources Company Pty Ltd • Midocean Gorgon Pty Ltd • Osaka Gas Gorgon Pty Ltd • JERA Gorgon Pty Ltd	Chevron Australia Pty Ltd	Level 2, 1 The Esplanade, Perth, WA, 6000

In accordance with the PP(E)R, contact details for the operator, CAPL, are listed in Table 1-3.

Table 1-3: Operator Contact Details

Company Name	Chevron Australia Pty Ltd
Position	Gorgon Operations Manager/Regulatory Affairs Advisor
Business Address	GPO Box S1580, Perth WA 6845
Telephone Number	08 9216 4139 (public contact number)
Email Address	feedback@chevron.com

1.5 Stakeholder Consultation

Regular consultation with relevant stakeholders has been undertaken by CAPL throughout the development of the environmental impact assessment management documentation for the Gorgon Gas Development and since the commencement of operations.

To meet the requirements of Regulation 15(9) and 17(1)(b) of the PP(E)R, this section describes how appropriate consultation has been undertaken between CAPL and relevant authorities, as well as other interested persons and organisations, referred to collectively as 'relevant stakeholders'. Regulation 4 of the PP(E)R defines 'environment' to include 'people and communities'. Consultation with relevant stakeholders is undertaken to inform an understanding of the environment, including (amongst other things) people and communities, places of cultural heritage value, and their social and cultural features which may be affected by a titleholder's proposed activities.

CAPL has and will continue to actively engage with relevant Traditional Owners regarding activities on Barrow Island including the identification, protection and management of Aboriginal Cultural Heritage values. In addition, heritage surveys and monitoring of work scopes will be conducted for activities that may affect these values, informed through ongoing consultation with Traditional Owners and in compliance with all applicable legislative requirements.

1.5.1 Stakeholder Identification

To identify relevant stakeholders, consideration is given to the activity type, location, environmental impacts and risks from both planned activities and unplanned events, and relevant stakeholder interests or concerns. The process undertaken by CAPL for the identification of relevant stakeholders includes an assessment of:

- the petroleum activity
- the environment in which the petroleum activity is being undertaken, including:
- environmental, socio-economic, and cultural values and sensitivities of the environment
- the spatial extent of the EMBA
- any intersection between the EMBA and BIAs
- the possible environmental impacts and risks of the petroleum activity and the possible consequences on the functions, interests, activities of relevant stakeholders

The process undertaken by CAPL for the identification of relevant stakeholders:

- identified what types of authorities, persons, or organisations may be relevant to the values and sensitivities present within the EMBA
- reviewed the functions, interests, or activities, including spiritual and cultural, of the types of organisations or individuals identified, and determined if the functions, interests, or activities of organisations or individuals may be affected by the petroleum activity through multiple lines of evidence, including:
- existing industry guidance e.g. DEMIRS Guideline (Ref. 48)
- CAPL's previous consultation history for Gorgon operations on Barrow Island
- advice from representative industry and/or community bodies, including Traditional Owners represented by Registered Native Title Body Corporates (RNTBC)
- online searches
- review of publicly available databases or registers (e.g. Native Title register).

The relevant stakeholders that were identified for this EP include:

- DBCA
- Department of Water and Environmental Regulation (DWER)
- DCCEEW
- DEMIRS
- Department of Planning, Lands and Heritage (DPLH)
- DJTSI
- Aboriginal peoples from two language groups with a cultural connection to Barrow Island, namely Thalanyji and Mardathoonera / Mardudhunera. CAPL has been engaging with the following organisations:
    - Buurabalayji Thalanyji Aboriginal Corporation (BTAC) – the Registered Native Title Body Corporate (RNTBC) which holds native title under the Thalanyji Determination (WCD2008/003) on trust for the native title holders of the Thalanyji people. CAPL has

executed a framework relationship agreement with BTAC that informs ongoing EP consultation.

- Wirrawandi Aboriginal Corporation (WAC) – the Registered Native Title Body Corporate (RNTBC) which holds native title under the Yaburara & Mardudhunera People Determination (WCD2018/006) on trust for the native title holders of the Mardudhunera people. CAPL has provided a draft EP consultation agreement to WAC for review.
- Mardathoonera Cultural Heritage (MCH) Pty Ltd was incorporated in 2024. MCH advise that they represent Mardathoonera cultural heritage interests on Barrow Island. MCH is not a Registered Native Title Body Corporate. CAPL has executed a consultation agreement with MCH which informs ongoing EP consultation.

1.5.2 Stakeholder Consultation Summary

Engagement undertaken with identified stakeholders during the preparation of the EP did not identify any significant concerns or issues. Further, during CAPL's program of relevant Traditional Owner engagement, including the identification, protection and management of Aboriginal Cultural Heritage values, no major concerns or issues have been raised to date regarding the activities within the scope of the EP.

Table 1-4 summarises the consultation undertaken, the issues raised by relevant stakeholders, and how these were addressed during the development of the EP.

Table 1-4: Consultation Summary

Stakeholder	Date	Summary of Consultation	Objections/Actions Raised	CAPL Response
DBCA	October 2024	**Meeting:** Meeting with DBCA (Environmental Management Branch, Barrow Island SROs) to provide a briefing on the scope of this EP.	No objections raised relating to the scope of the EP. CAPL offered to provide a copy of EP when finalised.	CAPL will provide the EP to DBCA on submission.
DWER	July 2023 to September 2024	**Email/Meetings**: Engagement with DWER EPA Services Unit regarding an EP Act Section 45C approval for the CO_2 Injection System additional optimisation works.	No objections raised relating to the scope of the EP. Section 45C approval was received on 28 September 2024.	
	November 2024	**Email:** Email to DWER EPA Services Unit providing an overview of the proposed works in the scope of this EP.	No objections raised relating to the scope of the EP.	
DCCEEW	April 2024	**Email:** Emails between CAPL and DCCEEW Environment Assessment Branch (West) outlining the scope of the optimization. CAPL requested meeting to present the proposed scope. DCCEEW confirmed meeting.	No objections raised relating to the scope of the EP.	
	May 2024	**Meeting:** Meeting with DCCEEW Environment Assessment Branch (West) to provide an overview of the CO_2 Injection System performance and plans to undertake works to optimize the system, including the scope of this EP submission.	No objections raised relating to the scope of the EP.	
	May - June 2024	**Email:** DCCEEW Environment Assessment Branch (West) confirmed no EPBC Act approvals would be required for the scope but recommended CAPL discuss the scope with the DCCEEW post approvals team.	No objections raised relating to the scope of the EP.	
	June 2024	**Meeting:** Meeting with DCCEEW Post Approvals Branch to provide an overview of the CO_2 Injection System performance and plans to improve the system, including the scope of this EP submission. CAPL and DCCEEW discussed the scope of existing environmental management plans and other approvals that will be in place to optimize the system, including the scope	No objections raised relating to the scope of the EP.	

Stakeholder	Date	Summary of Consultation	Objections/Actions Raised	CAPL Response
		of this EP submission. CAPL advised DCCEEW Post Approvals Branch that its assessment was that no changes to existing EMPs would be required. CAPL requested DCCEEW feedback.		
	July - November 2024	**Email:** Email correspondence between DCCEEW Post Approvals Branch and CAPL regarding clarifications on the optimisation scope/details, including: • project timeframes • rates/volumes of CO_2 injection, water extraction and water injection. • environmental surveys • management and disposal of wastes/contaminates • monitoring • status of EMPs.	No objections raised relating to the scope of the EP. Meeting scheduled to close out responses	CAPL provided responses to DCCEEW questions via email.
	November 2024	**Meeting:** Meeting with DCCEEW Post Approvals Branch to discuss additional queries raised by DCCEEW.	No objections raised relating to the scope of the EP. CAPL committed to provide responses in writing for DCCEEW to finalise consideration	CAPL has provided responses and will continue to liaise with DCCEEW Post Approvals Branch to seek their advice regarding EMPs.
DPLH	June 2024; October 2024	**Meeting:** Meeting to discuss the proposed land use / tenure requirements associated with the scope of this EP.	No objections raised relating to the scope of the EP.	CAPL will continue to keep DPLH informed on updates relevant to the CO2 injection system optimization scope through regular engagement.
DJTSI	Monthly / quarterly meetings	**Meeting:** Regular meetings with DJTSI to provide an update on the CO_2 injection system optimization, including the proposal to execute the scope contained in this EP. Regular meetings on proposed land use associated with the scope in this EP.	No objections raised relating to the scope of the EP.	CAPL will continue to keep DJTSI informed on updates relevant to the CO2 injection system optimization scope through regular engagement.
DEMIRS	Quarterly meetings	**Meeting:** Regular meetings with DEMIRS to provide an update on the CO_2 injection system optimization, including the proposal to execute the scope contained in this EP.	No objections raised relating to the scope of the EP.	CAPL will continue to keep DEMIRS informed on updates relevant to the CO2 injection system optimization scope through regular engagement.

Stakeholder	Date	Summary of Consultation	Objections/Actions Raised	CAPL Response
BTAC	July 2022	**Heritage Survey:** Cultural heritage survey with BTAC for previous CO_2 Injection System component DC-D and DC-E giving foundation in project understanding and awareness of general activity scopes.	No objections raised relating to the scope of the EP.	
	November 2023	**Heritage Survey:** Archaeological heritage survey of the project area with Traditional Owners and chosen consultants. No newly recorded heritage identified.	No objections raised relating to the scope of the EP. Requirements to undertake further heritage surveys in areas not previously surveyed or disturbed.	CAPL agree to conduct heritage surveys and engage with Traditional Owners where required.
	March 2024	**Meeting:** Heritage meeting to discuss cultural heritage surveys with CAPL, BTAC and their chosen consultants	No objections raised relating to the scope of the EP. Discussion on archaeological surveys. No comments on activity scope.	CAPL agreed to specify when requesting either heritage survey or consultation scopes.
	July 2024 October 2024	**Monthly Communication update:** CAPL requested opportunity for consultation with BTAC board regarding scope of the EP (repeated request in August - October monthly communications) BTAC agreed to request for consultation with BTAC board regarding scope of the EP	No objections raised relating to the scope of the EP.	Consultation with BTAC board in November 2024
	November 2024	**BTAC Board Consultation:** Meeting between CAPL and BTAC board to discuss upcoming CAPL projects. CAPL provided a briefing on the scope of this EP and an overview of the CO_2 Injection System on Barrow Island.	No objections raised relating to the scope of the EP.	
WAC	August 2024	**Meeting:** Virtual meeting between CAPL and WAC Board to discuss EP consultation. CAPL requested further opportunity to consult with WAC board on CAPL EPs relating to Barrow Island. WAC expressed interested in being consulted on EPs relating to Barrow Island. Discussion on developing consultation agreement.	No objections raised relating to the scope of the EP.	
	August 2024	**Phone Call:** CAPL spoke with WAC representatives over the phone requesting opportunity to consult with the WAC board on EP.	CAPL requested opportunity to consult on upcoming EPs.	
	September 2024	**Email:** CAPL requested opportunity to consult on the EP		

Stakeholder	Date	Summary of Consultation	Objections/Actions Raised	CAPL Response
	October 2024	**Email:** CAPL requested opportunity to consult on the EP. WAC provided rates schedule for consultation.	No objections raised relating to the scope of the EP.	
	November 2024	**Email:** Email from CAPL to WAC requesting opportunity to consult on EP and provided a draft consultation agreement		
MCH	July 2024	**Meeting:** Monthly meetings between MCH and CAPL. Requested opportunity to consult on EP. Discussion on September heritage survey of DC-A.	No objections raised relating to the scope of the EP.	
	July 2024	**Email:** Email from CAPL providing heritage field survey guidebook to MCH to support preparation for upcoming survey.		
	July 2024	**Email:** Email from CAPL to MCH to propose consultation opportunity in late August and heritage survey in September.		
	August 2024	**Meeting:** Monthly meeting between CAPL and MCH. Finalized topics for upcoming consultation and discussed heritage survey logistics.	No objections raised relating to the scope of the EP.	
	August 2024	**Meeting:** CAPL consulted with MCH on EP and provides presentation on the Gorgon CO_2 Injection System.	No objections raised relating to the scope of the EP. MCH raised concerns about climate change, earthquakes.	CAPL provided responses to MCH questions during the meeting.

Stakeholder	Date	Summary of Consultation	Objections/Actions Raised	CAPL Response
	September 2024	**Heritage Survey:** MCH and their chosen consultants survey project area. No newly recorded heritage identified.	No objections raised relating to the scope of the EP. MCH requested: • CAPL stop work and notify them in case of discovery of cultural heritage sites or artefacts. • MCH undertake heritage monitoring during clearing activities. • If required, undertake further heritage surveys in areas not previously surveyed or disturbed.	CAPL agreed to: • Notify MCH upon discovery of inadvertent cultural heritage sites or artefacts (refer to Section 4). • Subject to outcomes of ongoing consultation, monitoring by relevant Traditional Owners will be offered for activities that may harm cultural heritage values (refer to Section 4). • Conduct heritage surveys and engage with Traditional Owners where required.

1.5.3 Ongoing Consultation

Through a process of co-design with relevant stakeholders, CAPL regularly consults on an in-person basis, as well as by written correspondence, providing access to project teams to ensure that relevant stakeholders are informed about the nature of the activity. Materials are developed to suit the comprehension level of the relevant stakeholder to maximise fluency and understanding and where possible, graphic information is developed to aid understanding.

Stakeholder engagement is applied using a risk-based approach to assist in identifying what issues will need to be addressed on an ongoing basis, as well as the style and frequency of that engagement with relevant stakeholders through the project lifecycle.

In accordance with this approach, CAPL will continue to provide updates and engage with relevant stakeholders regarding the activity within the scope of the EP.

A Communications Protocol has been established between DBCA and CAPL formalising communication arrangements, ensuring DBCA are kept informed of Gorgon activities, including CO_2 Project related activities.

Consultation, heritage surveys and monitoring programs with Traditional Owners from language groups with a cultural connection to Barrow Island will continue in an ongoing manner as part of the cultural heritage management system and executed consultation agreements.

DCCEEW and DWER continue to receive regular updates on Gorgon status and environmental performance, including CO_2 related activities, via existing regulatory defined avenues such as annual performance reporting, annual compliance reporting and incident notifications.

Other relevant stakeholders are consulted as part of regular engagements, such as the quarterly meetings with DJTSI and DEMIRS regarding CO2 system optimisation, or on an as-required basis.

2 Description of the Activity

To meet the requirements of Division 3, Regulation 14(1) of the PP(E)R, *Description of the Activity*, the EP describes the petroleum activities associated with the construction and drilling activities at DC-A and DC-F, specifically:

- Construction activities (Section 2.2) to expand the existing DC-A and establish DC-F prior to drilling, and to subsequently install associated well-site facilities and utilities
- Drilling operations required to install the additional CO_2 injection wells at DC-A and the new water production and injection wells at DC-F (Section 2.3)
- Well completions including active sand removal (Section 2.3.5)
- Demobilisation and site reinstatement (Section 2.4).

2.1 Activity Overview

Injection of CO_2 into the Dupuy Formation occurs by means of injection wells at three injection DCs; DC-A, DC-B and DC-C. Pressure within the Dupuy Formation is managed via pressure management wells located at DC-D and DC-E where formation fluids are extracted via water production wells, and then injected (following treatment) into the overlying Upper Barrow Group via water injection wells.

Since commencement of CO_2 injection in August 2019, more than ten million tonnes of greenhouse gas have been injected which has contributed significant abatement on a national and global scale. However, early operational performance data has indicated that additional infrastructure will be required to support long term CO_2 injection operations and improve CO_2 injection rates.

To optimise the performance of the existing CO_2 injection system, CAPL proposes to install additional CO_2 injection wells at an existing injection DC (DC-A) and establish a new pressure management DC (DC-F) on previously cleared land adjacent to the GGTP. The Activity will involve drilling a total of five pressure management wells and up to two additional CO_2 injection wells, construction of associated facilities at each DC and supporting infrastructure. The works have been approved as a non-significant amendment to the Gorgon Project under the *Environmental Protection Act 1986* (EP Act).

2.1.1 Operational Area

The Operational Area (Figure 1-1) for the purposes of the petroleum activity as defined by the EP comprises the two DC sites, the CP sites and the cabling route that extends along existing road/infrastructure corridors within Gorgon tenure between the CP sites and DC-F. Note that the Operational Area as shown in Figure 1-1 provides for flexibility in the siting of CP infrastructure which is still to be finalised, and is therefore larger than the area within which activities will actually occur.

Section 3 describes the environmental values and sensitivities associated with the Operational Area.

2.1.2 Drilling Rig

The drilling rig for the campaign is the Ensign Rig 963 Automated Drilling Rig (ADR), the same rig used for drilling of the existing CO_2 system wells and currently

on Barrow Island undertaking works at DC-D and DC-E. Among the key characteristics of this ADR are a series of drilling fluid storage tanks, including a 62 m^3 brine tank, 73 m^3 reserve tank and 73 m^3 suction tank. The total rig transfer tank volume is 27 m^3, including a 7 m^3 transfer tank, 10 m^3 shaker tank and 8 m^3 trip tank. All tanks are skid-mounted to facilitate movement between drill locations.

To support the drilling rig, a series of fluid holding tanks will be located on site. This is expected to include two ~159 m3 water tanks to provide sufficient capacity to support freshwater drilling of the conductor section and brine for gravel pack completions, and ~10 units that can accommodate up to 29.5m^3 each of other approved fluid mixtures that may be used during drilling and completion activities.

Diesel storage on location is expected to involve multiple tanks, with a maximum volume held in any one tank of ~67 m^3. All fuel storage will have secondary containment.

In addition to this drilling rig, it is likely that other well service units, such as workover rig(s), coil tubing unit(s) and/or slickline unit(s), may be used to run upper completion equipment post drilling rig operations and/or to support other downhole works, such as to prepare wells for service and install / remove downhole mechanical barriers pre and post the drilling rig arrival on site.

2.1.3 Timing

The proposed construction and drilling works are expected to require ~4-5 years to complete, subject to final scheduling detail, weather and operational constraints.

Site preparation works are expected to commence soon after all required approvals are received, currently anticipated to be around Q2/3-2025, and to take approximately 10 months in total.

Drilling and completion activities are estimated to take in the order of 18 months in total at the two DCs.

It is currently anticipated that establishing the permanent facilities will involve ~20 months of construction work at DC-F and ~two months at DC-A.

Construction and site preparation works are planned to be predominantly limited to dayshift hours (generally between 0600 and 1800 hrs), whereas drilling and completions activities will be undertaken 24 hrs/day. Requirements for construction nightshift works are also likely to occur from time to time.

2.2 Construction Activities

Construction activities are required to prepare the sites and to establish temporary and permanent facilities. The preparatory works to facilitate commencement of drilling activities include cut and fill earthworks to expand the existing cleared area at DC-A and to provide a suitable area at DC-F for drilling and subsequent installation of facilities.

A range of vehicles and equipment either already on the island or mobilised specifically from the mainland will be used to support the campaign, such as:

- lifting equipment such as cranes, forklifts and telehandlers
- construction plant such as rock crusher, trenching machine, surface miner, graders, dozers, excavators, water carts and trucks etc
- vacuum and fuel trucks, light vehicles and mini-buses.

2.2.1 Mobilisation, Transport and Logistics

Transport of equipment, materials and personnel to Barrow Island and to the Operational Area is to be via previously established supply and logistics pathways and outside the scope of this petroleum activity. Once on island, equipment, materials and personnel are transported via the existing road network and/or designated routes within existing facility sites (e.g. GGTP). Bulk freight and equipment mobilised specifically for the Activity are to be transported from the quarantine clearance area direct to the Operational Area where practicable. Where this is not practicable it is transported to designated laydown and / or staging areas in existing cleared areas.

Personnel are to travel to site and within the Operational Area in light vehicles or mini-bus using existing roads and/or previously cleared routes. No clearing to establish new roads/tracks is required.

2.2.2 Clearing and Earthworks

2.2.2.1 Site Preparation

Site preparation activities to expand the existing cleared site at DC-A will commence with surveying and pegging of the disturbance footprint, followed by the mechanical clearing of vegetation, topsoil stripping and stockpiling. Clearing of up to ~0.7ha of currently uncleared land abutting the existing cleared DC may be required, although the expected disturbance is less (Figure 1-1). This clearing is encompassed within the previous assessments of total area of uncleared land used for the approved Gorgon Gas Development and falls within the 332ha of ‘uncleared land’ limit imposed under the Barrow Island Act. Investigations to confirm ground conditions may be required and are currently expected to involve up to ~7 shallow (up to ~3 m depth) geotechnical test pits.

DC-F and associated WTPF will be situated within cleared land adjacent to the GGTP, therefore no further clearing will be required at this location. Geotechnical and/or other ground investigations may need to be completed over the DC-F drilling and facilities areas and could include several shallow test pits.

All clearing activities will be done in accordance with internal ground and vegetation disturbance procedures, internal heritage management procedures, MS 800 requirements and other regulatory approval requirements. Cleared topsoil, if recoverable, will be collected and stockpiled for use in future rehabilitation in accordance with the Post-Construction Rehabilitation Plan (Ref. 6), or as otherwise required based on the results of soil contamination assessments (outside scope of the EP). Vegetation will be removed for use and/or disposal/treatment offsite.

Cut and fill earthworks will be undertaken to provide a level surface of required elevation at each DC. Preliminary designs suggest that DC-A may satisfy its own fill requirements from on-site excavated soil, but DC-F is likely to require some imported fill. If/where additional fill is required at either DC, this may be sourced from local Barrow Island materials and/or QMS compliant mainland quarried materials. Once required elevations have been established, compaction will be undertaken to achieve required specifications.

Laydown and/or staging area(s) may be established within the cleared land adjacent to the GGTP and/or the existing DC-A. If additional equipment/materials laydown or staging areas are required, they are to be located on previously cleared areas elsewhere within Gorgon tenure on Barrow Island. Any areas where

fuels and other chemicals are to be stored will have appropriate bunding if self-contained storage facilities are not used.

Site preparation activities are anticipated to be primarily dayshift (ie 12 hrs/day), but may occur on a 24 hr/day, seven day/week basis.

2.2.2.2 Excavations and Drainage

Excavations will be required at DC-F for new well cellars (including a spare well cellar for each well type), foundations, cathodic protection (CP) cabling and for tie ins (drainage, power cables, firewater, etc) of the WTPF to the GGTP facilities. These are expected to be up to ~7 m x 7 m and ~4 m deep, typically with minimum batter. Spoil from excavations may be removed for storage at other locations within the current approved Gorgon footprint or existing cleared land on Barrow Island, or stockpiled for use to cover any excavations. If required, the WTPF may tie into the existing Class I, II & III drainage system connected to the existing Gorgon Gas Development infrastructure to manage surface water intercepted within this area.

At DC-A, earthworks involve a drill pad extension (embankment) and excavations within the drill pad footprint to install the new well cellars (including one spare well cellar), foundations, and cabling. Excavations may be in the order of 7 m deep in the extension area.

The finished profile of the drill pads will be designed with appropriate elevations and/or surface treatments and infrastructure to manage stormwater drainage. Surface water management will be consistent with the specifications outlined in the Terrestrial and Subterranean Environment Protection Plan (TSEPP) (Ref. 13).

The majority of excavation is expected to be undertaken by mechanical means, such as via surface miner, excavator, backhoe or front-end loader. A surface miner and/or excavator with rock breaker is likely be used in areas of higher rock strength. Due to space limitations, excavation spoil may be removed from the Operational Area for storage at other locations within the current approved Gorgon footprint on Barrow Island.

2.2.3 Establishment of Temporary Facilities

Subject to detailed planning, the drilling and construction activities are expected to require these temporary facilities:

- office administration and welfare facilities, such as such as offices, crib rooms, communications, site amenities etc
- diesel-driven mobile plant for power and light generation
- drilling spread including rig, power packs, control rooms, pumps, and cuttings/mud processing units
- storage areas including water storage, spares containers, skips, drilling fluids, and diesel
- maintenance and fabrication areas including workshops.

Temporary facilities will be established on hardstand (compacted sub-base) areas at each DC. Where suitable hardstand is not already available, it will be prepared using locally (Barrow Island) or mainland sourced materials subject to the requirements of the QMS (Section 2.2.2). In areas where fuels and other chemicals are to be stored, appropriate bunding will be in place if self-contained storage facilities are not used.

Personnel will travel daily to site from the existing Barrow Island accommodation facilities. No accommodation facilities will be constructed as part of the Activity covered by this EP.

2.2.4 CP Infrastructure

The additional wells at DC-F will require CP infrastructure to prevent corrosion. This will include establishment of shallow anode wells and cabling that extends from the anode wells to DC-F installed below ground within existing road and/or infrastructure corridors. All CP infrastructure is to be sited within previously cleared Gorgon tenure. The shallow anode wells will be installed using a small mobile drilling unit, expected to be the unit currently stationed on Barrow Island, and using the same drilling techniques used to install groundwater and subterranean fauna monitoring bores which typically involves rotary air blast (RAB) drilling.

The cables will be buried (trenched) to a depth of ~ 1.15 m in a trench nominally ~0.7–0.95 m wide. Following cable lay into each section of trench, the trench will be backfilled. Surplus trench spoil is to be used to cover the trench, including a crown to allow for settling, or stored offsite within tenure.

At DC-A, the existing CP system will be upgraded by the addition of two Transformer Rectifier Units (TRU) within a new TRU cabinet, connected to the new wells by buried cables within the DC. The second of the two existing ground beds (anode wells) serving DC-A will be brought online to ensure sufficient CP capacity for the new injection wells, which may require refurbishment of wiring, anodes and/or conducting materials within the ground bed etc as necessary.

All construction works for the CP infrastructure installation will be contained within previously cleared areas.

2.2.5 Installation of Permanent DC Facilities

Permanent surface infrastructure/facilities will be installed at each DC following completion of associated prerequisite works, such as foundations and/or (at DC-F) the subsurface drainage system (e.g. sumps) as required.

Foundations comprising imported pre-cast and/or in-situ poured concrete will be constructed and electrical, including earthing, infrastructure installed. To minimise land requirements, most permanent facilities will be pre-assembled offsite. However, some facilities will require on-site fabrication works and/or non-destructive testing (NDT) including hydrotesting.

At DC-F, water treatment facilities to ensure injection water quality meets required specifications will be established on existing cleared (compacted sub-base) hardstand adjacent to the GGTP. The key components of the facilities include:

- instrumented over pressure protection system
- primary liquids (water / oil) and gas separator
- hydrocyclones for de-sanding and de-oiling
- degassing and vapour handling
- cartridge filter for fine filtration and coalescer for fine oil separation
- booster pumps and reinjection pump for reinjection of gas and water
- oil collection facilities and facilities for oil removal for disposal
- utilities (instrument air, nitrogen generation) to support above facilities

- safety vent system.

Utilities and services, such as for firewater, drains, nitrogen, air, power, lighting and communications will be installed and may be tied into / from GGTP systems as appropriate. New grounding (shallow earthing wells) will be installed using the same methodology as per the existing earthing wells in the GGTP site and elsewhere. Figure 2-3 presents the indicative facilities layout at DC-F.

All treatment facilities will be installed within the DC hardstand and will incorporate appropriate bunding and drainage design consistent with the approved surface water management systems for the Gorgon Project (Ref. 13), including HDPE lined reinforced concrete sumps to capture potentially contaminated (ie Class 1 and 2) drainage. Subject to detailed drainage design, these are expected to include a knock-out drum pit and a Class 1 drainage sump. Areas of concrete pavement may be established within the hardstand area that houses the water production/injection and treatment facilities. Heavy vehicle traffic areas within the DC may be bitumised, chipsealed or otherwise completed to avoid erosion and maintain ongoing safe access.

At DC-A, the following infrastructure will be constructed to support the additional CO_2 injection wells:

- pipe track and piping from the chokes on the preassembly to the Christmas trees (one per well).
- thermal relief valves if required (one per well).
- isolation valves, pressurisation system and tie-in from DC manifold to new choke module/preassembly (one per well).
- well choke preassembly including choke and flow meter (one per well).
- vent line from well flow lines to new vent stacks (one per well).
- instrumentation - pressure, temperature, corrosion etc. (per well).
- extension of hydraulic system for valve actuation.

Figure 2-4 presents the indicative facilities layout at DC-A. The new wells are to be located on an extension on the western side of the DC-A drill pad (shown in yellow in Figure 2-4). The flowlines for the new wells are expected to be routed aboveground. Some new foundations will be established for the pipe racks.

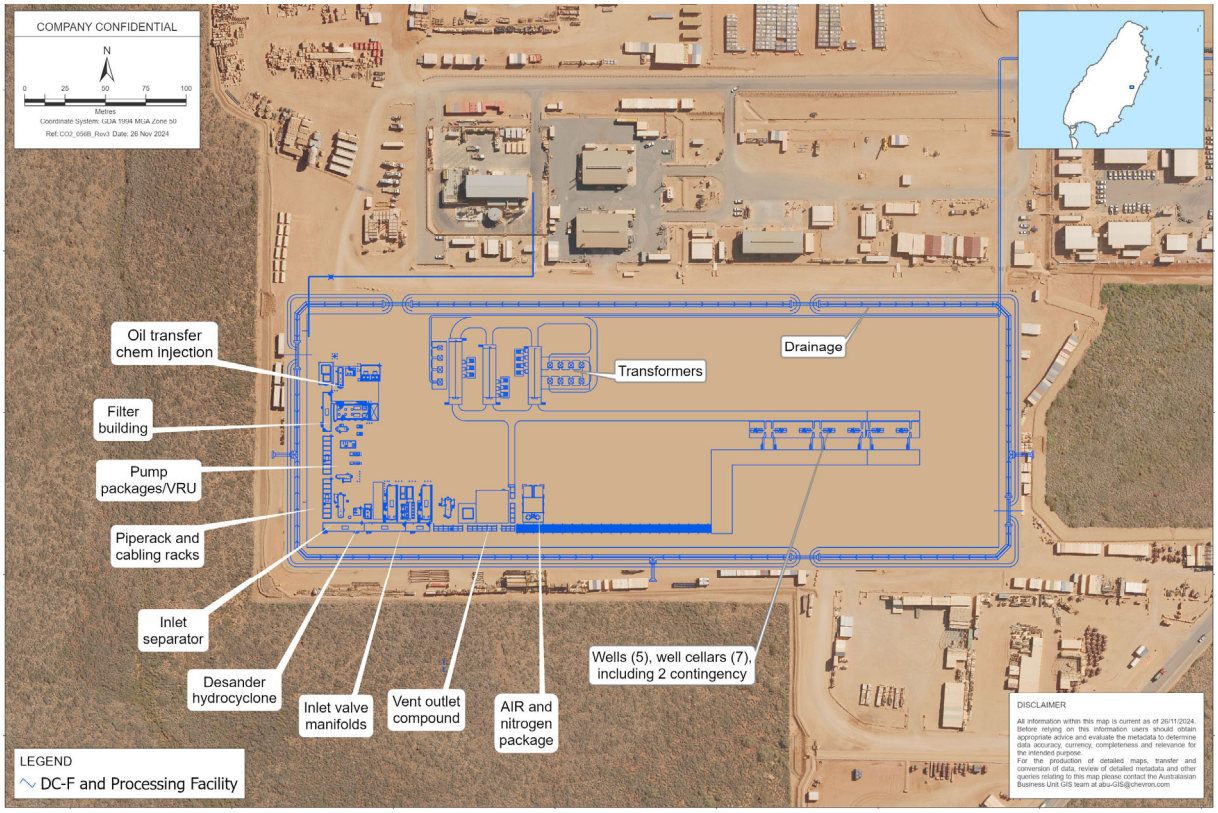


Figure 2-1: Indicative Facilities Layout at DC-F

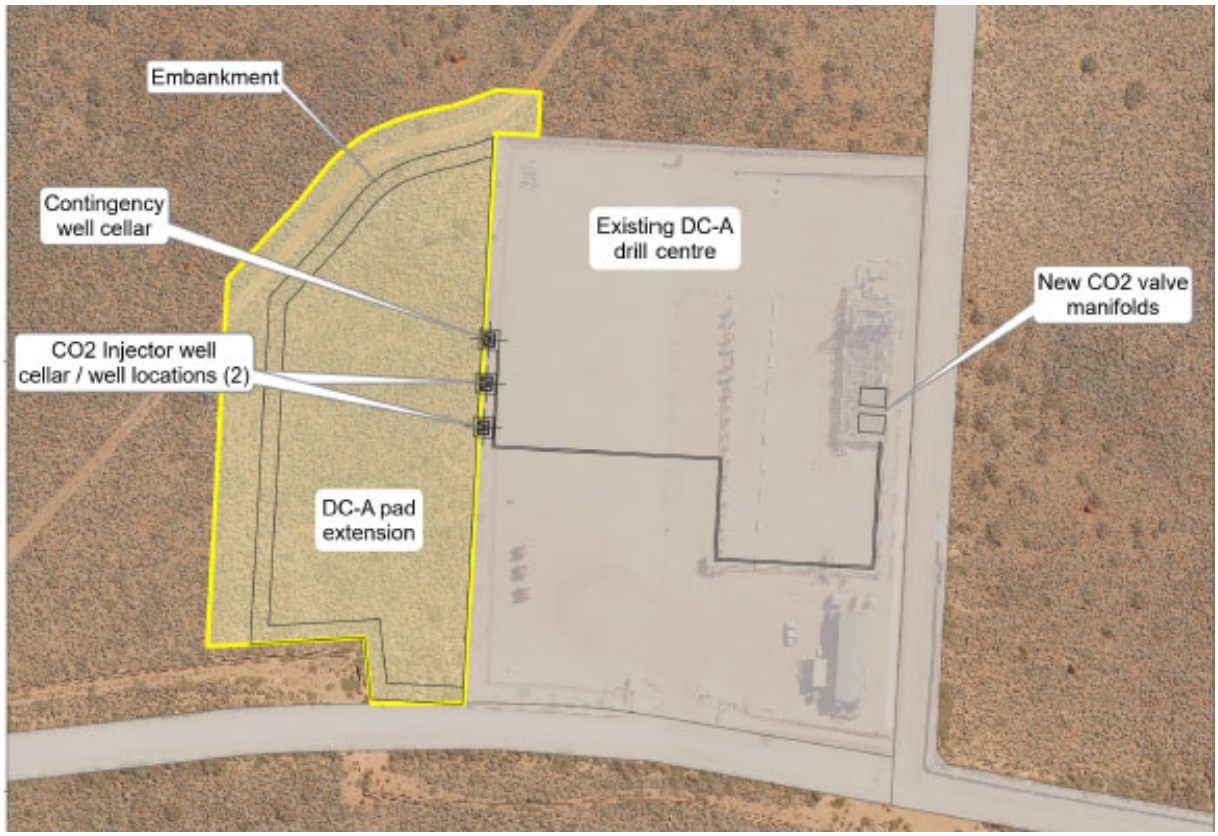


Figure 2-2: Indicative Facilities Layout at DC-A

2.3 Drilling Operations

Drilling operations are required to install the new pressure management wells at DC-F and new CO_2 injection wells at DC-A. Prior to drilling into the reservoir at DC-A, the existing wells will have been temporarily isolated and plugged (outside scope of the EP, see Section 1.3). Figure 2-3 and Figure 2-4 show the expected drilling rig layout at DC-F and DC-A, respectively.

The drilling operations required for each type of well are broadly similar and involve:

- drilling and well construction
- drilling fluid and cuttings management
- cementing
- formation evaluation
- completion installation
- well suspension (if required).

A range of chemicals are used to support drilling operations. In accordance with the *Chemical Disclosure Guideline* (Ref. 20), a list of expected chemicals, including contingency substances, that may be used 'down hole' is disclosed in Appendix A. All chemicals proposed have been subject to assessment by CAPL prior to approval for use in accordance with the ABU Hazardous Materials Management Procedure (Ref. 49) and including application of ChemAlert, CAPL's chemical management system. The assessment includes but is not limited to:

- hazardous / dangerous good status
- product toxicity
- biodegradability
- environmental risk.

There are no public premises or other human health 'sensitive receptors' as defined in the *Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline* (Ref. 21) that may be exposed to chemicals used in the Operational Area. The proposed well design and drilling fluids management (Section 2.3.2), including use of freshwater and sweeps prior to installation of conductor below the base of the freshwater lens, limits potential exposure of sensitive environmental receptors (i.e. groundwater and subterranean fauna) to chemicals. An assessment of risk consistent with Ref. 21 indicates the proposed product usage described below and in Appendix B will not result in significant impacts or pose an unacceptable risk of impact to the environment.

2.3.1 Drilling and Well Construction

Drilling is expected to involve the following different well types and associated well designs:

- **Water Injection Wells**: The 2 new water injection wells at DC-F will be drilled to target depths of ~1825 mTVDSS. The wells will have stand-alone screen lower completion.
- **Water Production Wells**. The 3 new water production wells at DC-F will be drilled to target depths of ~2595 mTVDSS. The wells will have alternate path (shunted) gravel pack lower completions.

- **CO_2 Injection Wells**. The 2 new CO_2 injection wells at DC-A will be drilled to target depths of ~2615 mTVDSS. The wells will have a cased and perforated lower completion.

Pending further well design refinement, indicative well schematics are presented in Figure 2-5. The wells may be installed to TD sequentially on each DC or via a 'batching' approach where drilling to a selected depth/section(s) is undertaken across a batch of wells on one or both DCs with the rig then returning to complete the remaining hole depth/section(s) across the wells. Should operations on a well need to be suspended, due to planned batch sequencing or an unplanned issue encountered during drilling of a well, the well will be isolated as described in Section 2.3.6. The final well design parameters will be captured in a planned variation to the PL93 licence.

2.3.1.1 Well Control During Drilling

The drilling program involves target formations for each well type in similar rock strata as the existing wells of the same type, and consequently likely subsurface conditions are well understood. The wells have been designed and will be drilled with well control systems capable of managing all downhole pore pressures expected to be encountered, as described in the DEMIRS approved Application for Approval to Drill/Complete Wells submitted in accordance with PL93.

The primary method of well control comprises sufficient density of drilling fluids to maintain a pressure differential (overbalance) between the well and pore pressures in the rock, thereby preventing any formation fluid influx to the well bore. This is constantly monitored via:

- measuring fluid density and properties of the return cuttings
- measuring hydrocarbon gas levels within the drilling fluids
- changes in fluid volume within the mud tanks (alarmed)
- fluid-flow checks at significant drilling events (such as sudden increase in rate of penetration).

Supplies to build weighted drilling fluids will be retained onsite. The well control system provided by the drilling contractor includes a Blowout Preventer (BOP), a choke and kill manifold and mud gas separator all attached to the well head. An enclosed (box) flare connects to the mud gas separator vent line to provide for contingency disposal of gas if required.

In the highly unlikely event that drilling fluid weight is insufficient to prevent an influx of formation fluids, the surface BOP is activated in accordance with the *Well Control Requirements Standard Operating Procedure* (ID: ABU-DCM-ST102007). The BOP is designed to isolate and seal the well by providing a mechanical means of pressure control at the wellhead, thus allowing wellbore pressure to be managed while displacing the well to a higher density fluid to re-establish the required downhole pressure differential.

Should any formation fluids be subsequently produced to surface rig facilities, they will be separated via the mud gas separator and are managed as follows:

- gas will be routed to the box flare and burnt
- oil will be extracted by vacuum tanker and directed to existing production separation facilities or shipped off Barrow Island in ISO tanks

- if formation water is separated from the drilling fluid system, it will be disposed down the existing wastewater disposal wells via the dewatering facility (Section 2.3.2.1) or shipped off Barrow Island in ISO tanks.

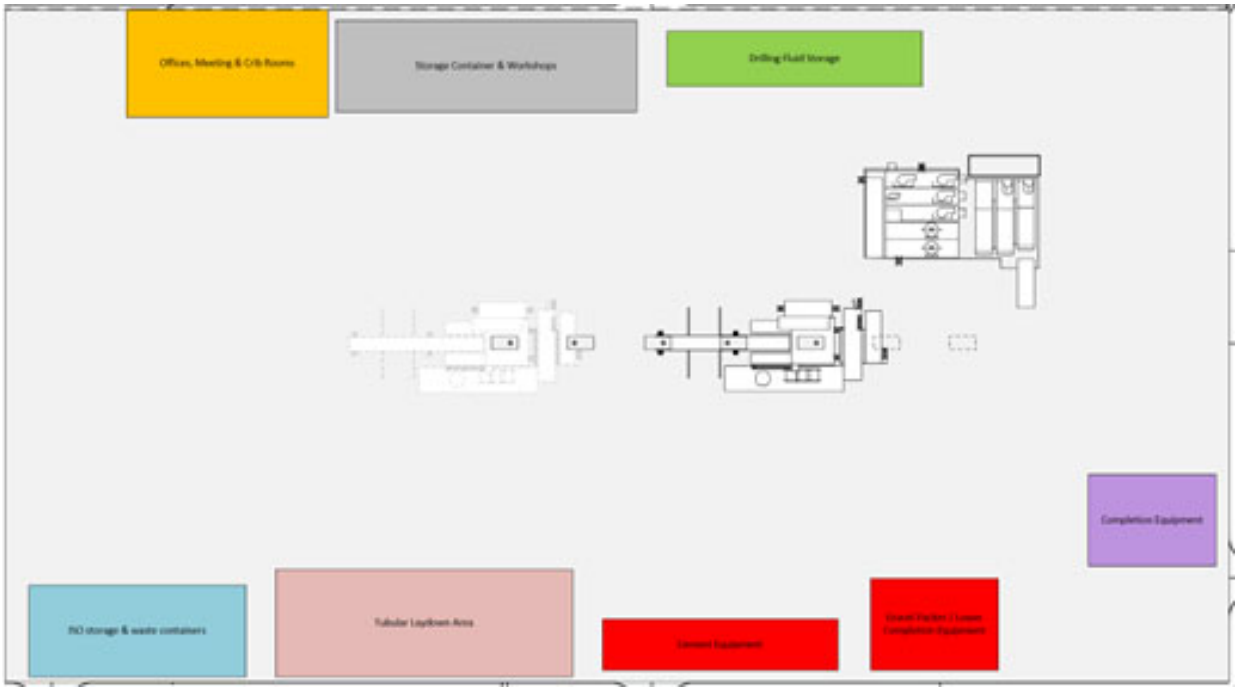


Figure 2-3: Expected Drilling Layout at DC-F

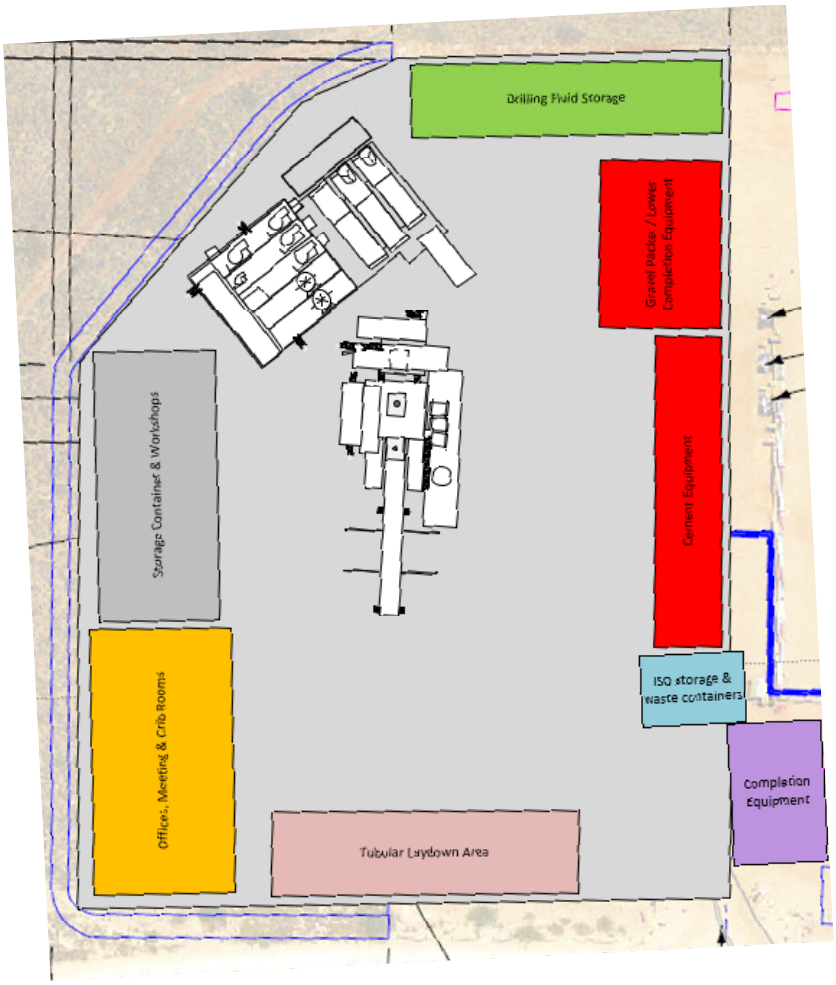


Figure 2-4: Expected Drilling Layout at DC-A

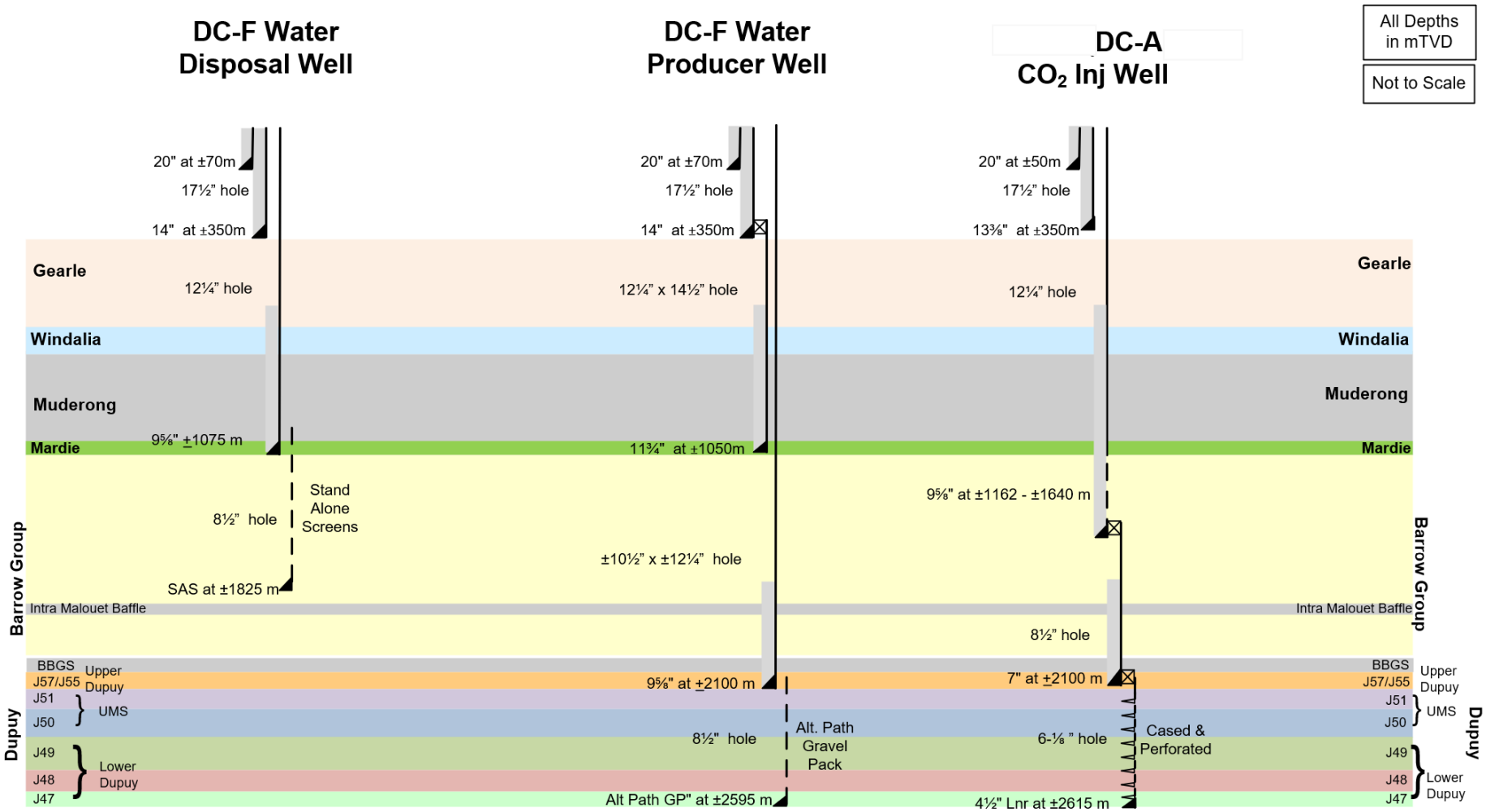


Figure 2-5: Indicative Well Design Schematics

2.3.2 Drilling Fluid and Cuttings Management

A water-based drilling fluid system is to be used to optimise environmental performance, consistent with previous drilling programs on Barrow Island.

Drilling of the top-hole section will predominantly be undertaken using freshwater and viscous sweeps (pre-hydrated bentonite and/or xanthan gum) to a minimum of ~5 m beyond the base of the estimated extent of the freshwater lens. The water used for drilling this section is expected to be sourced primarily from the Reverse Osmosis (RO) facilities on Barrow Island but may be imported from the mainland if insufficient RO water is available to meet drilling demands. The depth of the top-hole section is to be specific to each well. At this point the conductor casing will be set.

From the base of the conductor section, a water and potassium chloride (KCl) / polymer based drilling fluid will be used to drill the surface section, with a KCl based high performance water-based mud (HPWBM) system used for the intermediate section. A KCl / sodium chloride (NaCl, where required) / sodium bromide (NaBr, where required) based reservoir drill-in fluid (RDIF) will be used for the reservoir sections. Brine type used will depend on the mud weight requirements for each well necessary to optimise mechanical wellbore stability. Barite or calcium carbonate will be used as a weighting material, where required. Chemical disclosure for drilling fluids is provided in Appendix A.

Recycling of drilling fluids is likely to occur over multiple wells. To ensure the integrity and ongoing performance of recycled drilling fluid, a readily biodegradable biocide (such as glutaraldehyde) will be used to inhibit bacterial growth. Once the recycled drilling fluids become unusable, they will be disposed via existing approved processes (Section 2.3.2.1).

During the drilling activities, and prior to final disposal, drilling fluids and drill cuttings are subject to a separation process. The fluid / cuttings mixture circulated from the well via the annulus is passed over the shale shakers to remove cuttings. From the shakers, the separated cuttings are fed to the secondary separation/ drying process (e.g. secondary drying shale shaker, centrifuge or Advance Fluid Recovery System). The separated drilling fluid is returned to the mud tanks for down-hole recirculation, while the cuttings with residual drilling fluids adhered are removed from the mud system for disposal. Cuttings generated during the program are likely to comprise predominantly limestone, shale and sandstone.

The subsequent handling and disposal of drill cuttings (and residual/spent drilling fluids) will be managed in accordance with the approved SLWMP. Approved handling and disposal options include reuse on-island, skip and ship and / or bulk transfer off-island.

2.3.2.1 Dewatering Facility / Drilling Fluid Disposal

Consistent with the approach employed during drilling of the existing CO_2 system wells, a temporary dewatering facility (DWF) will be utilised to separate solids and liquids in the waste drilling fluids, enabling efficient disposal of the two waste streams. Construction and operation of the facility is managed under an EP Act Part V works approval (W6772) and is not within the scope of this EP.

After treatment in the DWF, clarified liquids may be reused at the drill site in drilling fluids, or disposed via the existing Gorgon wastewater disposal wells in accordance with the Gorgon EP Act Part V Licence (L9102) and the associated

SLWMP. Testing of clarified liquids is undertaken to ensure water quality meets the parameters required by L9102.

The 'wet' solids separated from the injected liquids at the DWF may be re-used or shipped off-island for appropriate disposal at a suitably licensed facility. Further treatment to reduce water content prior to re-use or disposal may be undertaken in an evaporation facility on Barrow Island. As the F54 evaporation facility used during the initial CO_2 wells drilling program is no longer operational, this will require an impermeable (ie HDPE lined) and appropriately designed temporary facility to be established on Gorgon tenure. It is currently anticipated that the evaporation facility would be constructed near DC-F on existing cleared land next to the GGTP. Construction and operation of the facility will be managed under an EP Act Part V works approval and/or Licence amendment and is not within the scope of this EP.

All handling and disposal of recovered solids (and residual fluids) will be managed in accordance with the approved SLWMP. It is expected this will involve transport to the mainland in sealed (lined) 'half-heights' with sampling to confirm appropriate disposal facility licensing requirements.

2.3.2.2 Drilling Fluid Losses During Drilling

It is likely that drilling will encounter subterranean karst formations. If this occurs, drilling fluids and cuttings will be lost during drilling through the vugular/cavernous "lost circulation zone" and cannot be recovered or recycled. The potential for downhole losses to affect the subterranean environment has been reduced through the well design and drilling fluids selection.

Drilling fluid losses will be minimised by casing the well after drilling has reached the expected base of the freshwater lens. The casing will be cemented in place to seal the annulus to prevent the fluids from the lower sections of the well escaping up the annulus and into the vugular/cavernous areas. A small volume of cement may extrude into the karst zone during this process.

The conductor section will be drilled with freshwater and non-toxic viscous sweeps which are considered unlikely to directly impact subterranean fauna or to have persistent effects on subterranean fauna habitat, including groundwater.

2.3.3 Cementing

Cementing of the well casing is undertaken for a variety of functions including, where applicable; well integrity and blowout prevention, support and protection of the casing from corrosion, protection from formation stresses and the prevention of fluid migration to formation and water bearing zones (and subterranean fauna habitat).

Dry cement is stored at the DCs in sealed bulk storage trailers and transferred to the mixer unit via a hose to be combined with fresh water to form a slurry. The slurry is then transferred directly from the mixer unit via a treating line to a cementing head located at the rig floor then directly down-hole into the casing. The cement slurry is displaced out of the casing/liner into the annulus (filling the space between the casing and formation). Due to the complexity of the wells, several cement compositions will be required. The bismuth alloy based BiSN system may also be used as an alternative to cement. BiSN is an alloy delivered in a solid state into the well and melted in situ. When transitioning from liquid to solid state, it expands to form a permanent barrier. Chemical disclosure for 'cementing'

chemicals and contingency substances, including BiSN, that may be used in the composition, is provided in Appendix A.

Excess cement slurry and washdown wastes will be transported to the mainland for disposal at an appropriately licensed facility or transferred to the existing washdown facility at the Old Airport site or the temporary evaporation facility to reduce fluid content prior to transport to the mainland. Equipment cleanup not completed onsite will occur at the temporary evaporation facility, the existing wash down facility at the Old Airport site, or at the Gorgon concrete batching facility also located at the Old Airport site. These waste facilities and concrete batch plant are not within the scope of this EP, and are managed in line with existing EP Act Part V Licences or Works Approvals and the SLWMP as applicable.

2.3.4 Formation Evaluation

Data logging (e.g. wireline, logging while drilling [LWD]) will be undertaken to acquire geological and reservoir pressure data associated with the wells. Although the suite of evaluation methods has yet to be finalised, no vertical seismic profiling (VSP) is planned. It is likely that a full LWD suite (gamma ray, resistivity, density/neutron/caliper, sonic) will be run on all wells with sidewall core and/or micro-resistivity imaging on wireline (+/- other tests such as magnetic resonance, borehole pressure and formation tester etc) are expected to be run in some wells.

2.3.5 Completions

2.3.5.1 Well Bore Clean Up

Following completion of drilling, drilling fluid and solids will be removed from the BOPs, wellhead, casing and liner, and displaced to filtered completion brine utilising a well bore clean up bottom hole assembly (BHA). The BHA typically contains a wellbore filter, circulating sub, casing scrapers, magnets and a bit.

Well bore clean up fluids that are not suitable for treatment and disposal via the DWF will be collected in isotainers and sent to the mainland for disposal at an appropriately licensed facility, or may be transferred to the evaporation facility and the sludges subsequently recovered and transported to the mainland for disposal.

Well completion landing strings may also be treated prior to completion operations, e.g. lower completion landing string may be cleaned prior to gravel packing operations via a pickling process. This involves a chemical mixture being pumped down the string and then reversed back out and captured at surface. Disposal will follow a similar methodology to the well bore clean up fluids.

2.3.5.2 Well Completion

Production tubing (smaller diameter pipe than casing) is to be installed in each well to provide a conduit for production or injection of fluid from/into the formation. Sand control will be included as part of the well lower completion for the water production and injection wells. Sand control, such as gravel packing or similar, will provide a flow path between the formation and the production tubing whilst preventing sands from entering the well in the production wells, while the injection wells will have stand-alone sand screen lower completions.

Where applicable, completion equipment such as down hole gauges, landing nipple(s), packer (or equivalent) and an electrical submersible pump will be run with the production tubing string. Specifically designed upper completion fluids may also be circulated into the well during the installation of the completion

equipment. Chemical disclosure for completion fluids and tracers is provided in Appendix A.

2.3.5.2.1 Flow back Operations

To clean debris from the lower completions, formation fluid may be flowed to surface. For the water producing wells, the installed electrical submersible pump may be used to support flow back operations to surface. For the injection wells (CO_2 and water), this is more likely to be achieved by pumping nitrogen gas into the well to reduce hydrostatic head and flow the well to surface. It is anticipated that ~10,000 m^3 of gaseous nitrogen will be used per well but up to 28,000m^3 may be required - the actual total nitrogen used will be reported to DEMIRS quarterly.

At surface, the produced fluid is captured in portable storage tanks and likely to be managed consistently with other waste fluids from the wells (i.e. disposed via the DWF, collected in isotainers and sent to the mainland for disposal at an appropriately licensed facility, or transferred to the evaporation facility and sludges subsequently recovered and transported to the mainland for disposal). An alternative is to filter the produced fluid (e.g. using a cartridge filter) to remove solids/sands and inject it back into the injection well. This option may require the addition of treatment chemicals prior to re-injection (Appendix A).

Nitrogen gas used for flowback and/or any hydrocarbon gas entrained with formation fluids flowed to surface will be vented. Venting associated with flowback activities is expected to take ~8 hours per well. Flowback activities may be repeated on a well-by-well basis depending on success of the first flowback. The volumes of hydrocarbon gas involved is uncertain as the reservoir target locations for the new wells aim to avoid hydrocarbon accumulations, but based on flow back of ~715 m^3 of fluids it is estimated up to ~2,300 m^3 of hydrocarbon gas/flow back may be generated - the actual volume will be reported to DEMIRS quarterly.

2.3.5.2.2 Clay Stabilisation Treatment

A clay stabilisation treatment (CST) may be performed on the completed wells to provide initial mitigation against clay swelling, dispersion, and flocculation, which have the potential to lead to significant permeability reduction. Chemical disclosure for the CST is provided in Appendix A.

The CST activity would be planned as a well services pumping treatment and may be pumped through the completion string or may be pumped through a well intervention workstring, such as coiled tubing or jointed pipe, to aid deployment and placement of the treatment chemicals to specific zones across the permeable reservoir interval(s).

2.3.5.3 Install Christmas Tree

Installation of a Christmas tree (X-tree) will be required for each new well. The X-tree is a series of valves that is installed on top of the well head. The flowlines from surface facilities are then connected. Pressure and function testing of the X-tree is performed as per its operating requirements.

2.3.6 Well Suspension/P&A

In the event of unforeseen problems during drilling or if a well is not immediately completed, or completed and not immediately required, it must be suspended. Suspending a well involves the installation and testing of a particular number of barriers. The exact type, number and location of the barriers, as well as the testing

requirements, are specified in the Chevron ABU Well Barriers standard operating procedure (ID: ABU-DCM-ST102006).

If a batching approach is undertaken for drilling of the new production and/or injection wells, these wells will also be temporarily suspended. The final details of the type, number and location of the downhole barriers, as well as associated testing requirements, will be captured in the CAPL PL93 application to be submitted to DEMIRS in 2025 for well activity approval (in compliance with the *Schedule of Onshore Petroleum Exploration and Production Requirements – 1991* [amended 4 May 2018]). The suspended well(s) are covered by a cap and the cellar either fenced to prevent fauna access or the cellar covered.

The installation and verification of barriers during end of well lifecycle (permanent P&A) of the wells is outside scope of this EP, but will comply with prevailing regulatory requirements, Chevron Global Technical Standards and the Gorgon CO_2 Project Disposal Management Plan (Ref. 10). In the CO_2 Project Disposal Management Plan, CAPL has committed to ensure that P&A of all Gorgon onshore wells which penetrate the Dupuy Formation will be to the standard adequate for CO_2 containment. An indicative concept schematic for P&A of the different well types is provided in Figure 2-6.

Chemical disclosure for the well suspension/P&A is provided in Appendix A.

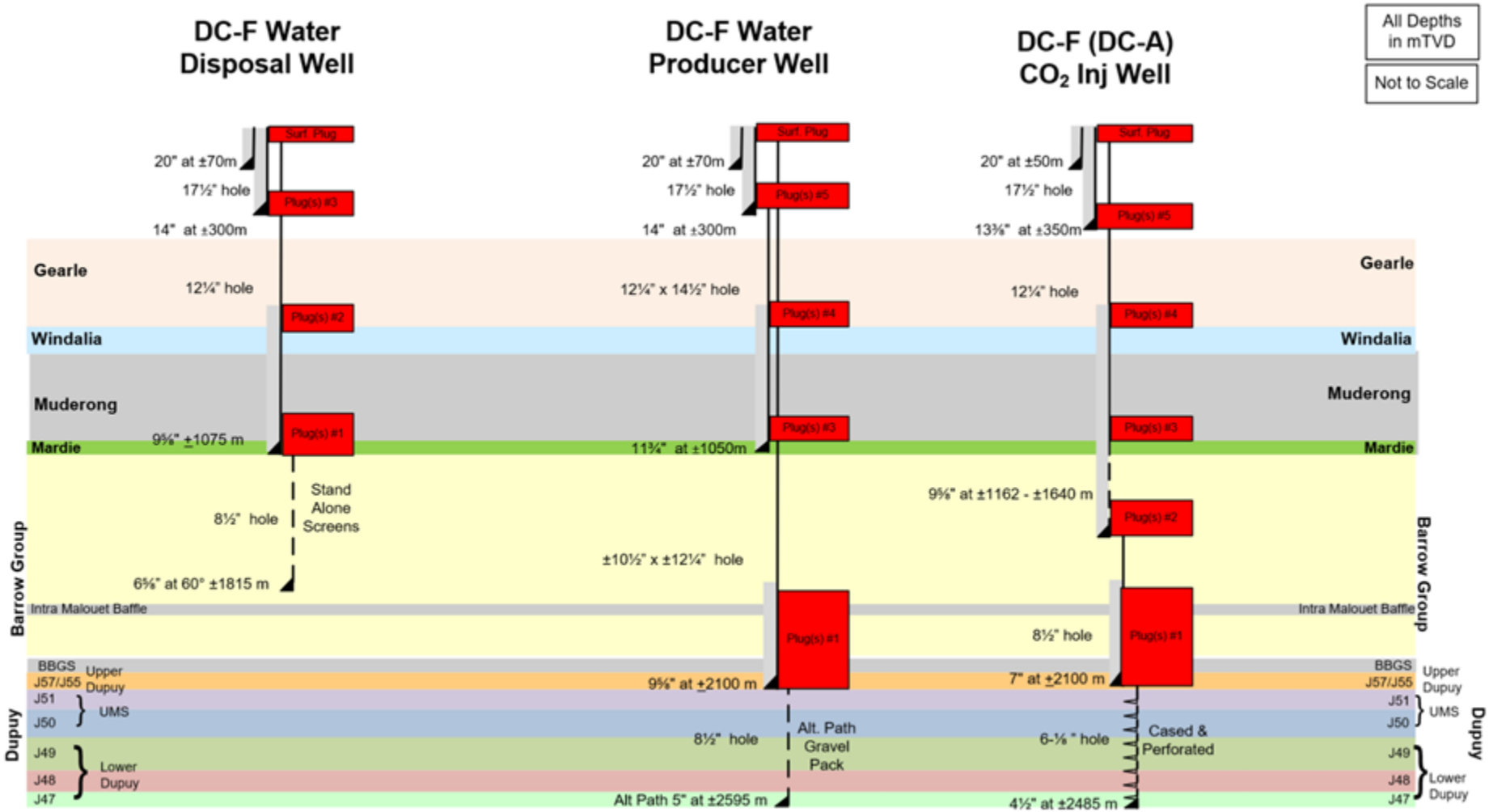


Figure 2-6: Conceptual P&A Schematics for Water Injection, Water Production and CO_2 Injection Wells

2.4 Demobilisation and Site Reinstatement

Upon completion of drilling and construction works, all temporary facilities and equipment no longer required for operations will be dismantled and prepared for transportation and demobilisation back to the mainland via the Gorgon logistics chain.

The expanded DC-A pad area will remain intact to enable ongoing maintenance on the wells including potential well intervention / workover works (approved separately to the EP) as required to maintain CO_2 injection requirements. Permanent infrastructure will be contained within the retained DC hardstand pad areas.

Any areas outside the permanent DC areas that are disturbed during construction and no longer required for construction or operations will be reinstated in accordance with the requirements of the approved Post-Construction Rehabilitation Plan (Ref. 6). Reinstatement may include clean up and reconstruction of a site or area to mimic pre-existing landform, ground preparation (ripping, scarifying etc.) and the spread of topsoil and vegetative material as appropriate.

Decommissioning and rehabilitation works, which includes the ongoing management and monitoring of the site after reinstatement works are completed, are outside the scope of this EP (Section 1.3).

3 Description of the Environment

To meet the requirements of the PP(E)R, Division 3, Regulation 14(2), *Description of the Environment,* the EP describes the environment that may be affected (EMBA) by the petroleum activity.

For planned activities and unplanned events associated with construction and drilling activities at the CO_2 Drill Centres, the EMBA is limited to land adjacent to (within 1000 m) the Operational Area, which falls within the approved Gorgon and Jansz Feed Gas Pipeline TDF on Barrow Island. The Terrestrial and Subterranean Baseline State and Environmental Impact Report (TSBSEIR) (Ref. 22) provides additional description of the rationale and process for defining the TDF and its environmental values.

To enable a systematic description of the environment and allow consideration of the consequences of the different impacts and risks associated with planned petroleum activities and unplanned events, the Description of the Environment is structured as follows:

- Barrow Island conservation status (Section 3.1)
- the physical environment of Barrow Island (Section 3.2)
- the environment associated with the Operational Area where planned activities occur (Section 3.3)
- the environment associated with land adjacent to the Operational Area that falls within the EMBA (Section 3.4).

Table 3-1 summarises the 'particular values and sensitivities' relevant to the activities described in the EP.

Table 3-1: Particular Values and Sensitivities

Value	Description of Particular Values and Sensitivities	
	Operational Area	**EMBA**
Terrestrial Flora and Vegetation	All flora and vegetation within the DC-F site and CP bed and cable corridors were cleared during construction of existing facilities. Surveys over the extension to the existing cleared area at the DC-A (Ref. 23) show that the vegetation types present are not restricted to the site, with wider distributions over Barrow Island, and that: • No listed Threatened flora species or Threatened Ecological Communities (TECs) are associated with the Operational Area. • No DBCA listed vegetative Priority 1 Ecological Communities (PECs) are present • One Priority 3 Flora species, *Corchorus congener* occurs in the Operational Area. This species is common and not considered of conservation significance on Barrow	All plant taxa on Barrow Island occur on the mainland, except for *Cucumis* sp. Barrow Island (D.W. Goodall 1264) and *Amaranthus* sp. Barrow Island. No ecological communities listed under the EPBC Act and no TECs, as listed in the DBCA TEC Database are known to occur on the Island (Ref. 24). DBCA has listed two vegetative PECs on Barrow Island: • Undisturbed Triodia angusta dominated creekline vegetation (Barrow Island) - unlikely to occur in the EMBA. • Coastal dune soft spinifex grassland – does not occur in the EMBA The Priority 3 Flora species *Corchorus congener* is likely to occur in the EMBA. This species is common and not considered of conservation significance on Barrow Island.

Value	Description of Particular Values and Sensitivities	
	Island. • *Melaleuca cardiophylla*, a shrub considered to have low regeneration rate after disturbance, is present	
Subterranean Fauna	Subterranean fauna communities are recognised as being of high conservation significance. Subterranean environments under Barrow Island support stygofauna and troglofauna species listed as Vulnerable under the *Biodiversity Conservation Act 2016* (WA) (BC Act) and EPBC Act. 19 troglofauna and 63 stygofauna species have been recorded to date. Subterranean fauna are understood to occur widely in the underlying strata and aquifer (typically >10 m depth) across Barrow Island. The strata beneath the Operational Area is not expected to be of any greater significance for these communities than other parts of Barrow Island.	
Terrestrial Fauna Habitats	The majority of the Operational Area was cleared during construction of existing facilities and does not provide habitats of particular value or sensitivity. Survey over the additional area of clearing at DC-A indicates that there are no Boodie warrens, termite mounds or raptor nesting sites within the Operational Area (Ref. 23). Vegetation within the uncleared area contains *Melaleuca cardiophylla* and is likely to provide habitat for the White-winged Fairy-wren (Barrow Island); this bird is widespread and abundant on Barrow Island and known to nest in various habitat types across the island.	Barrow Island is home to a number of threatened fauna. Areas considered important for high biodiversity, protected or threatened fauna include: • termite mounds • Boodie warrens • raptor nesting sites. Termite mounds are known to occur in the EMBA and may support various listed terrestrial fauna species. Several Boodie warrens are mapped within the EMBA, the two closest to the DCs being >600 m from DC-A and ~400m from DC-F. There are no active raptor nesting sites within the EMBA (Ref. 22, Ref. 23). Vegetation in the EMBA may provide nesting habitat for the White-winged Fairy-wren (Barrow Island); this species is known to nest across Barrow Island.
Terrestrial Fauna	The majority of the Operational Area was cleared during construction of existing facilities, and the uncleared areas do not contain habitats considered significant on Barrow Island (see above). However mobile fauna, including 4 listed threatened mammal species and the White-winged Fairy-wren (Barrow Island) may occur in the Operational Area.	Threatened fauna known from Barrow Island that may occur in the EMBA include: • Barrow Island Euro • Spectacled Hare-wallaby • Barrow Island Golden Bandicoot • Boodie • White-winged Fairy-wren (Barrow Island) All these species are widespread across Barrow Island.
Marine Fauna and Habitats	The Operational Area does not comprise any marine or coastal components; no marine fauna or marine fauna habitats are present.	The beaches on the east coast of Barrow Island support nesting by marine turtles, particularly the threatened and migratory flatback turtle (*Natator depressus*), and marine avifauna. These and a number of other marine fauna are likely to occur in the adjacent marine waters although this area is within the Port of Barrow Island and not a marine conservation reserve.
Ecological Communities	• No TECs as listed under the EPBC Act or the DBCA TEC Database (Ref. 24) have been recorded or are known to occur on Barrow Island. • Barrow Island's subterranean fauna communities (stygofauna and troglofauna) are recognised as being of high conservation significance and listed as a PEC by DBCA. The PEC occurs across Barrow Island (Ref. 36) and therefore overlaps with	

Value	Description of Particular Values and Sensitivities	
	the Operational Area and EMBA.	
Terrestrial Socioeconomic Values		
Cultural Heritage	None – No sites or materials of heritage significance have been found in the Operational Area.	Two recorded aboriginal heritage sites containing artefacts are located within the EMBA, at distances of ~300 m and 500 m from DC-F and DC-A respectively.
Petroleum Activities	Infrastructure associated with the Barrow Island oil field occurs adjacent to the Operational Area and across Barrow Island.	
Nature Reserve	Barrow Island is reserved under the *Conservation and Land Management Act 1984* (WA) as a Class A Nature Reserve for the purpose of conservation of flora and fauna.	

3.1 Barrow Island Conservation Status

Barrow Island is reserved under the *Conservation and Land Management Act 1984* (WA) as a Class A Nature Reserve for the purpose of conservation of flora and fauna.

3.2 Physical Environment of Barrow Island

3.2.1 Climate

Barrow Island is characterised by an arid subtropical climate with daytime temperatures ranging from 20 to 34 °C in summer, and from 17 to 26 °C in winter (Ref. 19). Average annual rainfall at Barrow Island is 318 mm with most rain (85%) occurring between January and July (Ref. 19). Rainfall is generally associated with tropical cyclones, which may occur between November and April. Between 1960 and 2003, an average 3.84 cyclones passed within 400 nm of Barrow Island each year (Ref. 20).

3.2.2 Geology, Landform and Soils

The surface geology of Barrow Island generally comprises calcarenite and limestone overlain by alluvium, colluvium, and aeolian sand. Tertiary limestone ridges occur throughout the central upland plateaus of Barrow Island. The terrain ranges from steeper slopes in the west, to flatter, more gentle undulations as the ridges continue east (Ref. 19). Soil types are highly variable, ranging from ‘silty clays’ and ‘clayey loam’ textures in western parts of Barrow Island to coarser ‘clayey sands’, ‘sandy loams’ and ‘sandy clays’ dominating towards the east (Ref. 21).

3.2.3 Hydrogeology

The surface hydrology on Barrow Island is characterised by run-off and short-term standing water after rainfall events, high rates of evaporation, and high infiltration capacities of the surface sands and limestone (Ref. 19). The Operational Area traverses several highly seasonal drainage lines, which generally align in a west-east orientation, but does not cross any permanent watercourses (Ref. 19). All watercourses are ephemeral and typically only flow for short periods following high-intensity rainfall, such as that associated with severe storms or cyclones (Ref. 19).

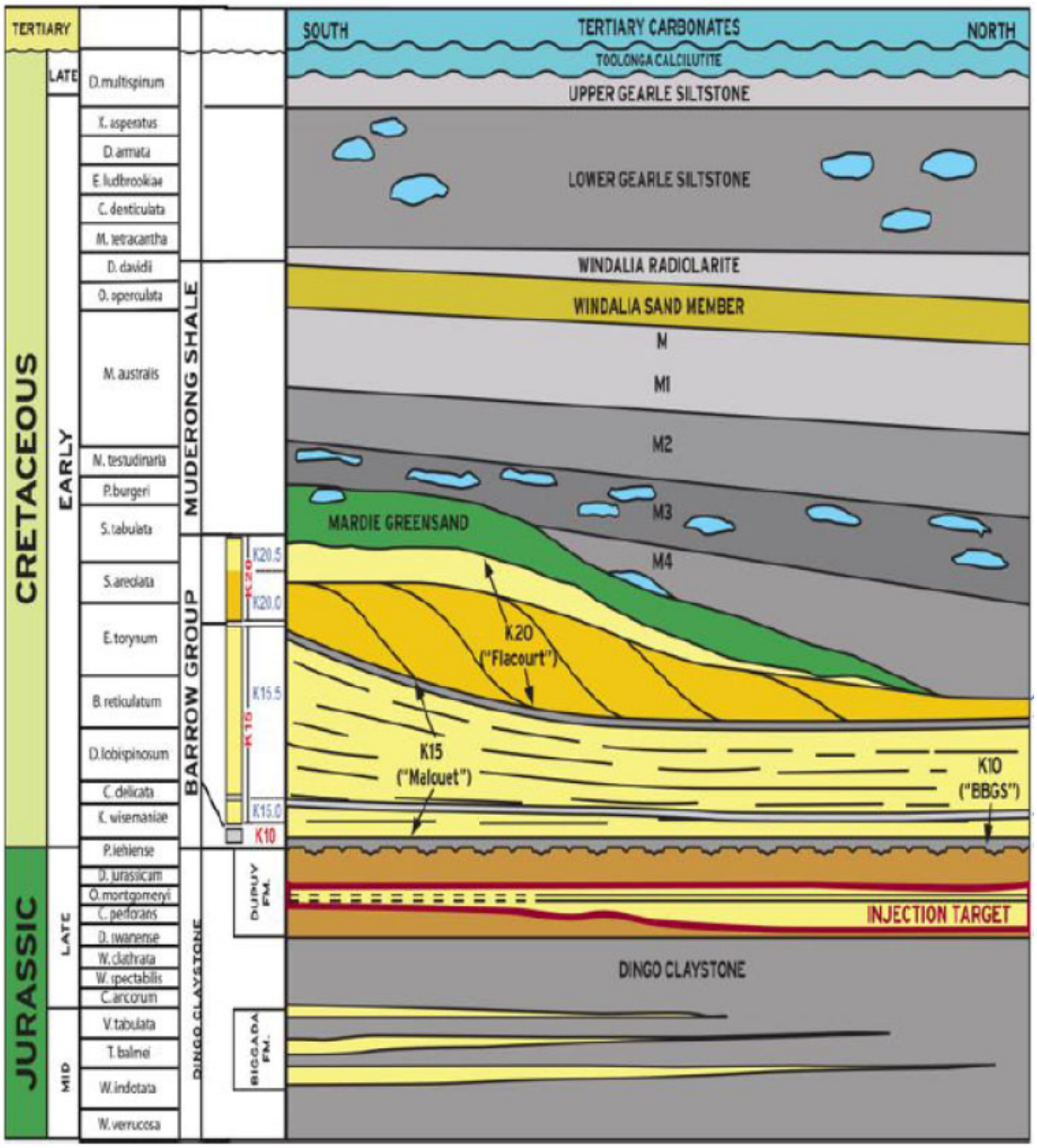


Figure 3-1: Geological Formations on Barrow Island

There is one shallow unconfined freshwater aquifer on Barrow Island. This aquifer forms a lens of relatively fresh groundwater at depths typically between 9 m and 53 m, and floats upon denser, saline groundwater located predominantly within the Tertiary Limestone (Ref. 20). Although beneficial uses of this freshwater aquifer are limited, it is an important environment for the stygofauna identified on Barrow Island.

Salinity of the water in this lens varies considerably across Barrow Island. Recharge to the aquifer is from rainfall and occurs most rapidly in areas of highly permeable soils overlying porous karst limestone. Lower salinities occur in areas of more rapid groundwater recharge. Higher salinities occur where recharge is slower, generally in areas where clays and silts are overlying the more porous and permeable limestone.

Salinity of the lens is also higher in coastal areas where seawater influx occurs close to the surface of the watertable.

Several groundwater systems occur beneath Barrow Island:

- Tertiary Limestone extending from the mean sea level down to approximately 300 m below mean sea level
- Windalia Sand Member of the Muderong Shale, generally at depths between 650 m and 700 m below mean sea level
- the Barrow Group comprising the Flacourt and Malouet Formations and the Flag Sandstone, generally at depths between 1000 m and 2000 m below mean sea level
- the Dupuy Formation, generally at depths between 2000 m and 2300 m below mean sea level
- the Biggada Formation, generally at depths greater than 3000 m below mean sea level.

3.2.3.1 Barrow Group Formation

The Barrow Group Formation is an underground saline aquifer situated at depths between 1010 m and 1900 m below the surface; it is divided into three separate formations—Flacourt Formation, Malouet Formation, and Basal Barrow Group Shale (BBGS) (Figure 3-1). The Flacourt and Upper Malouet Formations (collectively referred to as the Upper Barrow Group) are the receiving intervals for the produced Dupuy Formation water in the pressure management system. The Flacourt Formation is a saline aquifer situated at depths from approximately 1010 m. This formation comprises sandstone-dominated sandstone/shale sets. Of the core data points taken for the Flacourt Formation, high formation quality was exhibited (Ref. 27).

The underlying Malouet Formation also comprises interbedded sands and shales, although the reservoir quality is not as high as the Flacourt. A pressure baffle within the Malouet Formation hydraulically separates the Lower Malouet Formation from the Upper Malouet and the rest of the Barrow Group. This zone is monitored for pressure changes in the Gorgon CO_2 Data Well. At the base of the Barrow Group is the BBGS, which is the top seal (caprock) for the underlying Dupuy Formation, and hence is the seal for the injected reservoir CO_2.

The components of the Upper Barrow Group (Flacourt and Upper Malouet Formations) behave as a single, hydraulically connected unit; however, the Barrow Group Formation is hydraulically separated from the shallow unconfined Tertiary Limestone by a thick sequence (more than 1000 m) of low permeability material (Ref. 27). Water quality is highly alkaline and saline (Total Dissolved Solids [TDS] approximately >30 000 mg/L), and accumulations of oil are well documented (Ref. 81). It is generally characterised as containing stable minerals with a very low proportion of soluble metals.

A thick sequence of low permeability material (Muderong Shale and Gearle Siltstone) hydraulically separates the Barrow Group from the surface groundwater aquifer. The shallow unconfined aquifer forms a lens of fresher groundwater floating upon the denser, more saline water. Seasonal fluctuations in rainfall and tidal influence affect this boundary between the fresh and saline water making it a transition zone, rather than a clear boundary (Ref. 28).

3.2.3.2 Dupuy Formation

Water produced from the Dupuy Formation is brackish (approximately 5000–6000 mg/L sodium chloride (NaCl); 7000–8000 ppm TDS), and may occur at temperatures between 110 and 115 °C in the formation and up to approximately 100 °C upon release (Ref. 24).

Small accumulations of oil trapped beneath baffles which migrate upwards towards an accumulation are known to occur within the Dupuy Formation (Ref. 82).

3.2.3.3 Surface Water

All drainage lines on Barrow Island are ephemeral and typically only flow for short periods of time following high-intensity rainfall such as that associated with storms or cyclones. Operational experience suggests these drainage lines are likely to be inundated between 3 to 7 days per year, depending on rainfall.

3.3 Operational Area

The Operational Area is mostly comprised of land that has been previously cleared and disturbed, including during installation of the existing CO_2 injection system. Additional surveys have been conducted over the proposed extension to the existing cleared area at DC-A to support identification of ecological and heritage values in the Operational Area.

3.3.1 Terrestrial Flora and Vegetation

No particular flora and vegetation values or sensitivities are located within the Operational Area. All flora and vegetation were previously cleared from the area adjacent to the GGTP where DC-F will be sited, and at the CP bed locations and along the CP cable corridors. The area surrounding the existing cleared area at DC-A and encompassing the extension to this DC for the new CO_2 injection wells was surveyed in July 2022 (Ref. 23).

The key findings of the survey at DC-A include:

- two vegetation associations are present within the Operational Area, both have wider local and Barrow Island distributions.
- no Commonwealth or State listed TECs or PECs were recorded
- no State or Commonwealth listed threatened flora were recorded
- one State-listed priority flora species was recorded: *Corchorus congener* P3
- the species *Melaleuca cardiophylla*, considered to have limited ability to regenerate from disturbance, is present in the area.

The Priority 3 Flora species *Corchorus congener* is common and not considered of conservation significance on Barrow Island.

3.3.2 Ecological Communities

No TEC, as listed under the EPBC Act or in the Threatened Ecological Database (Ref. 18), has been recorded or is known to occur on Barrow Island.

Barrow Island is recognised as being of high conservation significance for subterranean fauna communities with 19 troglofauna and 63 stygofauna species recorded to date. Eleven subterranean fauna species recorded on Barrow Island

are listed as Threatened (Vulnerable) under the BC Act with two of these, the Blind Gudgeon fish *Milyeringa justitia* and Blind Cave Eel *Ophisternon candidum*, also listed as Vulnerable under the EPBC Act. Barrow Island subterranean fauna communities are listed by DBCA as a Priority 1 Ecological Community ('not adequately defined').

Preliminary geological reviews suggest that strata on Barrow Island (e.g. interbedded sand/limestone) are relatively continuous (Ref. 30), and review of the records of subterranean fauna on Barrow Island has found that the demonstrated broader distributions of taxa occurring across Barrow Island is consistent with the characterisation of a largely contiguous subterranean fauna habitat (Ref. 98). Therefore, it is expected that any subterranean fauna that occur beneath the Operational Area would be of no greater significance to that present elsewhere on Barrow Island. The karstic limestone that supports subterranean fauna communities is typically most well developed near and above the present watertable, but subterranean fauna is known to exist up to approximately 50 m below ground level. Shallow surface formations and the aquifer identified as subterranean fauna habitat are geologically isolated from the deeper formations.

Survey over the area to be cleared at DC-A indicated that no geological features considered important for supporting subterranean fauna were present (Ref. 23).

3.3.3 Significant Fauna Habitats

None of the restricted fauna habitats considered significant on Barrow Island (Ref. 22) occur in the Operational Area (Ref. 23). Termite mounds occur in adjacent areas – a total of 8 termite mounds were recorded within the ~3.4 ha area surveyed (out of the 6,771 termite mounds mapped within 500 m of the Gorgon Gas Development footprint).

No Boodie warrens occur within the ~3.4 ha surveyed, the nearest located >600 m from DC-A and ~400m from DC-F.

3.3.4 Terrestrial Fauna

In the absence of fauna habitats considered significant on Barrow Island, the Operational Area does not specifically support particular terrestrial fauna values, although mobile and transient fauna may be encountered in the Operational Area, including mammal, bird, and reptile species, and the vegetation in the uncleared area at DC-A is likely to provide foraging and possibly refuge or breeding habitat for some fauna.

Four resident mammal species that may be encountered in the Operational Area are listed as Threatened under the BC Act and the EPBC Act. They are Barrow Island Euro *Osphranter robustus isabellinus*, Spectacled Hare-wallaby *Lagorchestes conspicillatus conspicillatus*, Barrow Island Golden Bandicoot *Isoodon auratus barrowensis*, and Boodie *Bettongia lesueur*. All these species are widespread across Barrow Island.

All avifauna with the potential to be encountered in the Operational Area occur widely across Barrow Island. The most common terrestrial avifauna species that have the potential to be encountered are the Spinifex-bird *Eremiornis carteri*, White-winged Fairy-wren (Barrow Island) *Malurus leucopterus edouardi*, Singing Honeyeater *Lichenostomus virescens*, White-breasted Wood Swallow *Artamus leucorhynchus* and the Welcome Swallow *Hirundo neoxena* (Ref. 19). The White-winged Fairy-wren (Barrow Island) is the only terrestrial bird species on Barrow Island to be listed as Vulnerable under the BC Act and the EPBC Act (Ref. 19) and

Melaleuca shrubs, reported to be important to the species, may occur in the Operational Area (Ref. 23), but this species is abundant on Barrow Island and known to nest in a variety of habitats (Ref. 19; Ref. 26). Other listed terrestrial avifauna species with the potential to be encountered in the Operational Area include four vagrant or migratory species protected under international agreements (Oriental Cuckoo *Cuculus saturatus*, Fork-tailed Swift *Apus pacificus*, White-throated Needletail *Hirundapus caudacutus,* and Yellow Wagtail *Motacilla flava*) and the Australian Bustard *Ardeotis australis*, which is listed by DBCA as a Priority 4 species (‘rare, near-threatened and other species in need of monitoring’) (Ref. 19).

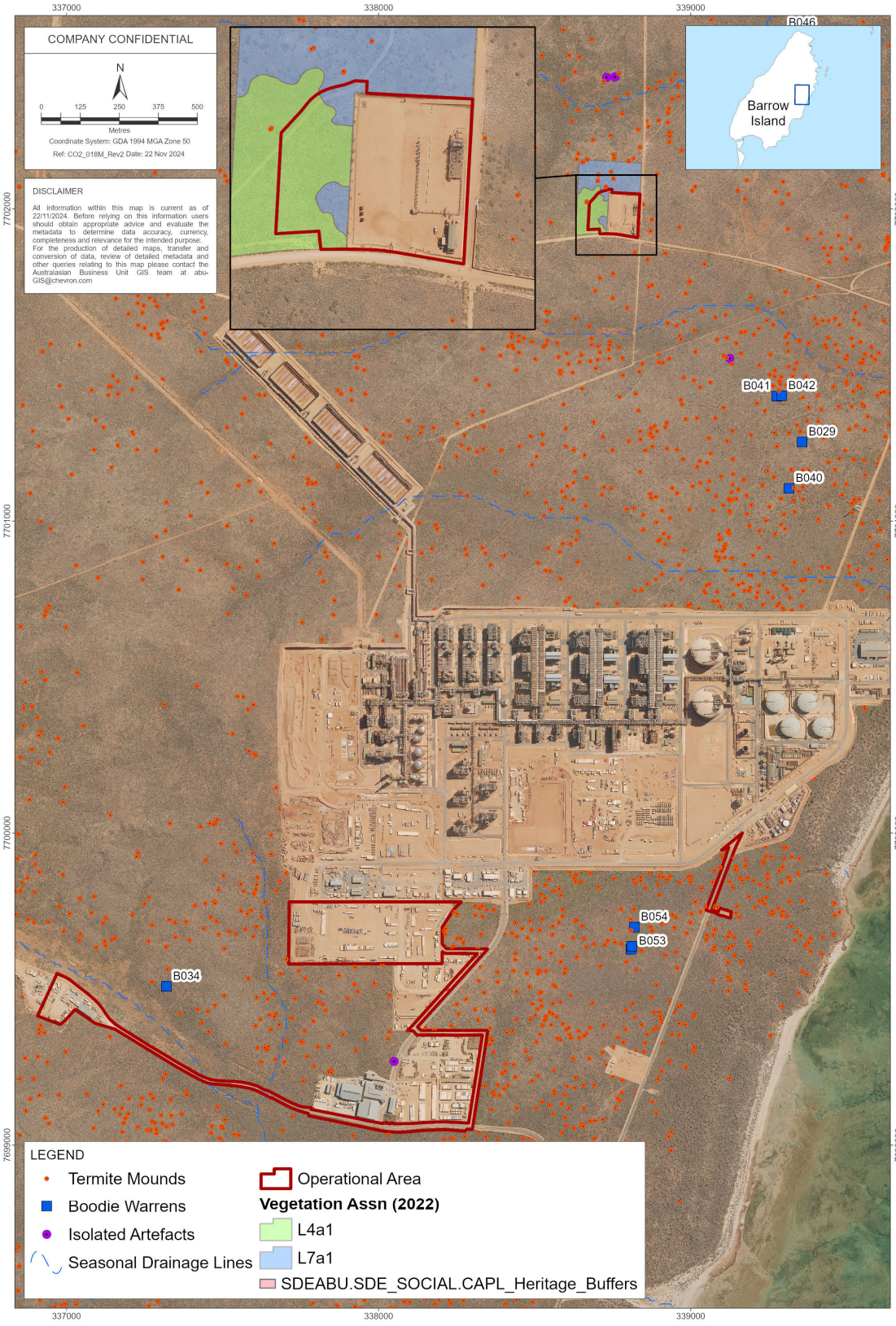


Figure 3-2 Key Features of the Existing Environment in and adjacent to the Operational Area

Barrow Island supports numerous species of migratory shorebirds as well as resident shorebirds. Many of these species are protected under International treaties (e.g. JAMBA, CAMBA, ROKAMBA). Barrow Island is both a staging site and an important non-breeding site for migratory shorebirds. The highest abundance of shorebirds on Barrow Island, with over two-thirds of records for most species, is associated with the south-eastern and southern coasts of the Island. Some of these species may on occasion fly over the Operational Area enroute to coastal areas.

Reptile species also have the potential to be encountered in the Operational Area, although all species are abundant and widespread on Barrow Island, and none are listed as threatened under the BC Act or the EPBC Act (Ref. 19).

3.3.5 Cultural Heritage

Cultural heritage surveys, including a survey of the uncleared land adjacent to DC-A in November 2023 (Ref. 42) and September 2024 (Ref. 115), have not identified any cultural heritage sites or materials within the Operational Area.

3.3.6 Petroleum Activities and Infrastructure

Permanent petroleum infrastructure within the Operational Area includes the existing CO_2 injection wells and associated piping etc at DC-A, and facilities at the old airport site. The GGTP is located immediately north, northeast of the DC-F site and a seismic line traverses the northwest corner of the extension to DC-A.

The Barrow Island oil field extracts crude oil, water and gas from the Windalia, Mardie B, M3, Gearle, Jurassic, Malouet and Tunney Formations on Barrow Island. Formation water for waterflooding is extracted from Barrow Group Flacourt Formation, processed then injected into the Windalia Formation. Formation water is reinjected into the Windalia reservoir and also disposed of to the Barrow Group Flacourt Formation. There are flowlines and an associated track traversing the south-west corner of the uncleared land adjacent to the existing well site at DC-A.

3.4 Land Adjacent to the Operational Area

Unplanned incidents and planned activities within the Operational Area that have aspects that extend beyond the Operational Area, such as through noise and light emissions, have the potential to affect the environment outside the defined Operational Area. As such, this area is described in the following subsections.

3.4.1 Terrestrial Flora and Vegetation

The flora and vegetation of Barrow Island, including the land adjacent to the Operational Area, is typical of the arid Pilbara region, and also has floral affinities with the Cape Range area on the mainland in the dominance of *Triodia* hummock grasses and sparse, low-lying *Melaleuca* shrubs (Ref. 27; Ref. 28). No Threatened Flora species or plant communities listed under the BC Act or the EPBC Act have been recorded anywhere on Barrow Island.

Vegetation communities on land adjacent to the Operational Area are dominated by limestone hill and slope associations. These associations are generally characterised by varying combinations of *Triodia* grasses and shrub species such as *Melaleuca cardiophylla, Ficus brachypoda, Pittosporum phillyreoides*, *Acacia* spp., *Stylobasium spathulatum* and *Petalostylis labicheoides* (Ref. 23; Ref. 37). Some of the associations mapped in areas adjacent the DCs are considered to have restricted areal distributions on Barrow Island.

One Priority 3 ('poorly known') flora species (*Corchorus congener*) listed by DBCA occurs in land surrounding the Operational Area (Ref. 23). Priority 3 flora is a non-legislative category aimed to manage plant taxa listed by DBCA that are known from only a few collections or sites in WA, that have not been adequately surveyed, but are not considered under imminent threat. *Corchorus congener* is widespread across Barrow Island (Ref. 29) and the land adjacent to the Operational Area is not considered to be of any particular significance for this species.

3.4.2 Ecological Communities

Subterranean fauna communities, supporting species of troglofauna and stygofauna listed under the BC Act and EPBC Act and listed by DBCA as a PEC (as described in Section 3.3.2), may occur beneath the land adjacent to the Operational Area, but are not expected to be of any greater significance to that present elsewhere on Barrow Island.

Two PECs relating to terrestrial flora are currently known to occur on Barrow Island:

- Triodia angusta dominated creekline vegetation (Barrow Island) - General cover of *Triodia angusta* with shrubs principally *Hakea suberea*, *Petalostylis labicheoides*, *Acacia bivenosa* and *Gossypium robinsonii*.
- Coastal dune native tussock grassland dominated by *Whiteochloa airoides* - Tussock grassland of *Whiteochloa airoides* occurs on the landward side of fore dunes, hind dunes or remnant dunes with white or pinkish white medium sands with marine fragments. There may be occasional *Spinifex longifolius* tussock or *Triodia epactia* hummock grasses and scattered low shrubs of *Olearia* sp. Kennedy Range (*Scaevola spinescens, S. cunninghamii, Trianthema turgidifolium* and *Corchorus* species (C. walcottii, C. laniflorus).

The listing of Barrow Island 'Creekline Vegetation' as a PEC reflects the level of disturbance as a result of past land use management practices, and the PEC does not include previously disturbed creeklines (Ref. 35). Although some seasonal drainage line vegetation associations adjacent to the Operational Area may comprise similar compositions of plant species to the Creekline Vegetation PEC (see Figure 3-2), the drainage lines are classed as previously disturbed and therefore are not classified as PEC. There are no coastal dune PECs present within the EMBA.

3.4.3 Significant Fauna Habitats

Habitats on Barrow Island considered important for their high biodiversity or for supporting protected fauna include termite mounds, Boodie warrens and raptor nests (Ref. 22). Termite mounds occur widely across Barrow Island including on land adjacent to the Operational Area. Boodie warrens are widely distributed in low density across Barrow Island. Surveys/mapping indicate that there are several Boodie warrens on the land adjacent to the Operational Area, the two closest to DC-A and DC-F are >600 m and ~400m away respectively (Figure 3-2). Raptor nests on Barrow Island tend to be concentrated in coastal areas and there are none in the land adjacent to the Operational Area, the nearest being over 2500 m from DC-F. Similarly, the nearest turtle nesting beaches to the DC's occur on the east coast of Barrow Island, over 1600 m from DC-A and over 1100 m from DC-F (Figure 1-1). These beaches predominantly support nesting by Flatback Turtles (*Natator depressus*) but lower levels of nesting by Green Turtles (*Chelonia mydas*) or Hawksbill Turtles (*Eretmochelys imbricata*) may also occur.

Vegetation adjacent to the Operational Area is likely to provide nesting habitat for the White-winged Fairy-wren (Barrow Island), as this species nests in a wide variety of habitats across Barrow Island (Ref. 22; Ref. 31) and *Melaleuca cardiophylla* shrubs, which may be preferred habitat, are present in the areas around both DCs.

3.4.4 Terrestrial Fauna

Mobile and transient mammals, birds, and reptiles, as described in Section 3.3.4, are expected to be present on the land adjacent to the Operational Area, particularly in association with the habitats described in Section 3.4.3.

3.4.5 Cultural Heritage

Surveys over ~3.4 ha surrounding the existing DC-A in November 2023 (Ref. 42) and September 2024 (Ref. 115) did not identify any cultural heritage sites or materials.

The nearest recorded sites containing artefacts are located ~300 m from DC-F and ~500 m from DC-A (Figure 3-2).

3.4.6 Petroleum Activities and Infrastructure

Infrastructure associated with the Gorgon Gas Development and the Barrow Island oil field extends across Barrow Island, including various elements on land adjacent to the Operational Area. As described in Section 3.3.6, this includes the GGTP and associated Gorgon Gas Development infrastructure which are situated adjacent to DC-F and a seismic track and oilfield flowlines/track that traverse the uncleared land adjacent to DC-A.

4 Environmental Risk Assessment Methodology

An environmental risk assessment was undertaken to evaluate impacts and risks arising from the activities described in Section 2, and any potential emergency conditions associated with these activities.

The risk assessment for the EP was undertaken in accordance with CAPL's ABU Operational Excellence (OE) Risk Management Process (Ref. 43) using the Integrated Risk Prioritization Matrix. This approach generally aligns with the processes outlined in ISO 31000:2018 Risk Management – Principles and Guidelines (Ref. 39) and Handbook 203:2012 *Managing Environment-related Risk* (Ref. 40).

The environmental impact identification and risk assessment process comprised the following components:

- identification of activities and events, and associated environmental aspects with the potential to impact identified physical, biological, and socioeconomic receptors
- identification of physical, biological, and socioeconomic receptors within the environment that may be affected by the activities and aspects, as well as identification of particular environmental values and sensitivities
- evaluation of the potential consequences to the identified receptors without safeguards
- identification of safeguards to reduce the potential likelihood of the consequence occurring
- evaluation of the likelihood of the consequence occurring with planned and confirmed safeguards in place
- quantification of the risk ranking with safeguards in place
- determination of whether the environmental impacts and risks are as low as reasonably practicable (ALARP) after considering the effectiveness of the identified safeguards
- determination of whether the environmental impacts and risks are acceptable
- development of environmental performance objectives, performance standards, and measurement criteria.

Table 4-1 summarises the environmental impacts, risks, and control measures in place to manage the activity.

Table 4-1: Summary of Potential Impacts, Risks and Control Measures

Source of Environmental Impact or Risk	Potential Environmental Impact or Risk	Summary of Control Measures
Atmospheric Emissions		
• Exhaust emissions from fuel powered vehicles, rig, plant, machinery etc • Dust during clearing and earthworks, trenching or vehicle / plant movements on unsealed surfaces, handling of dry drilling products • Venting of nitrogen during well completions, venting or flaring HCs during isolations or drilling	• Change in air quality or visual amenity • Physiological effects on vegetation or fauna • Reduction in global carbon budget	• Construction vehicles and equipment will be regularly maintained • Vehicle movements reduced by measures such as: – using buses for personnel transfer – limiting the number of light vehicles available to personnel – considering vehicle movements in daily planning activities to eliminate unnecessary movements • An IVMS will be installed in light vehicles to manage vehicle movements and speeds • Dust management procedures developed and include the requirement to implement dust suppression methods • The mud mixing hopper and dry cement storage trailers have devices for reducing dust emissions • Venting will be conducted in accordance with the relevant well program
Clearing and Earthworks		
Clearing and earthworks at DCs and along the cable route	• Alteration of landform and/or soil profile • Loss of heritage materials / values • Removal of vegetation and habitat • Erosion/sedimentation in adjacent areas	• Clearing and earthworks managed in accordance with Ground and Vegetation Disturbance Form, as required under the CoW system • Reinstatement of disturbed landforms in accordance with approved Rehabilitation Plans for the Gorgon Project • Implementation of relevant management measures as required by the Post-Construction Rehabilitation Plan • Potential disturbance of cultural heritage values managed via the cultural heritage management system (which implements the requirements of the approved Aboriginal Cultural Heritage Management Plan), including: – Cultural heritage surveys for previously undisturbed and unsurveyed areas – Heritage assessment undertaken and Heritage Assessment Form approved prior to any ground disturbance to reduce potential impact to Aboriginal cultural heritage. – Subject to outcomes of ongoing consultation, monitoring by relevant Traditional Owners will be offered for activities that may harm cultural heritage values.

Source of Environmental Impact or Risk	Potential Environmental Impact or Risk	Summary of Control Measures
		– Inadvertent Aboriginal Cultural Heritage Discovery Procedure is available for all personnel and followed in the case of an inadvertent find, including: ▪ If any suspected heritage material is found, work is to be stopped and reported immediately to the Environmental Specialist on site and the ABU Cultural Heritage Team. – Inductions for site construction personnel prior to clearing activities covers cultural heritage awareness information, including inadvertent finds. • Use of previously cleared areas wherever practicable • Permanent or temporary drainage management structures installed at all drainage line crossings • Implementation of relevant management measures for prevention of sediment runoff described in the Terrestrial and Subterranean Environment Protection Plan including, where practicable: – use of erosion barriers, flow diversion devices and sedimentation sumps. Where the installation of sediment sumps is not feasible, sediment flowing off the construction site will be controlled using an alternative method, e.g. silt fencing, geotextile fabric – installation of contour banks to intercept and disperse run-off on steep disturbed slopes – planning and management of clearing earthworks to minimise land clearing requirements and limit the area of exposed topsoil to the minimum required for safe execution of construction activities.
Light		
Artificial lighting for drilling or construction activities	• Alteration in fauna behaviour • Subsequent impact to fitness or reproductive success	Where practicable and still meeting safety requirements, light location and direction to be: • directed onto work areas • mounted as low as feasible • shielded • orientated inland • Lighting types (subject to operational safety) used that are least disruptive to marine turtles, including long wavelength (>560 nm with a Colour Rendition Index [CRI] >20 Ra reduced spectrum – i.e. yellow/orange) • The number of windows facing the coast in offices/crib rooms minimised where practicable and window treatments (eg curtains/blinds) installed and kept closed when the rooms are being used before dawn and after dusk • The wattage of artificial lights shall be selected for the lowest possible wattage to conduct work safely • Only necessary artificial lighting shall be used
Physical Interaction		
• Presence and	Fauna strike or	• An IVMS will be installed in light vehicles to manage vehicle speeds (max limit 60 kmh reducing to 40 kmh

Source of Environmental Impact or Risk	Potential Environmental Impact or Risk	Summary of Control Measures
movement of vehicles, plant, machinery • Excavations left open overnight	entrapment resulting in injury or mortality	during dusk to dawn) • Personnel will only be eligible to drive on Barrow Island if they have: – completed a CAPL-approved driving course – completed the ABU Operations Induction – completed Barrow Island on-site driver awareness training. • Vehicle movements reduced by measures such as using buses for personnel transfer • Clearing managed consistent with the relevant pre and post clearing fauna management measures described in the Fauna Handling Common User Procedure • Fauna handling of injured fauna, where required, is undertaken by a trained fauna handler • A risk assessment will be completed as part of the PTW system and where potential risk to fauna is identified (e.g. for excavations greater than 0.5 m depth left unattended overnight) appropriate controls will be identified and implemented. Controls include: • egress or exclusion controls (e.g. ramps, scramble mats, battered slopes, ladders within a trench, exclusion fencing, backfilling) • inspection controls (e.g. inspections at sunrise and sunset). • controls to address flooding, including inspections, clearing of any fauna and a pump available to commence dewatering as soon as practicable following heavy rainfall. • Handling of injured fauna, where required, is undertaken by a trained fauna handler • Any harm or mortality to EPBC Act or BC Act listed terrestrial fauna are reported.
Drilling Disturbance/Discharges		
Drilling of new wells	Loss or displacement of subterranean fauna through changes to subsurface habitat or toxicity from discharge of drilling fluids	• Drilling Basis of Design includes: • use of freshwater and high viscosity sweeps for drilling of conductor section • casing installed at base of expected freshwater aquifer • low toxicity water-based drilling muds only • Drilling procedures address recycling/reuse of drilling fluids and management of losses to the extent practicable, including: • volumetric checks of fluid use during drilling • real-time monitoring of downhole pressures during drilling • All hazardous chemicals used in drilling fluids will be selected and assessed in accordance with the ABU Hazardous Materials Management Procedure

Source of Environmental Impact or Risk	Potential Environmental Impact or Risk	Summary of Control Measures
Noise and Vibration		
Noise generated by vehicles, drilling rig, plant, machinery etc	• Fauna behavioural responses, including startle and/or avoidance of noise/ vibration sources and interruption of acoustic communications • Indirect impacts on predators with fixed foraging ranges if prey species avoid an area • Temporary shifts in an animal's hearing ability • Acoustic trauma, e.g. damage to hearing organs • Physical impact on habitats such as burrows from vibration.	• Equipment covers, mufflers and/or other noise suppression equipment fitted to combustion engines and other noise generating equipment (e.g. generators) • Vehicles and equipment maintained in accordance with Contractor's planned maintenance schedule (PMS) • An IVMS will be installed in light vehicles to manage vehicle movements and speeds
Unplanned Releases		
Loss of containment during handling / storage of hazardous materials	• Contamination of soil and groundwater • Subsequent impact to subterranean fauna.	• Hydrocarbon and hazardous liquids storage will comply with the relevant *Dangerous Goods Safety Act 2004* (DGSA) and TSEPP requirements including self-bunded or held within secondary containment that comprises the larger of 110% of the largest tank or 25% percent of the combined tank volumes as required. Hazardous liquids stored in isotainers will have spill protection under potential leak points. • Storage of dry hazardous materials will comply with relevant DGSA requirements and include measures to ensure the integrity of containers is maintained, including separation from the ground surface and cover in the event of rainfall. • Spill protection will be provided under hazardous liquids transfer line connections and stationary equipment containing diesel

Source of Environmental Impact or Risk	Potential Environmental Impact or Risk	Summary of Control Measures
		• Bunded areas are inspected and stormwater removed as soon as practicable after significant rainfall events with any contaminated stormwater disposed in accordance with the SLWMP • Lifting and unloading of bulk chemical containers from vehicles will be undertaken in accordance with the appropriate work instruction / Standard Operating Procedure • Vehicles involved in transporting bulk hazardous liquids will carry a spill kit • Refuelling trucks comply with relevant Australian Standards • All hazardous chemicals used in the operational area will be selected and assessed in accordance with the ABU Hazardous Materials Management Procedure • Spill response will be conducted in accordance with the Gorgon Project – Barrow Island Onshore Spill Contingency Plan (OSCP)

Loss of well control	• Impacts to vegetation and fauna within the area of the release
	• Contamination of soil and groundwater
	• Subsequent impact to subterranean fauna.
		• Pressure control equipment will be in place for all drilling activities
		• Pressure control equipment will be tested prior to commencement of drilling
		• A Drilling Program / Well Intervention Procedure will be developed prior to drilling that addresses:
		  • measuring fluid density and properties of the return cuttings.
		  • measuring hydrocarbon gas levels within the drilling fluids.
		  • changes in fluid volume within the mud tanks (alarmed).
		  • fluid-flow checks at significant drilling events (such as sudden increase in rate of penetration).
		• The WSM / DSM will hold a valid well control certificate
		• A fluids program will be in place prior to drilling activities commencing
		• The WSM or DSM will be aware of the relevant drilling / well intervention / completion procedure
		• Each ‘well program’ will include a risk assessment that considers a loss of containment from contact with infrastructure, and implement appropriate controls such as:
		  • development of DC layout
		  • barriers / barricades / exclusion zones
		• All spills will be recorded as per CAPL Incident Investigation and Reporting Process
		• Spill response will be conducted in accordance with the Gorgon Project – Barrow Island OSCP

Unplanned Land Disturbance		
Inadvertent/accidental encroachment outside boundaries of planned	Damage to vegetation and structural habitat	• An IVMS will be installed in light vehicles to manage vehicle movements and speeds • Personnel will only be eligible to drive on Barrow Island if they have:

Source of Environmental Impact or Risk	Potential Environmental Impact or Risk	Summary of Control Measures
disturbance		• completed the ABU Operations Induction • completed Barrow Island on-site driver awareness training. • Clearing and earthworks managed in accordance with Ground and Vegetation Disturbance Form, as required under the CoW system • Drilling contractor plan/procedures include as relevant: • mast up/ down checklist • cyclone management.

5 Implementation Strategy

The implementation strategy in the EP identifies the systems, practices, and procedures used to ensure the environmental impacts and risks of the petroleum activities are continuously reduced to ALARP and the environmental performance objectives and standards are achieved.

5.1 Operational Excellence Management System

CAPL's operations are managed in accordance with the Operational Excellence Management System (OEMS), which is a comprehensive management framework that supports the corporate commitment to protect the safety and health of people and the environment. The OEMS aligns with ISO 14001:2016 *Environmental management systems - Requirements with guidance for use* and meets the requirements of the Petroleum (Environment) Regulations.

OE systematically manages workforce safety and health, process safety, reliability, and integrity, environment, efficiency, security, and stakeholders to meet the OE objectives and ensure safe operations of CAPL facilities and projects. The OEMS comprises the following key components: leadership and OE culture; management system cycle; and focus areas and OE expectations.

The focus areas and OE expectations relevant to the EP, and their key processes that demonstrate how CAPL is effective in reducing environmental impacts and risks to ALARP and an acceptable level, are listed in Table 5-1. Management of the activities within the scope of the EP will be implemented in accordance with the prevailing versions of the respective processes, systems and procedures described below to ensure the identification and reduction of potential impacts and risk is continuously improved.

Table 5-1: Relevant focus areas and common expectations

Focus area or common expectation	Key processes
Focus area	
Workforce safety and health	• *ABU – Operations Process – Control of Work Manual* (Ref. 55) • *ABU Hazardous Materials Management Procedure: ABU Standardised OE Procedure* (Ref. 49)
Process safety, reliability and integrity	• *OE Information Management: ABU Standardised OE Process* (Ref. 91) • *Management of Change for Facilities and Operations: ABU Standardised OE Process* (Ref. 56)
Environment	• *Environment Risk Management Process* (Ref. 47) • *Environment Risk Assessment and Management Procedure (ERAM)* (Ref. 106)
Stakeholders	• *Stakeholder Engagement and Issues Management: ABU Standardised OE Process* (Ref. 58)
Common expectation	
Risk management	• *ABU OE Risk Management Process* (Ref. 43)
Assurance	• *OE Assurance Corporate Process* (Ref. 79) • *OE Corporate Standard Incident Investigation* (Ref. 96)

Focus area or common expectation	Key processes
	• *OE Data Reporting Standard* (Ref. 92)
Contractor OE Management	• *ABU Contractor Operational Excellence Management: ABU OE Process* (COEM) (Ref. 97)
Incident investigation and reporting	• *Incident Investigation and Reporting – ABU Standardised OE Process* (Ref. 57)
Emergency management	• *Emergency Management OE Process* (Ref. 71)

5.2 Environment Plan review

As required under Regulation 20 of the PP(E)R, CAPL will submit a proposed revision of the EP to DEMIRS at least 14 days before the end of the five-year period since the Plan was last approved. In accordance with Regulation 23 of the PP(E)R, CAPL will submit a proposed revision of the accompanying OSCP at least 14 days before the end of a two and a half-year period that commences on the date the OSCP is accepted.

In accordance with Regulation 18 of the PP(E)R, a written notification, or bridging document, or revision of the EP, or a new standalone EP must be submitted to DEMIRS prior to:

- the commencement of any new petroleum activity, or any significant modification of, significant change in, or significant new stage of, an existing petroleum activity
- a change in instrument holder for, or operator of, the petroleum activity
- the occurrence of a significant new environmental impact or risk, or significant increase in an existing environmental impact or risk, not provided for in the EP
- the occurrence of a series of new environmental impacts or risks, or a series of increases in existing environmental impacts or risks, which, taken together, amount to the occurrence of a significant new environmental impact or risk, or a significant increase in an existing environmental impact or risk, not provided for in the EP.

6 Acronyms and Abbreviations

Table 7-1 defines the acronyms and abbreviations used in this document.

Table 6-1: Acronyms and Abbreviations

Acronym / Abbreviation	Definition
°C	Degrees Celsius
AIIMS	Australasian Inter-service Incident Management System
ABU	Australian Business Unit
ADR	Automated Drilling Rig
ALARP	As Low As Reasonably Practicable
AS	Australian Standard
BBGS	Basal Barrow Group Shale
BC Act	Western Australian *Biodiversity Conservation Act 2016*
BHA	Bottom hole assembly
BOP	Blow out preventor
BWI	Barrow Island
CAMBA	China–Australia Migratory Bird Agreement
CAPL	Chevron Australia Pty Ltd
CBL	Cement Bond Logging
CCR	Central Control Room
CMMS	Computerised Maintenance Management System
CMT	Crisis Management Team
CO_2	Carbon dioxide
CHESM	Contractor Health Environment and Safety Management
COW	Control of Work
D&C	Drilling and completions
DBCA	Western Australian Department of Biodiversity Conservation and Attractions (formerly Parks and Wildlife)
DC	Drill Centre
DJTSI	Western Australian Department of Jobs, Tourism, Science and Innovation (formerly State Development)
DEMIRS	Western Australian Department of Energy, Mines, Industry Regulation and Safety (formerly Mines, Industry Regulation and Safety)
DNV	Det Norsk Veritas
DomGas	Domestic Gas
DRF	Declared Rare Flora
DWER	Western Australian Department of Water and Environmental Regulation
DWF	Dewatering Facility
e6 m^3/d	Unit of measure where e6 = exponent or 10^6 metres cubed per day
EMBA	Environment that May Be Affected

Acronym / Abbreviation	Definition
EMP	Environmental Management Plan
Environmental Harm	Has the meaning given by Part 3A of the *Environmental Protection Act 1986* (WA).
EP	Environment Plan
EP Act	Western Australian *Environmental Protection Act 1986*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EPBC Reference: 2003/1294	Commonwealth Ministerial Approval (for the Gorgon Gas Development) as amended or replaced from time to time.
EPBC Reference: 2008/4178	Commonwealth Ministerial Approval (for the Revised Gorgon Gas Development) as amended or replaced from time to time.
ERO	Emergency response organisation
ERT	Emergency Response Team
FE	Facilities Engineering
GDA	Geocentric Data of Australia
GGTP	Gorgon Gas Treatment Plant
GJV	Gorgon Joint Venture
ha	Hectare
HDPE	High density polyethylene
HPWBM	High performance water based mud
HSE	Health, Safety, and Environment
IC	Incident Commander
ICS	Incident Command System
IMR	Inspection, Maintenance, and Repair
IIR	Incident investigation and reporting
IMS	Incident Management System
in	Inch
ISO	International Organization for Standardization
IVMS	In-vehicle Monitoring System
JAMBA	Japan–Australia Migratory Bird Agreement
KCl	Potassium chloride
kg/s	Kilograms per second
km	Kilometre
km/h	Kilometres per hour
L	Litre
LDS	Leak Detection System
LNG	Liquefied Natural Gas
LWD	Logging while drilling
m	Metre
m/s	Metres per second

Acronym / Abbreviation	Definition
m^3	Cubic metre
Material Environmental Harm	Environmental Harm that is neither trivial nor negligible.
mE	Metres east (in context of UTM coordinate system)
mg	Milligram
mg/l	Milligrams per litre
mm	Millimetre
MMscf/d	Million standard cubic feet per day
mN	Metres north (in context of UTM coordinate system)
MoC	Management of change
MPa	Megapascal (unit of pressure)
MS	Western Australian Ministerial Statement
MS 800	Western Australian Ministerial Statement 800 (for the Gorgon Gas Development) as amended from time to time.
MSW	Managing Safe Work
N/A	Not Applicable
NaBr	Sodium bromide
NaCl	Sodium chloride
NES	[Matters of] National Environmental Significance, as defined in Part 3, Division 1 of the EPBC Act.
NIS	Non-indigenous Species
nm	Nautical miles
OC	On-scene Commander
OD	Outer diameter
OE	Operational Excellence
OEMS	Operational Excellence Management System
ORT	Onsite Response Team
OSCP	Onshore Spill Contingency Plan
P&A	Plug and Abandon
PEC	Priority Ecological Community
pH	The acidity or basicity of a solution.
PIC	Person in Charge
PL	Petroleum Licence
PP(E)R	Petroleum Pipelines (Environment) Regulations 2012
ppm	Parts per million
PTW	Permit to Work
Q1, Q2, etc.	Three-month quarter of a calendar year
QMS	Quarantine Management System
RDIF	Reservoir drill in fluid

Acronym / Abbreviation	Definition
ROKAMBA	Republic of Korea–Australia Migratory Bird Agreement
ROW	Right-of-Way
Serious Environmental Harm	Environmental harm that is: a) irreversible, of a high impact or on a wide scale; or b) significant or in an area of high conservation value or special significance and is neither trivial nor negligible.
ST	Sidetracked
TAPL	Texaco Australia Pty Ltd
Tcf	Trillion cubic feet
TD	Total Depth
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community
TSBSEIR	Terrestrial and Subterranean Baseline State and Environmental Impact Report
TVD	True Vertical Depth
TVDRT	True Vertical Depth Rotary Table
TVDSS	True Vertical Depth Sub Sea (from mean sea level)
UTM	Universal Transverse Mercator (projection and coordinate system adopted for cartographic purposes)
WA	Western Australia
WHZ	Weed Hygiene Zone
X-Tree	Christmas tree

7 References

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Appendix A Chemical Disclosure

To meet the requirements of the *Chemical Disclosure Guideline* (2013), the EP details the chemicals and any chemical additives that may be introduced down hole by the activities covered by the EP.

APPENDIX B1: CHEMICAL DISCLOSURE

As required by the *Chemical Disclosure Guideline* (Ref 17), this Appendix details the products, constituent chemicals and any chemical additives that may be introduced down hole by the activities covered by this Environment Plan.

1.1 VENDOR – SLB / M-I SWACO

1.1.1 System Details: Sodium Chloride Fluid

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Sodium Chloride Fluid (≤ 9.0 ppg / ≤ 1.10 SG)
TOTAL VOLUME OF SYSTEM PER WELL:	100 – 200 m^3

1.1.1.1 Product List Details: Sodium Chloride Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
WATER	N/A	Base Fluid	90.18	N/A	N/A
SODA ASH	SLB / M-I SWACO	pH Buffer	0.05	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
SODIUM CHLORIDE	SLB / M-I SWACO	Clay Control Agent	9.40	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
	(BAKER HUGHES)			Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg Biodegradation/bioaccumulation: n/a – inorganic chemical	
MAGNESIUM OXIDE	SLB / M-I SWACO	pH Buffer	0.22	Acute Toxicity: LD50 Oral (rat): 3780 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
NUOSEPT 78	SLB / M-I SWACO	Preservative	0.04	Acute Toxicity: LD50 Oral (Rat- Female): = 2000 mg/kg LD50 Dermal (Rat): >1009-3950 mg/kg Chronic Toxicity: No known carcinogenic, reproductive, or teratogenic effects. EC50 (Daphnia): 10-100 mg/L (48 h) LC50 (Fish): 10-100 mg/L (96 h) Biodegradation/Bioaccumulation: Product is biodegradable, has low bioaccumulative potential	Y
LIME	SLB / M-I SWACO	pH Control	0.07	Acute Toxicity: Calcium Hydroxide LD50 Oral (Rat): 7340 mg/kg Chronic Toxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, or invertebrates. Toxicity to fish LC60: 160 mg/L (96h) Biodegradation/Bioaccumulation: Not available	
SAFE-SCAV NA	SLB / M-I SWACO	Oxygen Scavenger	0.04	Acute Toxicity: No Data available Chronic Toxicity: Not known to be carcinogenic or mutagenic. May cause allergic reactions in highly susceptible persons. No known reproductive hazards. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Ammonium hydrogensulphite: EC50 (fish): >464 mg/L, EC50 (algae): 43.8 mg/L, EC50 (invertebrates): 89 mg/L Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
SAFE-SCAV CA	SLB / M-I SWACO	Oxygen scavenger	0.04	Acute Toxicity: LD50 Oral (Rat): > 5g/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, does not bioaccumulate.	Y
FLO-TROL [Contingency]	SLB / M-I SWACO	Fluid Loss Control	0.32	Acute Toxicity: None	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. This product is not considered toxic to algae, fish, daphnia, or invertebrates. Biodegradation/Bioaccumulation: No Product data available	
FLOWZAN [Contingency]	SLB / M-I SWACO	Viscosity	0.08	Acute Toxicity: None known Chronic Toxicity: None known This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation: Product components not expected to be biodegradable. Does not bioaccumulate.	Y
CALCIUM CARBONATE (CIRCAL, OMYACARB, SAFE-CARB- All Grades) [Contingency)	SLB / M-I SWACO	Lost circulation material	2.00	Acute Toxicity: Calcium carbonate: LD50 Oral: > 6540 mg/kg; LC50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, reproductive, or mutagenic effects. Crystalline silica dust is listed by IARC in Group 1 Calcium Carbonate: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L C Crystalline Silica: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
CAUSTIC SODA [Contingency]	SLB / M-I SWACO	pH Control	0.05	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	
Total (with contingency)			**~102.5%**		

1.1.1.2 Chemical List: Plug and Abandonment

Chemicals within products in part 1.1.1.1	CAS Number	Mass Fraction (%)
Water	-	~ 90.18
Sodium chloride	7647-14-5	≤ 9.40
Sodium carbonate	497-19-8	≤ 0.05
Magnesium oxide	1309-48-4	≤ 0.20
Strontium oxide	1314-11-0	≤ 0.01
Magnesium carbonate	546-93-0	≤ 0.01
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl) triethanol	4719-04-4	≤ 0.04
Calcium hydroxide	1305-62-0	≤ 0.07
Ammonium hydrogensulphite	10192-30-0	≤ 0.04
Modified Starch [Contingency]*	9049-76-7	≤ 0.32
Xanthan Gum [Contingency]*	11138-66-2	≤ 0.08
Limestone / Calcium Carbonate [Contingency]*	1317-65-3 / 471-34-1	≤ 2
Crystalline silica (impurity) [Contingency]*	14808-60-7	≤ 0.01
Sodium hydroxide [Contingency]*	1310-73-2	≤ 0.05
Total		**102.5**

* Denotes contingency chemical or figure affected by contingency chemical or % ranges

1.1.2 System Details: Spud Fluid

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Spud mud
TOTAL VOLUME OF SYSTEM PER WELL	100 - 200 m^3

1.1.2.1 Product List Details: Spud Mud

Tradename	Supplier	Purpose	Product in system fluid (wt/wt %)	Toxicity & Ecotoxicity Info	SDS
WATER	N/A	Base Fluid	89.93	N/A	N/A
SODA ASH	SLB / M-I SWACO	Buffer	0.07	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
NUOSEPT 78	SLB / M-I SWACO	Preservative	0.04	Acute Toxicity: LD50 Oral (Rat- Female): = 2000 mg/kg LD50 Dermal (Rat): >1009-3950 mg/kg Chronic Toxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt %)	Toxicity & Ecotoxicity Info	SDS
				No known carcinogenic, reproductive, or teratogenic effects. Skin sensitizing Ecotoxicity: EC50 (Daphnia): 10-100 mg/L (48 h) LC50 (Fish): 10-100 mg/L (96 h) Biodegradation/Bioaccumulation: Product is biodegradable, has low bioaccumulative potential	
LIME	SLB / M-I SWACO	pH Control	0.07	Acute Toxicity: Calcium Hydroxide LD50 Oral (Rat): 7340 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, or invertebrates. Toxicity to fish LC60: 160 mg/L (96h) Biodegradation/Bioaccumulation: Not available	Y
M-I GEL	SLB / M-I SWACO	Viscosifier	9.89	Acute Toxicity: None LD50 Oral (Rat): 500 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Contains a known or suspected carcinogen (crystalline silica) This product is not considered toxic to algae, fish, daphnia, or invertebrates. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical	Y
DRISPAC R [Contingency]	SLB / M-I SWACO	Fluid Loss	0.93	Acute Toxicity: Inhalation of dust may cause shortness of breath, tightness of chest, a sore throat and cough Carboxymethylcellulose sodium salt	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt %)	Toxicity & Ecotoxicity Info	SDS
				=27000mg/kg LD50 (Rat) LD50 >2g/kg (Rabbit), > 5800mg/m^3 LD50 Inhalation (Rat) 4h Ecotoxicity This material is not expected to be harmful to aquatic organisms. Biodegradation / Bioaccumulation: This material is not expected to bioaccumulate. This material is expected to be readily biodegradable.	
SAFE-SCAV CA [Contingency]	SLB / M-I SWACO	Oxygen scavenger	0.37	Acute Toxicity: LD50 Oral (Rat): > 5g/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, does not bioaccumulate.	Y
SAPP [Contingency]	SLB / M-I SWACO	Thinner	0.98	Acute Toxicity: Disodium dihydrogen diphosphate: LD50 Oral (Rat): 1800 mg/kg, LD50 Dermal (rabbit): 2002 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/bioaccumulation: n/a - Inorganic chemical	Y
SUGAR [Contingency]	SLB / M-I SWACO	Retarder	0.47	Acute Toxicity: LD50 Oral (rat): 29700 mg/kg, Chronic Toxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt %)	Toxicity & Ecotoxicity Info	SDS
				Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards. Product contains small amount of quartz, crystalline silica. Crystalline Silica: LC50 (fish): >10000 mg/L, EC50 (Algae): >1000 mg/L, LC50 (Invertebrates): > 10000 mg/L Biodegradation/Bioaccumulation: Product is biodegradable, bioaccumulation is unlikely.	
CALCIUM CHLORIDE (All Grades) [Contingency]	SLB / M-I SWACO	Inhibition	0.93	Acute Toxicity: LD50 Oral (rat): 1000 mg/kg LD50 Dermal (rabbit): 5005 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards LC50 (fish): 10650 mg/L EC50 (Invertebrates): 2400 mg/L Biodegradation/Bioaccumulation: N/A Inorganic chemical	Y
WALNUT NUT PLUG (All Grades) [Contingency]	SLB / M-I SWACO	Scouring Bit	0.93	Acute Toxicity Cellulose LD50 Oral (Rat): > 5g/kg Ld50 Dermal (Rabbit): >2 g/kg LC50 Inhalation (Rat): > 5800 mg/m3, (4h) Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Not considered toxic to algae, fish, or invertebrates. Crystalline Silica: Toxicity to Fish: LC50(Danio Rerio): = 10000 mg/L (96 h), Toxicity to Algae: EC50: >1000 mg/L (120 h), Toxicity to Invertebrates: EC50 (Daphnia magna) >10000 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable: Inorganic chemical	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt %)	Toxicity & Ecotoxicity Info	SDS
CITRIC ACID [Contingency]	SLB / M-I SWACO	pH Buffer	0.47	Acute toxicity: None known Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects Product is not considered toxic to fish, algae, or invertebrates. LC50 Fish (96h) = 1516 mg/L EC50 Invertebrates(72h) = 120 mg/L Biodegradation/Bioaccumulation: Product contains no substance considered to be persistent, bioaccumulating, or toxic	Y
FLOWZAN [Contingency]	SLB / M-I SWACO	Viscosifier	0.93	Acute Toxicity: None known Chronic Toxicity: None known Ecotoxicity: This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation: Product components not expected to be biodegradable. Does not bioaccumulate.	Y
KLEEN UP [Contingency]	SLB / M-I SWACO	Surfactant	0.56	Acute toxicity: > 2000 mg/kg LD50 Oral (Rat) (based on components) > 100 mg/l LC50 (Fish) Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens. This product does not contain any known or suspected reproductive hazards. This product does not contain any known or suspected carcinogens. Biodegradation/Bioaccumulation:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt %)	Toxicity & Ecotoxicity Info	SDS
				Product contains no substance considered to be persistent, bioaccumulating, or toxic	
CAUSTIC SODA [Contingency]	SLB / M-I SWACO	pH Control	0.05	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	Y
Total (With Contingency)			**~106.62%**		

1.1.2.2 Chemical List: Spud Mud

Chemicals within products in Part 1.1.2.1	CAS Number	Mass Fraction (%)
Water	-	~89.93
Bentonite	1302-78-9	≤ 9.89
Crystalline silica (impurity)	14808-60-7	≤ 1.00
Calcium hydroxide	1305-62-0	≤ 0.07
Sodium carbonate	497-19-8	≤ 0.07
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl) triethanol	4719-04-4	≤ 0.04

Chemicals within products in Part 1.1.2.1	CAS Number	Mass Fraction (%)
2-aminoethanol	141-43-5	≤ 0.01
Disodium dihydrogen diphosphate [Contingency]	7758-16-9	≤ 0.98
Sodium carboxymethylcellulose [Contingency]	9004-32-4	≤ 0.93
Calcium chloride [Contingency]	10043-52-4	≤ 0.93
Cellulose [Contingency]	9004-34-6	≤ 0.93
Xanthan Gum [Contingency]	11138-66-2	≤ 0.93
Sucrose [Contingency]	57-50-1	≤ 0.47
Citric acid monohydrate [Contingency]	5949-29-1	≤ 0.47
2,3-didehydro-3-O-sodio-D-erythro-hexono-1,4-lactone [Contingency]	6381-77-7	≤0.37
Alcohols, C11-14-iso-, C13-rich, ethoxylated [Contingency	78330-21-9	≤ 0.50
Octadecanoic acid, calcium salt [Contingency]	1592-23-0	≤ 0.50
Crystalline silica (impurity) [Contingency]	14808-60-7	≤ 0.10
Sodium hydroxide [Contingency]	1310-73-2	≤ 0.05
Total (with contingency)		**~106.62%**

1.1.3 System Details: Potassium Chloride /Polymer Drilling Fluid

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Potassium Chloride / Polymer Drilling Fluid
TOTAL VOLUME OF SYSTEM PER WELL	350 - 550m^3

1.1.3.1 Product List Details: Potassium Chloride / Polymer Drilling Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
WATER	N/A	Base Fluid	86.83	N/A	N/A
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Density and Inhibition	5.75	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
FLOWZAN	SLB / M-I SWACO	Viscosifier	0.26	Acute Toxicity: None known Chronic Toxicity: None known Ecotoxicity: This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Product components not expected to be biodegradable. Does not bioaccumulate.	
DRISPAC R	SLB / M-I SWACO	Viscosifier & Fluid Loss Control	0.52	Acute Toxicity: Inhalation of dust may cause shortness of breath, tightness of chest, a sore throat and cough Carboxymethylcellulose sodium salt =27000mg/kg LD50 (Rat) LD50 >2g/kg (Rabbit), > 5800mg/m^3 LD50 Inhalation (Rat) 4h Ecotoxicity This material is not expected to be harmful to aquatic organisms. Biodegradation / Bioaccumulation: This material is not expected to bioaccumulate. This material is expected to be readily biodegradable.	Y
M-I BAR	SLB / M-I SWACO	Weighting Agent	6.60	Acute Toxicity *Barite:* > 15000 mg/kg LD50 (Rat) (Oral) *Crystalline silica (impurity):* = 500 mg/kg LD50 (Rat) (Oral) Chronic Toxicity This product does not contain any known or suspected mutagens. This product does not contain any components suspected to be sensitizing. This product does not contain any known or suspected reproductive hazards. Ecotoxicity The product component(s) are not classified as environmentally hazardous. EC50 (Algae) > 1000 mg/l 72h LC50 (Fish) > 10000 mg/l 96h Biodegradation / bioaccumulation Product is not biodegradable. Does not bioaccumulate	Y
DEFOAM PLUS NS	SLB / M-I SWACO	Defoamer	0.04	Acute Toxicity: LD50 Oral (Rat): >2000 mg/kg	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, contains potentially biodegradable substances.	
DRISPAC SL [Contingency]	SLB / M-I SWACO	Fluid Loss Control	0.47	Acute Toxicity: Inhalation of dust may cause shortness of breath, tightness of chest, a sore throat and cough Carboxymethylcellulose sodium salt =27000mg/kg LD50 (Rat) LD50 >2g/kg (Rabbit), > 5800mg/m^3 LD50 Inhalation (Rat) 4h Ecotoxicity This material is not expected to be harmful to aquatic organisms. Biodegradation / Bioaccumulation: This material is not expected to bioaccumulate. This material is expected to be readily biodegradable.	Y
POLYPAC (All Grades) [Contingency]	SLB / M-I SWACO	Fluid loss additive	0.17	Acute Toxicity: Polyanionic cellulose: LD50 Oral (rat): 5005 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Product is not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Product is biodegradable, does not bioaccumulate.	Y
M-I-X II [Contingency]	SLB / M-I SWACO	Loss Control Material	0.28	Acute Toxicity: Cellulose 5005 mg/kg LD50 Oral, 2002 mg/kg LD50 Dermal Chronic Toxicity: No known carcinogenic properties or chronic impacts Ecotoxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Not considered Toxic to algae, fish, or invertebrates Biodegradation/Bioaccumulation: Expected to be readily biodegradable, and not expected to bioaccumulate.	
CAUSTIC SODA [Contingency]	SLB / M-I SWACO	pH Control	0.05	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	Y
SODA ASH [Contingency]	SLB / M-I SWACO	Buffer	0.41	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
POTASSIUM CHLORIDE [Contingency]	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	0.68	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	
G-SEAL (All Grades) [Contingency]	SLB / M-I SWACO	Bridging agent	0.34	Acute Toxicity: Graphite: LD50 Oral (Rat): = 10010 mg/kg Chronic Toxicity: Not known to be mutagenic or sensitizing. Crystalline silica dust is listed by IARC as Group 1 carcinogen. No known reproductive or developmental hazards. Graphite: LC50 (Fish): >100 mg/L Crystalline Silica:LC50(Fish): = 10000 mg/L (96 h), EC50 (algae): >1000 mg/L (120 h) EC50 (invertebrates) >10000 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
SAFE-SCAV CA [Contingency]	SLB / M-I SWACO	Oxygen Scavenger	0.04	Acute Toxicity: LD50 Oral (Rat): > 5g/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, does not bioaccumulate.	Y
SAFE-SCAV NA [Contingency]	SLB / M-I SWACO	Oxygen Scavenger	0.04	Acute Toxicity: No Data available Chronic Toxicity: Not known to be carcinogenic or mutagenic. May cause allergic reactions in highly susceptible persons. No known reproductive hazards. This product is not considered toxic to algae, fish, daphnia, or invertebrates. Ammonium hydrogensulphite:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				EC50 (fish): >464 mg/L EC50 (algae): 43.8 mg/L, EC50 (invertebrates): 89 mg/L Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	
SAPP [Contingency]	SLB / M-I SWACO	Rheology Control	0.68	Acute Toxicity: Disodium dihydrogen diphosphate: LD50 Oral (Rat): 1800 mg/kg, LD50 Dermal (rabbit): 2002 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/bioaccumulation: Not applicable - Inorganic chemical	Y
SODIUM BICARBONATE [Contingency]	SLB / M-I SWACO (NEWPARK)	Alkalinity control	0.34	Acute Toxicity: Sodium Chloride: LD50 Oral (Rat): = 4220 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazard Toxicity to Fish: LC50: 8250-9000 mg/L (96h) Toxicity to Algae EC50: 650 mg/L (120h) Toxicity to invertebrates: EC50: 2350 (48h) Biodegradation/Bioaccumulation: Not applicable; inorganic chemical	Y
SAFE-SCAV HSB [Contingency]	SLB / M-I SWACO	H2S Scavenger	0.34	Acute Toxicity: None Chronic Toxicity: May cause sensitization by skin contact. Contains a known or suspected mutagen, contains a known carcinogen. Ecotoxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Product level data not available.	
CALCIUM CARBONATE (CIRCAL / OMYACARB/ SAFE-CARB) (All Grades) [Contingency]	SLB / M-I SWACO	Loss Control Material	0.81	Acute Toxicity: Calcium carbonate: LD50 Oral: > 6540 mg/kg; LC50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, reproductive, or mutagenic effects. Crystalline silica dust is listed by IARC in Group 1 Ecotoxicity: Calcium Carbonate: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L Crystalline Silica: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
FORM-A-BLOK AS [Contingency]	SLB / M-I SWACO	Loss Control Material	0.39	Acute Toxicity: None Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Biodegradation/Bioaccumulation: No Product data available	Y
CALCIUM CHLORIDE (All Grades) [Contingency]	SLB / M-I SWACO	Clay Control Agent	0.34	Acute Toxicity: LD50 Oral (rat): 1000 mg/kg LD50 Dermal (rabbit): 5005 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards LC50 (fish): 10650 mg/L EC50 (Invertebrates): 2400 mg/L Biodegradation/Bioaccumulation:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				N/A Inorganic chemical	
KWIK-SEAL (All Grades) [Contingency]	SLB / M-I SWACO (Kelco)	Loss Control Material	0.33	Acute Toxicity: None Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Expected to biodegrade, not suspected to bioaccumulate.	Y
CITRIC ACID [Contingency]	SLB / M-I SWACO	pH Buffer	0.08	Acute toxicity: None known Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects Product is not considered toxic to fish, algae, or invertebrates. LC50 Fish (96h) = 1516 mg/L EC50 Invertebrates(72h) = 120 mg/L Biodegradation/Bioaccumulation: Product contains no substance considered to be persistent, bioaccumulating, or toxic	Y
DUO-VIS [Contingency]	SLB / M-I SWACO	Viscosifier	0.68	Acute Toxicity: None Chronic Toxicity: No known carcinogenic or reproductive hazards. Contains a known or suspected mutagen. Contains glyoxal; may produce an allergic reaction This product is not considered toxic to algae, fish, or invertebrates Biodegradation/Bioaccumulation: Product is biodegradable, does not bioaccumulate	Y
KLEEN UP [Contingency]	SLB / M-I SWACO	Surfactant	0.20	Acute toxicity: > 2000 mg/kg LD50 Oral (Rat) (based on components)	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				> 100 mg/l LC50 (Fish) Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens. This product does not contain any known or suspected reproductive hazards. This product does not contain any known or suspected carcinogens. Biodegradation/Bioaccumulation: Product contains no substance considered to be persistent, bioaccumulating, or toxic	
LIME [Contingency]	SLB / M-I SWACO	pH Control	0.20	Acute Toxicity: Calcium Hydroxide LD50 Oral (Rat): 7340 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, or invertebrates. Toxicity to fish LC60: 160 mg/L (96h) Biodegradation/Bioaccumulation: Not available	Y
Total (with contingency)			**106.87%**		

1.1.3.2 Chemical List: Potassium Chloride / Polymer Drilling Fluid

Chemicals within products in part 1.1.3.1	CAS Number	Mass Fraction (%)
Water	-	~86.83
Barite	13462-86-7	≤ 6.60
Potassium chloride	7447-40-7	≤ 5.75
Sodium carboxymethylcellulose	9004-32-4	≤ 0.52

Chemicals within products in part 1.1.3.1	CAS Number	Mass Fraction (%)
Crystalline silica (impurity)	14808-60-7	≤ 1.00
Xanthan Gum	11138-66-2	≤ 0.26
Sodium chloride	7647-14-5	≤ 1.00
Oxirane, methyl-, polymer with oxirane, di-(9Z)-9-octadecenoate	67167-17-3	≤ 0.1
Octadecanoic acid, calcium salt	1592-23-0	≤ 0.01
Fatty acids, tall oil	61790-12-3	≤ 0.01
Limestone / Calcium Carbonate [Contingency]	471-34-1 / 1317-65-3	≤ 1.00
Disodium dihydrogen diphosphate [Contingency]	7758-16-9	≤ 1.00
Xanthan Gum [Contingency]	11138-66-2	≤ 1.00
Potassium chloride [Contingency]	7447-40-7	≤ 1.00
Sodium carboxymethylcellulose [Contingency]	9004-32-4	≤ 1.00
Sodium carbonate [Contingency]	497-19-8	≤ 1.00
Calcium chloride [Contingency]	10043-52-4	≤ 1.00
Sodium hydrogen carbonate [Contingency]	144-55-8	≤ 1.00
Aragonite (CaCO3) [Contingency]	14791-73-2	≤ 1.00
Coke, Petroleum, Calcined [Contingency]	64743-05-1	≤ 1.00
Cellulose [Contingency]	9004-34-6	≤ 1.00
Calcium hydroxide [Contingency]	1305-62-0	≤ 1.00
2,2',2"-(Hexahydro-1,3,5-triazin-1,3,5-triyl) triethanol [Contingency]	4719-04-4	≤ 1.00
Natural Plant Fibers [Contingency]	9004-34-6	≤ 1.00
Nutshell [Contingency]	9004-34-6	≤ 1.00
Citric acid monohydrate [Contingency]	5949-29-1	≤ 0.10
Sodium hydroxide [Contingency]	1310-73-2	≤ 0.10
Alcohols, C11-14-iso-, C13-rich, ethoxylated [Contingency]	78330-21-9	≤ 0.10
2,3-didehydro-3-O-sodio-D-erythro-hexono-1,4-lactone [Contingency]	6381-77-7	≤ 0.10

Chemicals within products in part 1.1.3.1	CAS Number	Mass Fraction (%)
Polyhexamethylene Adipamide [Contingency]	32131-17-2	≤ 0.10
Graphite [Contingency]	7782-42-5	≤ 0.10
Cotton Seed Hulls [Contingency]	9004-34-6	≤ 0.10
Sodium chloride [Contingency]	7647-14-5	≤ 0.10
Synthetic Flakes [Contingency]	7782-42-5	≤ 0.10
Ammonium hydrogen sulphite [Contingency]	10192-30-0	≤ 0.10
Silica, crystalline, quartz [Contingency]	14808-60-7	≤ 0.01
Glyoxal [Contingency]	107-22-2	≤ 0.01
Kaolin [Contingency]	1332-58-7	≤ 0.01
2-aminoethanol [Contingency]	141-43-5	≤ 0.01
Magnesium carbonate [Contingency]	546-93-0	≤ 0.01
Strontium oxide [Contingency]	1314-11-0	≤ 0.01
Sorbic acid, potassium salt [Contingency]	590-00-1	≤ 0.01
Sulphur trioxide [Contingency]	7446-11-9	≤ 0.001
Carbon black [Contingency]	1333-86-4	≤ 0.001
Titanium dioxide [Contingency]	13463-67-7	≤ 0.001
Aluminium oxide [Contingency]	1344-28-1	≤ 0.001
Pigment [Contingency]	980-26-7	≤ 0.001
Formaldehyde (impurity) [Contingency]	50-00-0	≤ 0.001
Silicon oxide [Contingency]	10097-28-6	≤ 0.001
Fiber Finish [Contingency]	9004-34-6	≤ 0.001
Iron oxide (Fe_2O_3) [Contingency]	1309-37-1	≤ 0.0001
Sulphur Dioxide (Impurity) [Contingency]	7446-09-5	≤ 0.0001
Total (with contingency)		**~106.87%***

1.1.4 System Details: High Performance Water-Based Drilling Fluid (HPWBDF)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	High Performance Water-Based Drilling Fluid (≤ 10.5 ppg / ≤ 1.26 SG)
TOTAL VOLUME OF SYSTEM PER WELL:	250 – 700 m^3

1.1.4.1 Product List Details: High Performance Water-Based Drilling Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
WATER	N/A	Base Fluid	66	N/A	N/A
DRISPAC SL	SLB / M-I SWACO	Fluid Loss Control	0.56	Acute Toxicity: Inhalation of dust may cause shortness of breath, tightness of chest, a sore throat and cough Carboxymethylcellulose sodium salt =27000mg/kg LD50 (Rat) LD50 >2g/kg (Rabbit), > 5800mg/m^3 LD50 Inhalation (Rat) 4h Ecotoxicity This material is not expected to be harmful to aquatic organisms. Biodegradation / Bioaccumulation: This material is not expected to bioaccumulate. This material is expected to be readily biodegradable.	Y
SODA ASH	SLB / M-I SWACO	Buffer	0.05	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	9.31	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
MAGNESIUM OXIDE	SLB / M-I SWACO	pH Buffer	0.22	Acute Toxicity: LD50 Oral (rat): 3780 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
KLA-STOP	SLB / M-I SWACO	Shale inhibitor	2.75	Acute toxicity Reaction products of Propane- 1,2-diol: LD50 oral (rat): 2885 mg/kg, LD50 Dermal (rabbit): 2979 mg/kg, 1ml/kg.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecological Information: Toxicity to Fish (96h): >700 mg/L Toxicity to algae (72h): >700 mg/L Toxicity to Invertebrates (48h): >1001 mg/L Biodegradation/Bioaccumulation: Not biodegradable. Does not bioaccumulate	
G-SEAL (All Grades)	SLB / M-I SWACO	Bridging Agent	2.22	Acute Toxicity: Graphite: LD50 Oral (Rat): = 10010 mg/kg Chronic Toxicity: Not known to be mutagenic or sensitizing. Crystalline silica dust is listed by IARC as Group 1 carcinogen. No known reproductive or developmental hazards. Graphite: LC50 (Fish): >100 mg/L Crystalline Silica:LC50(Fish): = 10000 mg/L (96 h) EC50 (algae): >1000 mg/L (120 h) EC50 (invertebrates) >10000 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
SAFE-SCAV NA	SLB / M-I SWACO	Oxygen Scavenger	0.05	Acute Toxicity: No Data available Chronic Toxicity: Not known to be carcinogenic or mutagenic. May cause allergic reactions in highly susceptible persons. No known reproductive hazards. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Ammonium hydrogensulphite: EC50 (fish): >464 mg/L, EC50 (algae): 43.8 mg/L, EC50 (invertebrates): 89 mg/L Biodegradation/Bioaccumulation:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Not applicable- Inorganic chemical.	
CALCIUM CARBONATE (CIRCAL / OMYACARB/ SAFE-CARB) (All Grades) [Contingency]	SLB / M-I SWACO	Loss Circulation Material	5.64	Acute Toxicity: Calcium carbonate: LD50 Oral: > 6540 mg/kg; LC50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, reproductive, or mutagenic effects. Crystalline silica dust is listed by IARC in Group 1 Ecotoxicity: Calcium Carbonate: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L Crystalline Silica: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
DEFOAM PLUS NS	SLB / M-I SWACO	Defoamer	0.03	Acute Toxicity: LD50 Oral (Rat): >2000 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, contains potentially biodegradable substances.	Y
NUOSEPT 78	SLB / M-I SWACO	Preservative	0.06	Acute Toxicity: LD50 Oral (Rat- Female): = 2000 mg/kg LD50 Dermal (Rat): >1009-3950 mg/kg Chronic Toxicity: No known carcinogenic, reproductive, or teratogenic effects. EC50 (Daphnia): 10-100 mg/L (48 h) LC50 (Fish): 10-100 mg/L (96 h) Biodegradation/Bioaccumulation: Product is biodegradable, has low bioaccumulative potential	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
IDCAP	SLB / M-I SWACO	Shale Encapsulator	0.22	Acute toxicity: None known Chronic Toxicity: No known sensitising, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Product is not biodegradable, does not bioaccumulate.	Y
FLOWZAN	SLB / M-I SWACO	Viscosifier	0.39	Acute Toxicity: None known Chronic Toxicity: None known Ecotoxicity: This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation: Product components not expected to be biodegradable. Does not bioaccumulate.	Y
M-I BAR (All Grades)	SLB / M-I SWACO	Weighting Agent	12.5	Acute Toxicity *Barite:* > 15000 mg/kg LD50 (Rat) (Oral) *Crystalline silica (impurity):* = 500 mg/kg LD50 (Rat) (Oral) Chronic Toxicity This product does not contain any known or suspected mutagens. This product does not contain any components suspected to be sensitizing. This product does not contain any known or suspected reproductive hazards. Ecotoxicity The product component(s) are not classified as environmentally hazardous. EC50 (Algae) > 1000 mg/l 72h	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				LC50 (Fish) > 10000 mg/l 96h Biodegradation / bioaccumulation Product is not biodegradable. Does not bioaccumulate	
M-I-X II [Contingency]	SLB / M-I SWACO	Loss Control Material	0.13	Acute Toxicity: Cellulose 5005 mg/kg LD50 Oral, 2002 mg/kg LD50 Dermal Chronic Toxicity: No known carcinogenic properties or chronic impacts Ecotoxicity: Not considered Toxic to algae, fish, or invertebrates Biodegradation/Bioaccumulation: Expected to be readily biodegradable, and not expected to bioaccumulate.	Y
CAUSTIC SODA [Contingency]	SLB / M-I SWACO	pH Control	0.06	Acute Toxicity: LD50 Oral (rat): 325 mg/kg LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	Y
STARGLIDE [Contingency]	SLB / M-I SWACO	Lubricant	1.40	Acute Toxicity: Poly (oxy-1,2, ethanediyl), a-buthyl-2-hydroxy LD50 Oral (Rat): > 4090 mg/kg LD50 Oral: > 2000 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. This product is not considered toxic to algae, fish, daphnia, or invertebrates.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				LC50(fish): >100 mg/L (96 h) LC50(algae)> 100 mg/L (96 h) EC50(invertebrates): = >100 mg/L (120 h) Biodegradation/Bioaccumulation: Product is Biodegradable. Contains potentially bioaccumulating substances. Poly (oxy-1,2, ethanediyl), a-buthyl-2-hydroxy has low bioaccumulation potential.	
G-SEAL (All Grades) [Contingency]	SLB / M-I SWACO	Loss Circulation Material	0.47	Acute Toxicity: Graphite: LD50 Oral (Rat): = 10010 mg/kg Chronic Toxicity: Not known to be mutagenic or sensitizing. Crystalline silica dust is listed by IARC as Group 1 carcinogen. No known reproductive or developmental hazards. Graphite: LC50 (Fish): >100 mg/L Crystalline Silica:LC50(Fish): = 10000 mg/L (96 h), EC50 (algae): >1000 mg/L (120 h) EC50 (invertebrates) >10000 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
SAFE-SCAV CA [Contingency]	SLB / M-I SWACO	Oxygen Scavenger	0.03	Acute Toxicity: LD50 Oral (Rat): > 5g/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, does not bioaccumulate.	Y
SAFE-SCAV NA [Contingency]	SLB / M-I SWACO	Oxygen Scavenger	0.69	Acute Toxicity: No Data available Chronic Toxicity: Not known to be carcinogenic or mutagenic. May cause allergic reactions in highly susceptible persons. No known reproductive hazards. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Ammonium hydrogensulphite:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				EC50 (fish): >464 mg/L, EC50 (algae): 43.8 mg/L, EC50 (invertebrates): 89 mg/L Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	
SAPP [Contingency]	SLB / M-I SWACO	Rheology Control	0.47	Acute Toxicity: Disodium dihydrogen diphosphate: LD50 Oral (Rat): 1800 mg/kg, LD50 Dermal (rabbit): 2002 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/bioaccumulation: Not applicable - Inorganic chemical	Y
CALCIUM CARBONATE (CIRCAL / OMYACARB/ SAFE-CARB) (All Grades) [Contingency]	SLB / M-I SWACO	Loss Control Material	0.64	Acute Toxicity: Calcium carbonate: LD50 Oral: > 6540 mg/kg; LC50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, reproductive, or mutagenic effects. Crystalline silica dust is listed by IARC in Group 1 Ecotoxicity: Calcium Carbonate: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L Crystalline Silica: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
FORM-A-BLOK AS [Contingency]	SLB / M-I SWACO	Loss Control Material	0.34	Acute Toxicity: None Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				This product is not considered toxic to algae, fish, daphnia, or invertebrates. Biodegradation/Bioaccumulation: No Product data available	
IDCAP [Contingency]	SLB / M-I SWACO	Shale Encapsulator	0.35	Acute toxicity: None known Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Product is not biodegradable, does not bioaccumulate.	Y
KWIK-SEAL (All Grades) [Contingency]	SLB / M-I SWACO (Kelco)	Loss Control Material	0.17	Acute Toxicity: None Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Expected to biodegrade, not suspected to bioaccumulate.	Y
CITRIC ACID [Contingency]	SLB / M-I SWACO	pH Buffer	0.12	Acute toxicity: None known Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects Product is not considered toxic to fish, algae, or invertebrates. LC50 Fish (96h) = 1516 mg/L EC50 Invertebrates(72h) = 120 mg/L Biodegradation/Bioaccumulation: Product contains no substance considered to be persistent, bioaccumulating, or toxic	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
DUO-VIS [Contingency]	SLB / M-I SWACO	Viscosifier	0.47	Acute Toxicity: None Chronic Toxicity: No known carcinogenic or reproductive hazards. Contains a known or suspected mutagen. Contains glyoxal; may produce an allergic reaction This product is not considered toxic to algae, fish, or invertebrates Biodegradation/Bioaccumulation: Product is biodegradable, does not bioaccumulate	Y
KLEEN UP [Contingency]	SLB / M-I SWACO	Surfactant	0.14	Acute toxicity: > 2000 mg/kg LD50 Oral (Rat) (based on components) > 100 mg/l LC50 (Fish) Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens. This product does not contain any known or suspected reproductive hazards. This product does not contain any known or suspected carcinogens. Biodegradation/Bioaccumulation: Product contains no substance considered to be persistent, bioaccumulating, or toxic	Y
LIME [Contingency]	SLB / M-I SWACO	pH Control	0.47	Acute Toxicity: Calcium Hydroxide LD50 Oral (Rat): 7340 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, or invertebrates. Toxicity to fish LC60: 160 mg/L (96h) Biodegradation/Bioaccumulation: Not available	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Total (with contingency)			106.2%		

1.1.4.2 Chemical List: High Performance Water-Based Drilling Fluid

Chemicals within products in part 1.1.4.1	CAS Number	Mass Fraction (%)
Water	-	66
Potassium chloride	7447-40-7	9.31
Barite	13462-86-7	12.5
Limestone / Calcium Carbonate	471-34-1 / 1317-65-3	5.64
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	9046-10-0	2.75
Coke, Petroleum, Calcined	64743-05-1	2.22
Sodium carboxymethylcellulose	9004-32-4	≤ 1.00
Crystalline silica (impurity)	14808-60-7	≤ 1.00
Xanthan Gum	11138-66-2	≤ 1.00
Sodium chloride	7647-14-5	≤ 1.00
Magnesium oxide	1309-48-4	≤ 1.00
Graphite	7782-42-5	≤ 1.00
Hydroxypropyl acetate, sodium acrylate, acrylic acid terpolymer	86864-96-2	≤ 1.00
Propane-1,2-diol, propoxylated (impurity)	25322-69-4	≤ 1.00
Sodium carbonate	497-19-8	≤ 0.10
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl) triethanol	4/04/4719	≤ 0.10
Oxirane, methyl-, polymer with oxirane, di-(9Z)-9-octadecenoate	67167-17-3	≤ 0.10
Ammonium hydrogen sulphite	10192-30-0	≤ 0.10
Octadecanoic acid, calcium salt	1592-23-0	≤ 0.01

Chemicals within products in part 1.1.4.1	CAS Number	Mass Fraction (%)
2-aminoethanol	141-43-5	≤ 0.01
Fatty acids, tall oil	61790-12-3	≤ 0.01
2-Propenoic acid, 2-methyl-, polymer with methyl 2-methyl-2-propenoate, octadecyl 2-methyl-2- propenoate and 2-propenoic acid (Impurity)	145417-45-4	≤ 0.001
Acrylic Acid (Impurity)	79-10-7	≤ 0.001
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt (Impurity)	140-01-2	≤ 0.001
Sulphur Dioxide (Impurity)	5/09/7446	≤ 0.0001
Limestone / Calcium Carbonate	471-34-1 / 1317-65-3	≤ 1.00
Rapeseed oil [Contingency]	8002-13-9	≤ 1.00
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy [Contingency]	9004-77-7	≤ 1.00
Calcium hydroxide [Contingency]	1305-62-0	≤ 1.00
Xanthan Gum [Contingency]	11138-66-2	≤ 1.00
Coke, Petroleum, Calcined [Contingency]	64743-05-1	≤ 1.00
Ammonium hydrogen sulphite [Contingency]	10192-30-0	≤ 1.00
Hydroxypropyl acetate, sodium acrylate, acrylic acid terpolymer [Contingency]	86864-96-2	≤ 0.10
Aragonite (CaCO3) [Contingency]	14791-73-2	≤ 1.00
Esters of fatty acids, c16-18 and c18-unsaturated [Contingency]	85049-37-2	≤ 1.00
Cellulose [Contingency]	9004-34-6	≤ 1.00
Fatty acids, tall-oil [Contingency]	61790-12-3	≤ 1.00
Citric acid monohydrate [Contingency]	5949-29-1	≤ 1.00
Natural Plant Fibres [Contingency]	9004-34-6	≤ 0.10
Nut Shells [Contingency]	9004-34-6	≤ 0.10
Sodium hydroxide [Contingency]	1310-73-2	≤ 0.10
Castor oil [Contingency]	8001-79-4	≤ 0.10
Graphite [Contingency]	7782-42-5	≤ 0.10

Chemicals within products in part 1.1.4.1	CAS Number	Mass Fraction (%)
Alcohols, C11-14-iso-, C13-rich, ethoxylated [Contingency]	78330-21-9	≤ 0.10
Polyhexamethylene Adipamide [Contingency]	32131-17-2	≤ 0.10
2,3-didehydro-3-O-sodio-D-erythro-hexono-1,4-lactone [Contingency]	6381-77-7	≤ 0.10
Cotton Seed Hulls [Contingency]	9004-34-6	≤ 0.10
Synthetic Flakes [Contingency]	7782-42-5	≤ 0.10
Silica, crystalline, quartz [Contingency]	14808-60-7	≤ 0.01
Glyoxal [Contingency]	107-22-2	≤ 0.01
Kaolin [Contingency]	1332-58-7	≤ 0.01
Strontium oxide [Contingency]	1314-11-0	≤ 0.01
Magnesium carbonate [Contingency]	546-93-0	≤ 0.01
2-Propenoic acid, 2-methyl-, polymer with methyl 2-methyl-2-propenoate, octadecyl 2-methyl-2- propenoate and 2-propenoic acid (Impurity) [Contingency]	145417-45-4	≤ 0.001
Sodium chloride [Contingency]	7647-14-5	≤ 0.001
Sulphur Dioxide (Impurity) [Contingency]	5/09/7446	≤ 0.001
Sorbic acid, potassium salt [Contingency]	590-00-1	≤ 0.001
Sulphur trioxide [Contingency]	7446-11-9	≤ 0.001
Titanium dioxide [Contingency]	13463-67-7	≤ 0.001
Carbon black [Contingency]	1333-86-4	≤ 0.001
Aluminium oxide [Contingency]	1344-28-1	≤ 0.001
Acrylic Acid (Impurity) [Contingency]	79-10-7	≤ 0.001
Pigment [Contingency]	980-26-7	≤ 0.001
Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]-, pentasodium salt (Impurity) [Contingency]	140-01-2	≤ 0.001
Silicon oxide [Contingency]	10097-28-6	≤ 0.001
Fibre Finish [Contingency]	9004-34-6	≤ 0.001
Iron oxide (Fe2O3) [Contingency]	1309-37-1	≤ 0.001

Chemicals within products in part 1.1.4.1	CAS Number	Mass Fraction (%)
Total (with contingency)		106.2%*

1.1.5 System Details: Reservoir Drill-In Fluid (RDIF)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6
SYSTEM:	Reservoir Drill-In Fluid (≤ 10.0 ppg / ≤ 1.20 SG)
TOTAL VOLUME OF SYSTEM PER WELL:	350 – 700 m^3

1.1.5.1 Product List Details: Reservoir Drill-In Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
WATER	N/A	Base Fluid	69	N/A	N/A
SODA ASH	SLB / M-I SWACO	Buffer	0.06	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	8.84	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	
MAGNESIUM OXIDE	SLB / M-I SWACO	pH Buffer	0.26	Acute Toxicity: LD50 Oral (rat): 3780 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
KLA-STOP	SLB / M-I SWACO	Shale inhibitor	3.24	Acute toxicity Reaction products of Propane- 1,2-diol: LD50 oral (rat): 2885 mg/kg, LD50 Dermal (rabbit): 2979 mg/kg, 1ml/kg. Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecological Information: Toxicity to Fish (96h): >700 mg/L Toxicity to algae (72h): >700 mg/L Toxicity to Invertebrates (48h): >1001 mg/L Biodegradation/Bioaccumulation: Not biodegradable. Does not bioaccumulate	Y
SAFE-SCAV NA	SLB / M-I SWACO	Oxygen Scavenger	0.04	Acute Toxicity: No Data available Chronic Toxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Not known to be carcinogenic or mutagenic. May cause allergic reactions in highly susceptible persons. No known reproductive hazards. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Ammonium hydrogensulphite: EC50 (fish): >464 mg/L EC50 (algae): 43.8 mg/L EC50 (invertebrates): 89 mg/L Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	
CALCIUM CARBONATE (CIRCAL / OMYACARB/ SAFE-CARB) (All Grades)	SLB / M-I SWACO	Loss Control Material	16.00	Acute Toxicity: Calcium carbonate: LD50 Oral: > 6540 mg/kg; LC50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, reproductive, or mutagenic effects. Crystalline silica dust is listed by IARC in Group 1 Ecotoxicity: Calcium Carbonate: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L Crystalline Silica: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
NUOSEPT 78	SLB / M-I SWACO	Preservative	0.06	Acute Toxicity: LD50 Oral (Rat- Female): = 2000 mg/kg LD50 Dermal (Rat): >1009-3950 mg/kg Chronic Toxicity: No known carcinogenic, reproductive, or teratogenic effects. EC50 (Daphnia): 10-100 mg/L (48 h) LC50 (Fish): 10-100 mg/L (96 h) Biodegradation/Bioaccumulation: Product is biodegradable, has low bioaccumulative potential	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
FLO-TROL	SLB / M-I SWACO	Fluid Loss Control	1.97	Acute Toxicity: None Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. This product is not considered toxic to algae, fish, daphnia, or invertebrates. Biodegradation/Bioaccumulation: No Product data available	Y
FLOWZAN	SLB / M-I SWACO	Viscosifier	0.26	Acute Toxicity: None known Chronic Toxicity: None known Ecotoxicity: This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation: Product components not expected to be biodegradable. Does not bioaccumulate.	Y
CAUSTIC SODA [Contingency]	SLB / M-I SWACO	Loss Control Material	0.02	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	Y
POTASSIUM CHLORIDE [Contingency]	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	1.83	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	
CALCIUM CARBONATE (CIRCAL / OMYACARB/ SAFE-CARB) (All Grades) [Contingency]	SLB / M-I SWACO	Loss Control Material	1.17	Acute Toxicity: Calcium carbonate: LD50 Oral: > 6540 mg/kg; LC50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, reproductive, or mutagenic effects. Crystalline silica dust is listed by IARC in Group 1 Ecotoxicity: Calcium Carbonate: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L Crystalline Silica: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
SAFE-SCAV CA [Contingency]	SLB / M-I SWACO	Oxygen Scavenger	0.05	Acute Toxicity: LD50 Oral (Rat): > 5g/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, does not bioaccumulate.	Y
SODIUM CHLORIDE [Contingency]	SLB / M-I SWACO	Clay Control Agent	0.92	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
	(BAKER HUGHES)			Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg Biodegradation/bioaccumulation: n/a – inorganic chemical	
SAPP [Contingency]	SLB / M-I SWACO	Oxygen Scavenger	0.73	Acute Toxicity: Disodium dihydrogen diphosphate: LD50 Oral (Rat): 1800 mg/kg, LD50 Dermal (rabbit): 2002 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/bioaccumulation: Not applicable - Inorganic chemical	Y
SODIUM BICARBONATE [Contingency]	SLB / M-I SWACO (NEWPARK)	Alkalinity control	0.09	Acute Toxicity: Sodium Chloride: LD50 Oral (Rat): = 4220 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazard Toxicity to Fish: LC50: 8250-9000 mg/L (96h) Toxicity to Algae EC50: 650 mg/L (120h) Toxicity to invertebrates: EC50: 2350 (48h) Biodegradation/Bioaccumulation: Not applicable; inorganic chemical	Y
DEFOAM PLUS NS [Contingency]	SLB / M-I SWACO	Defoamer	0.11	Acute Toxicity: LD50 Oral (Rat): >2000 mg/kg Chronic Toxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, contains potentially biodegradable substances.	
FORM-A-BLOK AS [Contingency]	SLB / M-I SWACO	Loss Control Material	0.26	Acute toxicity: None known Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Product is not biodegradable, does not bioaccumulate.	Y
DUO-VIS [Contingency]	SLB / M-I SWACO	Viscosifier	0.36	Acute Toxicity: None Chronic Toxicity: No known carcinogenic or reproductive hazards. Contains a known or suspected mutagen. Contains glyoxal; may produce an allergic reaction This product is not considered toxic to algae, fish, or invertebrates Biodegradation/Bioaccumulation: Product is biodegradable, does not bioaccumulate	Y
KLEEN UP [Contingency]	SLB / M-I SWACO	Surfactant	0.06	Acute toxicity: > 2000 mg/kg LD50 Oral (Rat) (based on components) > 100 mg/l LC50 (Fish) Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens This product does not contain any known or suspected reproductive hazards. This product does not contain any known or suspected carcinogens. Biodegradation/Bioaccumulation:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Product contains no substance considered to be persistent, bioaccumulating, or toxic	
LIME [Contingency]	SLB / M-I SWACO	pH Control	0.36	Acute Toxicity: Calcium Hydroxide LD50 Oral (Rat): 7340 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, or invertebrates. Toxicity to fish LC60: 160 mg/L (96h) Biodegradation/Bioaccumulation: Not available	Y
Total (with contingency)			**~117.9%**		

1.1.5.2 Chemical List: Reservoir Drill-In Fluid

Chemicals within products in part 0	CAS Number	Mass Fraction (%)
Water	-	~69
Limestone / Calcium Carbonate	471-34-1 / 1317-65-3	~16.00
Potassium chloride	7447-40-7	~7.00
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	9046-10-0	≤ 3.00
Modified Starch	9049-76-7	≤ 2.00
Magnesium oxide	1309-48-4	≤ 1.00
Xanthan Gum	11138-66-2	≤ 1.00
Sodium chloride	7647-14-5	≤ 1.00
Propane-1,2-diol, propoxylated (impurity)	25322-69-4	≤ 1.00
Crystalline silica (impurity)	14808-60-7	≤ 1.00

Chemicals within products in part 0	CAS Number	Mass Fraction (%)
Rapeseed oil	8002-13-9	≤ 1.00
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	9004-77-7	≤ 1.00
Sodium carbonate	497-19-8	≤ 0.10
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl) triethanol	4719-04-4	≤ 0.10
Esters of fatty acids, c16-18 and c18-unsaturated	85049-37-2	≤ 0.10
Fatty acids, tall oil	61790-12-3	≤ 0.10
Ammonium hydrogensulphite	10192-30-0	≤ 0.10
Castor oil	8001-79-4	≤ 0.10
Octadecanoic acid, calcium salt	1592-23-0	≤ 0.01
2-aminoethanol	141-43-5	≤ 0.01
Sulphur Dioxide (Impurity)	7446-09-5	≤ 0.0001
Potassium chloride [Contingency]	7447-40-7	≤ 2.00
Sodium chloride [Contingency]	7647-14-5	≤ 1.00
Limestone / Calcium Carbonate [Contingency]	471-34-1 / 1317-65-3	≤ 1.00
Calcium hydroxide [Contingency]	1305-62-0	≤ 13.00
Xanthan Gum [Contingency]	11138-66-2	≤ 1.00
Aragonite (CaCO3) [Contingency]	14791-73-2	≤ 1.00
Crystalline silica (impurity) [Contingency]	14808-60-7	≤ 1.00
Oxirane, methyl-, polymer with oxirane, di-(9Z)-9-octadecenoate [Contingency]	67167-17-3	≤ 1.00
Sodium hydrogen carbonate [Contingency]	144-55-8	≤ 0.1
2,3-didehydro-3-O-sodio-D-erythro-hexono-1,4-lactone [Contingency]	6381-77-7	≤ 0.1
Sodium hydroxide [Contingency]	1310-73-2	≤ 0.1
Polyhexamethylene Adipamide [Contingency]	32131-17-2	≤ 0.1
Cellulose [Contingency]	9004-34-6	≤ 0.1
Alcohols, C11-14-iso-, C13-rich, ethoxylated [Contingency]	78330-21-9	≤ 0.1

Chemicals within products in part 0	CAS Number	Mass Fraction (%)
Fatty acids, tall oil [Contingency]	61790-12-3	≤ 0.01
Glyoxal [Contingency]	107-22-2	≤ 0.01
Kaolin [Contingency]	1332-58-7	≤ 0.01
Magnesium carbonate [Contingency]	546-93-0	≤ 0.01
Strontium oxide [Contingency]	1314-11-0	≤ 0.01
Sulphur trioxide [Contingency]	7446-11-9	≤ 0.001
Carbon black [Contingency]	1333-86-4	≤ 0.001
Titanium dioxide [Contingency]	13463-67-7	≤ 0.001
Aluminium oxide [Contingency]	1344-28-1	≤ 0.001
Pigment [Contingency]	980-26-7	≤ 0.001
Silicon oxide [Contingency]	10097-28-6	≤ 0.001
Fiber Finish [Contingency]	9004-34-6	≤ 0.001
Iron oxide (Fe_2O_3) [Contingency]	1309-37-1	≤ 0.0001
Total (with contingency)		**117.9%***

1.1.6 System Details: Solids-Free Reservoir Drill-In Fluid (SFRDIF)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6
SYSTEM:	Solids-Free Reservoir Drill-In Fluid (≤ 10.0 ppg / ≤ 1.20 SG)
TOTAL VOLUME OF SYSTEM PER WELL:	20 – 120 m^3

1.1.6.1 Product List Details: Solids-Free Reservoir Drill-In Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
WATER	N/A	Base Fluid	69.50	N/A	N/A
SODA ASH	SLB / M-I SWACO	pH Buffer	0.06	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	14.74	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	
KLA-STOP	SLB / M-I SWACO	Shale Inhibitor	2.96	Acute toxicity Reaction products of Propane- 1,2-diol: LD50 oral (rat): 2885 mg/kg, LD50 Dermal (rabbit): 2979 mg/kg, 1ml/kg. LC50 inhalation (Rat 6h): 0.74 mg/L Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecological Information: Toxicity to Fish (96h): >700 mg/L Toxicity to algae (72h): >700 mg/L Toxicity to Invertebrates (48h): >1001 mg/L Biodegradation/Bioaccumulation: Not biodegradable. Does not bioaccumulate	Y
SODIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	10.70	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg Biodegradation/bioaccumulation: n/a – inorganic chemical	Y
FLO-TROL	SLB / M-I SWACO	Fluid Loss Control	1.78	Acute Toxicity: None	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. This product is not considered toxic to algae, fish, daphnia, or invertebrates. Biodegradation/Bioaccumulation: No Product data available	
FLOWZAN	SLB / M-I SWACO	Viscosity	0.24	Acute Toxicity: None known Chronic Toxicity: None known Ecotoxicity: This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation: Product components not expected to be biodegradable. Does not bioaccumulate.	Y
DRISPAC R [contingency]	SLB / M-I SWACO	Fluid Loss Control	0.71	Acute Toxicity: Inhalation of dust may cause shortness of breath, tightness of chest, a sore throat and cough Carboxymethylcellulose sodium salt =27000mg/kg LD50 (Rat) LD50 >2g/kg (Rabbit), > 5800mg/m^3 LD50 Inhalation (Rat) 4h Ecotoxicity This material is not expected to be harmful to aquatic organisms. Biodegradation / Bioaccumulation: This material is not expected to bioaccumulate. This material is expected to be readily biodegradable.	Y
POTASSIUM FORMATE BRINE [contingency]	SLB / M-I SWACO	Weighting Agent	37.0	Acute Toxicity: None Chronic Toxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				The product component(s) are not classified as environmentally hazardous. LC50 > 1000 mg/l 96h Oncorhynchus mykiss EC50 1000 mg/l 96h freshwater algae EC50 > 100 mg/l 48h Daphnia magna Biodegradation/Bioaccumulation Product contains no substance considered to be persistent, bioaccumulating, or toxic. Listed on PLONOR list of OSPAR	
Total (with contingency)			**~137.7%**		

1.1.6.2 Chemical List: Solids-Free Reservoir Drill-In Fluid

Chemicals within products in part 1.1.6.1	CAS Number	Mass Fraction (%)
Water	-	69.5%
Potassium chloride	7447-40-7	15%
Sodium chloride	7647-14-5	11%
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	9046-10-0	3%
Modified Starch	9049-76-7	≤ 2%
Xanthan Gum	11138-66-2	≤ 1
Propane-1,2-diol, propoxylated (impurity)	25322-69-4	≤ 1
Sodium carbonate	497-19-8	≤ 0.1
Octadecanoic acid, calcium salt	1592-23-0	≤ 0.01
Sodium carboxymethylcellulose [contingency]	9004-32-4	≤ 1
Potassium Formate [contingency]	590-29-4	≤ 37.0
Total (with contingency)		**~137.7%***

1.1.7

1.1.8 System Details: Wellbore Clean Up Fluid Train

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Wellbore Clean-Up Fluid Train
TOTAL VOLUME OF SYSTEM PER WELL:	75 – 150 m^3

1.1.8.1 Product List Details: Wellbore Clean Up Fluid Train

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Water	N/A	Base Fluid	73.00	N/A	N/A
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	13.00	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
SODIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Weighting Agent	7.00	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Biodegradation/bioaccumulation: n/a – inorganic chemical	
DEEPCLEAN	SLB / M-I SWACO	Solvent / Surfactant	3.00	Acute Toxicity: D-glucopyranose, oligomeric, c8-c10, glycosides: LD50 Dermal (rabbit): 2002 mg/kg 2-butoxy ethanol: LD50 Oral (rat) 470mg mg/kg. LD50 Dermal (rabbit): 435 mg/kg. Distillates, petroleum, hydrotreated light: LD50 Oral (rat) 5005 mg mg/kg. LD50 Dermal (rabbit): 2002 mg/kg. Chronic Toxicity: Not known to be carcinogenic or mutagenic. May cause sensitization by skin contact. No known reproductive or developmental hazards Ecotoxicity: D-glucopyranose, oligomeric, c8-c10, glycoside: LC50 (fish) = 170 mg/L, EC50 (algae): > 37 mg/L, EC 50 (invertebrates): >100 mg/L 2-butoxy ethanol: EC50 (fish): 1490 mg/L, EC50 (invertebrates: >1000 mg/L Distillates, petroleum, hydrotreated light: EC50 (fish): 2.2 mg/L Biodegradation/Bioaccumulation: Product is biodegradable, contains potentially bioaccumulating substances.	Y
FLOWZAN	SLB / M-I SWACO	Viscosity	1.00	Acute Toxicity: None known Chronic Toxicity: None known Ecotoxicity: This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation: Product components not expected to be biodegradable. Does not bioaccumulate.	Y
SAFE-SOLV E	SLB / M-I SWACO	Solvent	3.00	Acute Toxicity: Distillates, petroleum, hydrotreated light: LD50 Oral > 5000 mg/Kg (Rat), LD50 Dermal >2000 mg/Kg (Rabbit), LC50 inhalation >5.2 mg/l (Rat) 4 h Orange, sweet, extract: LD50 Dermal >5000 mg/Kg (Rabbit) Chronic Toxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				May cause allergic skin reaction. Product does not contain any known or suspected mutagens or carcinogens Ecotoxicity: Distillates, petroleum, hydrotreated light: = 45 mg/L LC50 Pimephales promelas 96 h = 2.4 mg/l, LC50 Oncorhynchus mykiss 96 h = 2.2 mg/l, LC50 Lepomis macrochirus 96 h Orange, sweet, extract: > 1000 mg/l (Scophthalmus Maximus), 96h, 451 mg/l (Acartia Tonsa), 48h Biodegradation/Bioaccumulation: The product does not contain any substances expected to be bioaccumulating	
SODIUM BROMIDE BRINE [Contingency]	SLB / M-I SWACO	Weighting Agent	50.00	Acute Toxicity: Sodium Bromide: LD50 Oral: 50.1 mg/kg, LD50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Sodium Bromide: Toxicity to fish:16000-24000 mg/L, Toxicity to algae: 5800-24000 mg/L, Toxicity to invertebrates: 5700 - 10800 mg/L Biodegradation/Bioaccumulation: Not Applicable, Inorganic material	Y
POTASSIUM FORMATE BRINE [contingency]	SLB / M-I SWACO	Weighting Agent	37.00	Acute Toxicity: None Chronic Toxicity: The product component(s) are not classified as environmentally hazardous. LC50 > 1000 mg/l 96h Oncorhynchus mykiss EC50 1000 mg/l 96h freshwater algae EC50 > 100 mg/l 48h Daphnia magna Biodegradation/Bioaccumulation Product contains no substance considered to be persistent, bioaccumulating, or toxic.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Listed on PLONOR list of OSPAR	
Total (With Contingency)			**~187.0%**		

1.1.8.2 Chemical List: Wellbore Clean-up Fluid Train

Chemicals within products in part 1.1.8.1	CAS Number	Mass Fraction (%)
Water	-	73.00
Potassium chloride	7447-40-7	13.00
Sodium chloride	7647-14-5	7.00
D-Glucopyranose, oligomeric, C8-10 glycosides	68515-73-1	≤ 1.00
2-butoxyethanol	111-76-2	≤ 1.00
Distillates, petroleum, hydrotreated light	64742-47-8	≤ 2.00
Xanthan Gum	11138-66-2	≤ 1.00
Citrus Extract	68647-72-3	≤ 1.00
Orange, sweet, extract	8028-48-6	≤ 1.00
Octadecanoic acid, calcium salt	1592-23-0	≤ 0.10
Sodium bromide [Contingency]	7647-15-6	≤ 50.00
Potassium Formate [contingency]	590-29-4	≤ 37.0
Total		**~187%**

1.1.9 System Details: Completion Brine

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Completion Brine (≤ 10.0 ppg / ≤ 1.20 SG)
TOTAL VOLUME OF SYSTEM PER WELL	200 – 400 m^3

1.1.9.1 Product List Details: Completion Brine

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
WATER	N/A	Base Fluid	73.27	N/A	N/A
SODA ASH	SLB / M-I SWACO	Buffer	0.07	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	15.05	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	
MAGNESIUM OXIDE	SLB / M-I SWACO	pH Buffer	0.24	Acute Toxicity: LD50 Oral (rat): 3780 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
SAFE-SCAV NA	SLB / M-I SWACO	Oxygen Scavenger	0.05	Acute Toxicity: No Data available Chronic Toxicity: Not known to be carcinogenic or mutagenic. May cause allergic reactions in highly susceptible persons. No known reproductive hazards. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Ammonium hydrogensulphite: EC50 (fish): >464 mg/L, EC50 (algae): 43.8 mg/L, EC50 (invertebrates): 89 mg/L Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
SODIUM CHLORIDE	SLB / M-I SWACO	Weighting Agent	11.23	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
	(BAKER HUGHES)			Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg Biodegradation/bioaccumulation: n/a – inorganic chemical	
NUOSEPT 78	SLB / M-I SWACO	Preservative	0.09	Acute Toxicity: LD50 Oral (Rat- Female): = 2000 mg/kg LD50 Dermal (Rat): >1009-3950 mg/kg Chronic Toxicity: No known carcinogenic, reproductive, or teratogenic effects. EC50 (Daphnia): 10-100 mg/L (48 h) LC50 (Fish): 10-100 mg/L (96 h) Biodegradation/Bioaccumulation: Product is biodegradable, has low bioaccumulative potential	Y
CAUSTIC SODA [Contingency]	SLB / M-I SWACO	pH Control	0.09	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	Y
SODA ASH [Contingency]	SLB / M-I SWACO	pH Buffer	0.40	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h)	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	
POTASSIUM CHLORIDE [Contingency]	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	3.30	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
CALCIUM CARBONATE (CIRCAL / OMYACARB/ SAFE-CARB) (All Grades) [Contingency]	SLB / M-I SWACO	Loss Control Material	0.49	Acute Toxicity: Calcium carbonate: LD50 Oral: > 6540 mg/kg; LC50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, reproductive, or mutagenic effects. Crystalline silica dust is listed by IARC in Group 1 Ecotoxicity: Calcium Carbonate: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L Crystalline Silica: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L. Biodegradation/Bioaccumulation:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Not applicable, inorganic chemical.	
SAFE-COR [Contingency]	SLB / M-I SWACO	Corrosion Prevention	0.66	Acute Toxicity: Ethanol,2,2'oxybis-reaction products with ammonia, morpholine derivs, residues: LD50 Oral (Rat): > 1500 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: Ethanol,2,2'oxybis-reaction products with ammonia, morpholine derivs, residues: LC50(fish): >45 mg/L (96 h) LC50(algae): 45 mg/L (72 h) EC50(invertebrates): = >100 mg/L (48 h) Biodegradation/Bioaccumulation: Biodegradable. No bioaccumulation expected.	Y
SAFE-SCAV CA [Contingency]	SLB / M-I SWACO	Oxygen Scavenger	0.11	Acute Toxicity: LD50 Oral (Rat): > 5g/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: Product is not considered toxic to fish, algae, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, does not bioaccumulate.	Y
SODIUM CHLORIDE [Contingency]	SLB / M-I SWACO (BAKER HUGHES)	Weighting Agent	3.30	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg Biodegradation/bioaccumulation: n/a – inorganic chemical	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
NUOSEPT 78 [Contingency]	SLB / M-I SWACO	Preservative	0.20	Acute Toxicity: LD50 Oral (Rat- Female): = 2000 mg/kg LD50 Dermal (Rat): >1009-3950 mg/kg Chronic Toxicity: No known carcinogenic, reproductive, or teratogenic effects. EC50 (Daphnia): 10-100 mg/L (48 h) LC50 (Fish): 10-100 mg/L (96 h) Biodegradation/Bioaccumulation: Product is biodegradable, has low bioaccumulative potential	Y
SODIUM BROMIDE BRINE [Contingency]	SLB / M-I SWACO	Base Fluid / Density	24.43	Acute Toxicity: Sodium Bromide: LD50 Oral: 50.1 mg/kg, LD50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Sodium Bromide: Toxicity to fish:16000-24000 mg/L, Toxicity to algae: 5800-24000 mg/L, Toxicity to invertebrates: 5700 - 10800 mg/L Biodegradation/Bioaccumulation: Not Applicable, Inorganic material	Y
POTASSIUM FORMATE BRINE [Contingency]	SLB / M-I SWACO	Weighting Agent	37.00	Acute Toxicity: None Chronic Toxicity: The product component(s) are not classified as environmentally hazardous. LC50 > 1000 mg/l 96h Oncorhynchus mykiss EC50 1000 mg/l 96h freshwater algae EC50 > 100 mg/l 48h Daphnia magna Biodegradation/Bioaccumulation Product contains no substance considered to be persistent, bioaccumulating, or toxic. Listed on PLONOR list of OSPAR	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
KLEEN UP [Contingency]	SLB / M-I SWACO	Surfactant	0.20	Acute toxicity: > 2000 mg/kg LD50 Oral (Rat) (based on components) > 100 mg/l LC50 (Fish) Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens This product does not contain any known or suspected reproductive hazards. This product does not contain any known or suspected carcinogens. Biodegradation/Bioaccumulation: Product contains no substance considered to be persistent, bioaccumulating, or toxic	Y
LIME [Contingency]	SLB / M-I SWACO	pH Control	0.40	Acute Toxicity: Calcium Hydroxide LD50 Oral (Rat): 7340 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, or invertebrates. Toxicity to fish LC60: 160 mg/L (96h) Biodegradation/Bioaccumulation: Not available	Y
Total			**~170.6%**		

1.1.9.2 Chemical List: Completion Brine

Chemicals within products in part 1.1.9.1	CAS Number	Mass Fraction (%)
Water	-	73.3
Potassium chloride	7447-40-7	15.1
Sodium chloride	7647-14-5	11.2

Chemicals within products in part 1.1.9.1	CAS Number	Mass Fraction (%)
Magnesium oxide	1309-48-4	≤ 1.00
Sodium carbonate	497-19-8	≤ 0.10
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl) triethanol	4719-04-4	≤ 0.10
Ammonium hydrogensulphite	10192-30-0	≤ 0.10
2-aminoethanol	141-43-5	≤ 0.01
Sulphur Dioxide (Impurity)	7446-09-5	≤ 0.0001
Sodium bromide [Contingency]	7647-15-6	≤ 24.40
Potassium Formate [contingency]	590-29-4	≤ 37.00
Sodium chloride [Contingency]	7647-14-5	≤ 3.30
Potassium chloride [Contingency]	7447-40-7	≤ 3.30
Limestone / Calcium Carbonate [Contingency]	471-34-1 / 1317-65-3	≤ 1.00
Sodium carbonate [Contingency	497-19-8	≤ 1.00
Calcium hydroxide [Contingency]	1305-62-0	≤ 1.00
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. Residues [Contingency]	68909-77-3	≤ 1.00
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl) triethanol [Contingency]	4719-04-4	≤ 1.00
2,3-didehydro-3-O-sodio-D-erythro-hexono-1,4-lactone [Contingency]	6381-77-7	≤ 1.00
Sodium hydroxide [Contingency]	1310-73-2	≤ 0.1
Alcohols, C11-14-iso-, C13-rich, ethoxylated [Contingency]	78330-21-9	≤ 0.1
2-aminoethanol [Contingency]	141-43-5	≤ 0.01
Crystalline silica (impurity) [Contingency]	14808-60-7	≤ 0.01
Total (including contingency)		**170.6%***

1.1.10 System Details: Gravel Pack Carrier Fluid

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7
SYSTEM:	Gravel Pack Carrier Fluid (≤ 10.0 ppg / ≤ 1.20 SG)
TOTAL VOLUME OF SYSTEM PER WELL:	500 – 700 m3

1.1.10.1 Product List Details: Gravel Pack Carrier Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Water	N/A	Base Fluid	72.42	N/A	
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	5.00	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
SODIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Weighting Agent	21.00	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Biodegradation/bioaccumulation: n/a – inorganic chemical	
SODIUM BROMIDE BRINE [Contingency]	SLB / M-I SWACO	Weighting Agent	26.00	Acute Toxicity: Sodium Bromide: LD50 Oral: 50.1 mg/kg, LD50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Sodium Bromide: Toxicity to fish:16000-24000 mg/L, Toxicity to algae: 5800-24000 mg/L, Toxicity to invertebrates: 5700 - 10800 mg/L Biodegradation/Bioaccumulation: Not Applicable, Inorganic material	Y
POTASSIUM FORMATE BRINE [Contingency]	SLB / M-I SWACO	Weighting Agent	37.00	Acute Toxicity: None Chronic Toxicity: The product component(s) are not classified as environmentally hazardous. LC50 > 1000 mg/l 96h Oncorhynchus mykiss EC50 1000 mg/l 96h freshwater algae EC50 > 100 mg/l 48h Daphnia magna Biodegradation/Bioaccumulation Product contains no substance considered to be persistent, bioaccumulating, or toxic. Listed on PLONOR list of OSPAR	Y
CALCIUM CHLORIDE (All Grades) [Contingency]	SLB / M-I SWACO	Inhibition	0.99	Acute Toxicity: LD50 Oral (rat): 1000 mg/kg LD50 Dermal (rabbit): 5005 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards LC50 (fish): 10650 mg/L EC50 (Invertebrates): 2400 mg/L	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Biodegradation/Bioaccumulation: N/A Inorganic chemical	
DCA-26003	Halliburton	Stabilizer	0.085	Acute Toxicity **LD50 Oral:** 11700 mg/kg (Rat) (similar substance) **LD50 Dermal:** 2000 mg/kg (Rat) (similar substance) **LC50 Inhalation:** No data available Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity **Toxicity to Algae:** EbC50 (96h) >18000-32000 mg/L (Chlorella vulgaris) **Toxicity to Fish:** LC50 (48h) 440 mg/L(Leuciscus idus melanotus) (similar substance) **Toxicity to Microorganisms:** TT (16h) > 10000 mg/L (Pseudomonas putida) (similar substance) **Toxicity to Invertebrates:** LC50 (24h) 1535 mg/L (Daphnia magna) (similar substance) Biodegradation & Bioaccumulation Readily biodegradable (97% @ 28d) Log Kow = -0.28 BCF = 3.2	Y
BE-6	Halliburton	Microbiocide	0.002	Acute Toxicity **LD50 Oral** 305 mg/kg (Rat) 307 mg/kg (Rat) **LD50 Dermal** 1600 mg/kg (Rat) **LC50 Inhalation**	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				> 0.588 mg/L (Rat) 4h > 5 mg/L (Rat) 4h Ecotoxicity **Toxicity to Algae** EC50 (72h) 0.25 mg/L (Skeletonema costatum) EC50 (72h) 0.37 mg/L (Pseudokirchnerella subcapitata) EC50 (72h) 0.89 mg/L (Chlorella vulgaris) **Toxicity to Fish** LC50 (96h) 58 mg/l (Pimephales promelas) LC50 (96h) 35.7 mg/L (Lepomis macrochirus) LC50 (96h) 41.2 mg/L (Oncorhynchus mykiss) LC50 (96h) 57.6 mg/L (Cyprinodon variegatus) NOEC (49d) 21.5 mg/L (Oncorhynchus mykiss) LC50 (49d) 39.1 mg/L (Oncorhynchus mykiss) **Toxicity to Microorganisms** EC20 (150m) 2 mg/L (Activated Sludge, Respiration Inhibition) EC50 (150m) 43 mg/L (Activated sludge) **Toxicity to Invertebrates** EC50 (48h) 1.4 mg/L (Daphnia magna) EC50 (48h) 3.5 mg/L (Acartia tonsa) NOEC (21d) 0.27 mg/L (Daphnia magna) EC50 (21d) 0.27-0.88 mg/L (Daphnia magna) Biodegradation & Bioaccumulation Readily biodegradable (70% @ 28d) Bioaccumulation = 0.22	
DCA-14003	Halliburton	Buffer	0.032	Acute Toxicity	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				LD50 Oral: N/A **LD50 Dermal:** N/A **LC50 Inhalation:** N/A Ecotoxicity N/A Biodegradation & Bioaccumulation N/A	
DCA-13002	Halliburton	Breaker	0.024	Acute Toxicity **LD50 Oral** 895 mg/kg (Rat) **LD50 Dermal** > 10000 mg/kg (Rat) **LC50 Inhalation** 19.0 mg/L (Rat) 4h > 5.1 mg/L (Rat) 4h Ecotoxicity **Toxicity to Algae** EC50 (72h) 116 mg/L (biomass) (Pseudokirchnerella subcapitata) **Toxicity to Fish** LC50 (96h) 163 mg/L (Oncorhynchus mykiss) **Toxicity to Microorganisms** EC10 (18h) 36 mg/L (Pseudomonas putida) **Toxicity to Invertebrates** EC50 (48h) 133 mg/L (Daphnia magna) Chronic Toxicity: Not known to be carcinogenic or, mutagenic. No known reproductive or developmental hazards Biodegradation & Bioaccumulation	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				N/A	
DCA-25021	Halliburton	Gelling Agent	0.450	Acute Toxicity **LD50 Oral** > 5000 mg/kg (Rat) > 45000 mg/kg (Rat) **LC50 Inhalation** > 21 mg/L (Rat) 1h > 4.25 mg/L (Rat) 4h Ecotoxicity **Toxicity to Fish** TLM96 320-560 ppm (Oncorhynchus mykiss) LC50 (96h) 490 mg/L (Oncorhynchus mykiss) **Toxicity to Invertebrates** TLM96 > 75000 ppm (Mysidopsis bahia) LC50 (48h) 980 mg/L (Daphnia magna) Biodegradation & Bioaccumulation Biodegradable. (93% @ 28d)	Y
Total (With Contingency)			**~163.0%**		

1.1.10.2 Chemical List: Gravel Pack Carrier Fluid

Chemicals within products in 1.1.10.1	CAS Number	Mass Fraction (%)
Water	-	~ 72
Potassium chloride	7447-40-7	≤ 5.00
Sodium chloride	7647-14-5	≤ 21.00
Sodium bromide [contingency]	7647-15-6	≤ 26.00
Potassium Formate [contingency]	590-29-4	≤ 37.00
Calcium chloride [contingency]	10043-52-4	≤ 1.00

Chemicals within products in 1.1.10.1	CAS Number	Mass Fraction (%)
Trisodium citrate, dihydrate	6132-04-3	0.085
2-Bromo-2-nitro-1,3-propanediol	52-51-7	0.002
Sodium bicarbonate	44-55-8	0.032
Sodium persulfate	7775-27-1	0.024
Xanthan gum	11138-66-2	0.450
Total (including contingency)		**~163.0%**

1.1.11 System Details: Packer Fluid

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Packer Fluid (≤ 10.0 ppg / ≤ 1.20 SG)
TOTAL VOLUME OF SYSTEM PER WELL	50 – 100 m^3

1.1.11.1 Product List Details: Packer Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Water	N/A	Base Fluid	72.88	N/A	N/A
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	15.00	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
SODIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Weighting Agent	11.20	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Biodegradation/bioaccumulation: n/a – inorganic chemical	
SAFE-SCAV NA	SLB / M-I SWACO	Oxygen Scavenger	0.04	Acute Toxicity: No Data available Chronic Toxicity: Not known to be carcinogenic or mutagenic. May cause allergic reactions in highly susceptible persons. No known reproductive hazards. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. Ammonium hydrogensulphite: EC50 (fish): >464 mg/L, EC50 (algae): 43.8 mg/L, EC50 (invertebrates): 89 mg/L Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
NUOSEPT 78	SLB / M-I SWACO	Preservative	0.06	Acute Toxicity: LD50 Oral (Rat- Female): = 2000 mg/kg LD50 Dermal (Rat): >1009-3950 mg/kg Chronic Toxicity: No known carcinogenic, reproductive, or teratogenic effects. EC50 (Daphnia): 10-100 mg/L (48 h) LC50 (Fish): 10-100 mg/L (96 h) Biodegradation/Bioaccumulation: Product is biodegradable, has low bioaccumulative potential	Y
CAUSTIC SODA	SLB / M-I SWACO	pH Control	0.10	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	
SODA ASH	SLB / M-I SWACO	pH Buffer	0.06	Acute Toxicity: Sodium carbonate LD50 Oral (Rat): > 4090 mg/kg LC50 Inhalation (Rat): >2300 mg/m3 (1 h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: This product is not considered toxic to algae, fish, daphnia, or invertebrates. LC50 (Lepomis macrochirus): = 300 mg/L (96 h) LC50 (Pimephales promelas): 310-1220 mg/L (96 h) EC50 (Nitzchia): = 242mg/L (120 h) EC50 (Daphnia magna) = 265 mg/L (48 h) Biodegradation/Bioaccumulation: Not applicable- Inorganic chemical.	Y
SAFE-COR	SLB / M-I SWACO	Corrosion Inhibitor	0.66	Acute Toxicity: Ethanol,2,2'oxybis-reaction products with ammonia, morpholine derivs, residues: LD50 Oral (Rat): > 1500 mg/kg Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Ecotoxicity: Ethanol,2,2'oxybis-reaction products with ammonia, morpholine derivs, residues: LC50(fish): >45 mg/L (96 h) LC50(algae): 45 mg/L (72 h) EC50(invertebrates): = >100 mg/L (48 h) Biodegradation/Bioaccumulation: Biodegradable. No bioaccumulation expected.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Total			**~100.0%**		

1.1.11.2 Chemical List: Packer Fluid

Chemicals within products in 1.1.11.1	CAS Number	Mass Fraction (%)
Water	-	~73
2,2',2"-(hexahydro-1,3,5-triazine-1,3,5-triyl) triethanol	4719-04-4	≤ 1.00
2-aminoethanol	141-43-5	≤ 0.01
Ammonium hydrogensulphite	10192-30-0	≤ 0.10
Sulphur Dioxide (Impurity)	231-195-2	≤ 0.0001
Potassium chloride	7447-40-7	≤ 15.00
Sodium hydroxide	1310-73-2	≤ 0.10
Sodium carbonate, anhydrous	497-19-8	≤ 0.10
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. Residues	68909-77-3	≤ 1.00
Sodium chloride	7647-14-5	≤ 11.20
Total		**~100.0%**

1.1.12 System Details: LCM Pill Well Control (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	LCM Pill Well Control (Contingency)
TOTAL VOLUME OF SYSTEM PER WELL:	15.9 m^3

1.1.12.1 Product List Details: LCM Pill Well Control (Contingency)

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	~95	N/A	N/A
CALCIUM CARBONATE (CIRCAL / OMYACARB/ SAFE-CARB) (All Grades)	SLB / M-I SWACO	Loss Control Material	~5	Acute Toxicity: Calcium carbonate: LD50 Oral: > 6540 mg/kg; LC50 Dermal: 2002 mg/kg Chronic Toxicity: No known sensitizing, reproductive, or mutagenic effects. Crystalline silica dust is listed by IARC in Group 1 Calcium Carbonate: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L C Crystalline Silica: LC50 Fish: 10000 mg/L; EC50 Algae: >1000 mg/L, LC50 Invertebrates:> 10000 mg/L. Biodegradation/Bioaccumulation: Not applicable, inorganic chemical.	Y
FLOWZAN	SLB / MI SWACO	Drilling Fluid Additive	0.6	Acute Toxicity: None known Chronic Toxicity: None known This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation: Product components not expected to be biodegradable.	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Does not bioaccumulate.	
Total			**~100**		

1.1.12.2 Chemical List: LCM Pill Well Control (Contingency)

Chemicals within products in 1.1.12.1	CAS number	Mass fraction (%)
Water (Including Mix Water Supplied by Client)	7732-18-5	94.99
Calcium carbonate	1317-65-3	2.5
Xanthan gum	11138-66-2	2.5
Glyoxal	107-22-2	0.00038
Total		**~100%**

1.2 VENDOR – NEWPARK and SLB / M-I SWACO

1.2.1 System Details: Water Disposal Well Filtercake Breaker Fluid

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WI5, F-WI6
SYSTEM:	Water Disposal Well Filtercake Breaker Fluid (≤ 10.0 ppg / ≤ 1.20 SG)
TOTAL VOLUME OF SYSTEM PER WELL	50 – 100 m^3

1.2.1.1 Product List Details: Water Disposal Well Filtercake Breaker Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Water	N/A	Base Fluid	60.95	N/A	N/A
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	14.00	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
SODIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Weighting Agent	7.00	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg Biodegradation/bioaccumulation: n/a – inorganic chemical	
GBC-1	NEWPARK	Breaker - Buffer	2.00	Acute Toxicity: None Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. 100% PLONOR [Considered to Pose Little or No Risk to the Environment (PLONOR)] Biodegradation/bioaccumulation Soluble in water Persistence is unlikely based on information available. OCNS category and registration number E – 28991	Y
ORCA FG-3	NEWPARK	Organic acid precursor	15.50	Acute Toxicity: Skin corrosion/irritation May cause skin irritation. Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation. Chronic Toxicity: 96H LC50= 74.31 mg/l Sheepshead Minnow 96H LC50=215.65 mg/l Acartia Tonsa Biodegradation/bioaccumulation: Biodegradable, No bioaccumulation potential	Y
LYOSTAR	NEWPARK	Starch Breaker	0.25	Acute Toxicity: Respiratory or skin sensitization May cause allergy or asthma symptoms or breathing difficulties if inhaled. Chronic Toxicity: Contains 0 % of components with unknown hazards to the aquatic environment. The product components are not classified as environmentally hazardous. Biodegradation/bioaccumulation: Biodegradable, does not bioaccumulate	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
LYOZAN	NEWPARK	Enzyme Braker	0.20	Acute Toxicity: Glycerol: Oral LD50 = 12600 mg/kg (Rat), Dermal LD50= > 10 g/kg (Rabbit), Glucanase, endo-1,3(4)-β-: Oral LD50= >5000 mg/kg (Rat) Chronic Toxicity: Glycerol: LC50 (Omcorhynchus muykiss) = 51-57 mL/L/96hrs Biodegradation/bioaccumulation: Readily biodegradable	Y
SODIUM BICARBONATE	SLB / M-I SWACO (NEWPARK)	pH Buffer, Contamination Treatment	0.1	Acute Toxicity: Sodium Chloride: LD50 Oral (Rat): = 4220 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazard Toxicity to Fish: LC50: 8250-9000 mg/L (96h) Toxicity to Algae EC50: 650 mg/L (120h) Toxicity to invertebrates: EC50: 2350 (48h) Biodegradation/Bioaccumulation: Not applicable; inorganic chemical	Y
Total			**~100%**		

1.2.1.2 Chemical List: Water Disposal Well Filtercake Breaker Fluid

Chemicals within products in 1.2.1.1	CAS Number	Mass Fraction (%)
Water	-	~ 61.00
Potassium chloride	7447-40-7	≤ 14.00
Sodium chloride	7647-14-5	≤ 7.00
Bacterial alpha amylase	9000-85-5	≤ 0.24
Glucanase endo,1-3(4)-β-	62213-14-3	≤ 0.20
Glycerol	56-81-5	≤ 0.10

Chemicals within products in 1.2.1.1	CAS Number	Mass Fraction (%)
Mono- and di-esterification of products of propane-1,2,3-triol and formic acid	1410795-90-2	≤ 15.50
Potassium formate	209-677-9	≤ 2.00
Potassium sorbate	24634-61-5	≤ 0.01
Sodium Bicarbonate	144-55-8	≤ 0.10
Sucrose	57-50-1	≤ 0.06
Total		**~100%**

1.2.2 System Details: Water Production Well Filtercake Breaker Fluid

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7
SYSTEM:	Water Production Well Filtercake Breaker Fluid (≤ 10.0 ppg / ≤ 1.20 SG)
TOTAL VOLUME OF SYSTEM PER WELL:	30 – 60 m^3

1.2.2.1 Product List Details: Water Disposal Well Filtercake Breaker Fluid

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Water	N/A	Base Fluid	60.85	N/A	N/A
POTASSIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Clay Control Agent	14.00	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
SODIUM CHLORIDE	SLB / M-I SWACO (BAKER HUGHES)	Weighting Agent	7.00	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Biodegradation/bioaccumulation: n/a – inorganic chemical	
GBC-1	NEWPARK	Breaker - Buffer	1.30	Acute Toxicity: None Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, sensitizing, or mutagenic effects. Ecotoxicity: 100% PLONOR [Considered to Pose Little or No Risk to the Environment (PLONOR)] Biodegradation/bioaccumulation: Soluble in water Persistence is unlikely based on information available.	Y
ORCA HA	NEWPARK	Acid Precursor	10.00	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity) > 1721 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity) Ecotoxicity: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment. Biodegradation/bioaccumulation: The product does not contain any substances expected to be bioaccumulating.	Y
ORCA FG-3	NEWPARK	Organic acid precursor	5.00	Acute Toxicity: Skin corrosion/irritation May cause skin irritation. Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation. Ecotoxicity: 96H LC50= 74.31 mg/l Sheepshead Minnow 96H LC50=215.65 mg/l Acartia Tonsa Biodegradation/bioaccumulation: Biodegradable, No bioaccumulation potential	Y
LYOSTAR	NEWPARK	Starch Breaker	0.25	Acute Toxicity: Respiratory or skin sensitization May cause allergy or asthma symptoms or breathing difficulties if inhaled.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Ecotoxicity: Contains 0 % of components with unknown hazards to the aquatic environment. The product components are not classified as environmentally hazardous. Biodegradation/bioaccumulation: Biodegradable, does not bioaccumulate	
SODIUM BICARBONATE	SLB / M-I SWACO / NEWPARK	pH Buffer, Contamination Treatment	1.60	Acute Toxicity: Sodium Chloride: LD50 Oral (Rat): = 4220 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazard Toxicity to Fish: LC50: 8250-9000 mg/L (96h) Toxicity to Algae EC50: 650 mg/L (120h) Toxicity to invertebrates: EC50: 2350 (48h) Biodegradation/Bioaccumulation: Not applicable; inorganic chemical	Y
Total			**~100%**		

1.2.2.2 Chemical List: Water Production Well Filtercake Breaker Fluid

Chemicals within products in part 1.2.2.1	CAS Number	Mass Fraction (%)
Water	n/a	~ 61.00
Potassium chloride	7447-40-7	≤ 14.00
Sodium chloride	7647-14-5	≤ 7.00
Bacterial alpha amylase	9000-85-5	≤ 0.24
Glycerol 1,3 – di(acetate)	25395-31-7	≤ 10.00
Mono- and di-esterification of products of propane-1,2,3-triol and formic acid	1410795-90-2	≤ 5.00
Potassium formate	209-677-9	≤ 0.98
Potassium sorbate	24634-61-5	≤ 0.01
Sodium Bicarbonate	144-55-8	≤ 1.60

Chemicals within products in part 1.2.2.1	CAS Number	Mass Fraction (%)
Sucrose	57-50-1	≤ 0.05
Total		**~100%**

1.3 VENDOR – N/A

1.3.1 System Details: Flacourt Flowback Water - Reinjected

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WI5, F-WI6
SYSTEM:	Flacourt Flowback Water
TOTAL VOLUME OF SYSTEM PER WELL:	240 – 400 m^3

1.3.1.1 Product List Details: Flacourt Flowback Water

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Flacourt Aquifer Water	N/A	Base Fluid	100	N/A	N/A
Total			**100%**		

1.3.1.2 Chemical List: Flacourt Flowback Water

Chemicals within products in part 0	CAS Number	Mass Fraction (%)
Flacourt Aquifer Water	-	100
Total		**100%**

1.3.2 System Details: Dupuy Flowback Water – Reinjected

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	A-I10, A-I11
SYSTEM:	Dupuy Flowback Water
TOTAL VOLUME OF SYSTEM PER WELL:	240 – 954 m^3

1.3.2.1 Product List Details: Dupuy Flowback Water

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Dupuy Aquifer Water	N/A	Base Fluid	100.00	N/A	N/A
Total			**100.0%**		

1.3.2.2 Chemical List: Dupuy Flowback Water

Chemicals within products in part 0	CAS Number	Mass Fraction (%)
Dupuy Aquifer Water	-	100.00
Total		**100.0%**

1.4 VENDOR – BAKER HUGHES

1.4.1 System Details: Clay Stabilisation Treatment

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WI5, F-WI6
SYSTEM:	Clay Stabilisation Treatment
TOTAL VOLUME OF SYSTEM PER WELL:	600 – 1200 m^3

1.4.1.1 Product List Details: Baker Hughes Clay Stabilisation Treatment

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Water[1]	N/A	Base Fluid	93.50	N/A	N/A
CLAYMASTER 10	BAKER HUGHES	Clay Stabilizer	1.50	Acute Toxicity: **Component 2 (30-60% concentration)** Scenedesmus subspicatus (freshwater algae) 72 hour EC50 – >10,000 mg/L Daphnia magna (freshwater crustacean) 48 hour EC50 – 164 mg/L Specie: Danio rerio (freshwater fish) 96 hour LC50 – 4,128 mg/L Chronic Toxicity This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. **Component 2 (30-60% concentration)** Daphnia magna (freshwater crustacean) 21 day EC50 – 1.03 mg/L Daphnia magna (freshwater crustacean) 21 day EC50 – 1.52 mg/L Biodegradation/bioaccumulation: Ready Biodegradability	Y

[1] Reverse Osmosis/Formation water

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
AMMONIUM CHLORIDE (NH_4Cl)	BAKER HUGHES / SLB / M-I SWACO	Base Fluid Additive	5.00	Acute Toxicity: Chlorella vulgaris (freshwater algae) 72 hour EC50 – 1,300 mg/L Daphnia magna (freshwater crustacean) 48 hour EC50 – 101 mg/L Cyprinus (freshwater fish) 96 hour LC50 – 209 mg/L Rat, Oral LD50 – >2,000 mg/kg Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Biodegradation/bioaccumulation: Not applicable to inorganic substances	Y
POTASSIUM CHLORIDE [contingency]	SLB / M-I SWACO (BAKER HUGHES)	Clay Stabilisation Enhancer	7.00	Acute toxicity: LD50 Oral (Rat) - 2600 mg/kg Chronic Toxicity This product does not contain any components suspected to be sensitizing. This product does not contain known or suspected mutagens, reproductive hazards or carcinogens. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product is not considered toxic to algae, fish or invertebrates. Biodegradation / Bioaccumulation: n/a – inorganic chemical	Y
SODIUM CHLORIDE [contingency]	SLB / M-I SWACO (BAKER HUGHES)	Clay Stabilisation Enhancer	6.00	Acute Toxicity: Nitzschia linearis (freshwater algae) EC50, 120 hours.: 2430 mg/L Daphnia magna (freshwater invertebrate) EC50, 48 hours: 874 mg/L Lepomis macrochirus (freshwater fish) LC50, 96 hours: 5840 mg/L Chronic Toxicity: This product does not contain any carcinogenic, chronic, mutagenic or reproductive hazards. Specie: Rat, Oral LD50 – 3550 mg/kg Biodegradation/bioaccumulation: n/a – inorganic chemical	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Total (With Contingency)			**~113%**		

1.4.1.2 Chemical List: Baker Hughes Clay Stabilisation Treatment

Chemicals within products in part 1.4.1.1	CAS Number	Mass Fraction (%)
Water	-	94.25
Ammonium Chloride	12125-02-9	5.00
2-Hydroxytrimethylene) Bis(Trimethylammonium) Dichloride	55636-09-4	0.75
Potassium Chloride [Contingency]	7447-40-7	7.00
Sodium Chloride [Contingency]	7647-14-5	6.00
Total		**~113%**

1.5 VENDOR – SCHLUMBERGER

1.5.1 System Details: Clay Stabilisation Treatment

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WI5, F-WI6
SYSTEM:	Clay Stabilisation Treatment
TOTAL VOLUME OF SYSTEM PER WELL:	600 – 1200 m^3

1.5.1.1 Product List Details: Schlumberger Clay Stabilisation Treatment

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Water[1]	N/A	Base Fluid	94.7%	N/A	N/A
L055	SLB	Clay Stabilizer	0.2%	Acute Toxicity: Methanol: LD50 Oral: = 6200 mg/kg. LD50 Dermal: = 15800 mg/kg, Chronic toxicity: Product contains no components known to be carcinogenic, mutagenic, or sensitizing. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: Methanol: Toxicity to Fish: LC50: >13500 mg/L Toxicity to Algae: EC50: +22000 mg/L Toxicity to Invertebrates: EC50: >10000 mg/L. Biodegradation/Bioaccumulation: No product level data available	Y
K240	SLB	Clay Stabilizer	0.2%	Acute Toxicity: Reaction products of propane-1,2-diol propoxylated by amination of the terminal hydroxyl groups LD50 Oral: = 242 mg/kg. LD50 Dermal:2980 mg/kg	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Chronic toxicity: Product contains no components known to be carcinogenic, mutagenic, or sensitizing. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: Reaction products of propane-1,2-diol propoxylated by amination of the terminal hydroxyl groups: Toxicity to Fish: LC50: >700 mg/L (96 h), Toxicity to Algae: EC50: >700 mg/L (72 h), Toxicity to Invertebrates: EC50: >1001 mg/L (48 h) Biodegradation/Bioaccumulation: Not biodegradable, does not bioaccumulate	
L071	SLB	Clay Stabilizer	0.2%	Acute Toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Biodegradation/Bioaccumulation: Readily biodegradable, not expected to bioaccumulate.	Y
M117	SLB / Baker Hughes	Carrier Fluid Additive	4%	Acute Toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Biodegradation/Bioaccumulation: Readily biodegradable, not expected to bioaccumulate.	Y
M303	SLB	Coiled Tubing Lubricant	0.1%	Acute Toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides: Toxicity to Fish: LC50: 2 mg/L Toxicity to Algae: EC50: 0.37 mg/L Toxicity to Invertebrates: EC50: 3.0 mg/L Biodegradation/Bioaccumulation: Readily biodegradable, bioaccumulation is unlikely	
SAFE-LUBE	SLB	Metal Friction Reducer	0.6%	Acute Toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: 1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides: Toxicity to Fish: LC50: 2 mg/L, Toxicity to Algae: EC50: 0.37 mg/L, Toxicity to Invertebrates: EC50: 3.0 mg/L Biodegradation/Bioaccumulation: Readily biodegradable, bioaccumulation is unlikely	Y
Total			**100%**		

1.5.1.2 Chemical List: Schlumberger Clay Stabilisation Treatment

Chemicals within products in part 1.5.1.1	CAS Number	Mass Fraction (%)
Water		95.56618
Potassium chloride	7447-40-7	3.87999
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	9046-10-0	0.15577
2-hydroxy-N,N,N-trimethylethanaminium chloride	67-48-1	0.14279
Sodium chloride	7647-14-5	0.11522

Chemicals within products in part 1.5.1.1	CAS Number	Mass Fraction (%)
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	83682-78-4	0.05405
Methanol	67-56-1	0.03749
Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, methyl sulfate, homopolymer	27103-90-8	0.03205
Polypropylene glycol	25322-69-4	0.01038
Glycerol (impurity)	56-81-5	0.00338
3-aminopropyl)dimethylamine (impurity)	109-55-7	0.00135
Amines, coco alkyldimethyl	61788-93-0	0.00135
Total		**100%**

1.6 VENDOR – BISN

1.6.1 System Details: BiSN Well-Lok Plugging System 3 (Plug and Abandon Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	BiSN Well-Lok Plugging System 3 (Plug and Abandon Contingency)
TOTAL VOLUME OF SYSTEM PER WELL	1 – 6 m^3

1.6.1.1 Product List Details: BiSN Well-Lok Plugging System 3 (Plug and Abandon Contingency)

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
BiSN-138 [Contingency]	BiSN	Sealing Agent	80 - 95	Toxicity Bismuth – LD50 Oral-rat >5,000 mg/kg Tin – LD50 Oral-rat >700 mg/kg	Y
BiSN-ETC-1 [Contingency]	BiSN	Heating Agent	5 - 20	Toxicity Ferric Oxide - LD50 Oral-rat >10,000 mg/kg Ferro Vanadium – LD50 Rat oral 293 mg/kg Silica – LD50 Rat oral >22,500 mg/kg Sodium acid / silicate – LD50 Rat oral 1.1 – 1.6 g/kg Chronic Toxicity: Aluminium Powder– L50 *Pisidium casertanum* >1.0 mg/L 96h Ferro Manganese – 48 hr LC50/EC50 values ranging from 0.8 mg manganese/L (*Daphnia magna*) to 1389 mg manganese/L (*Crangonyx pseudogracilis*) Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects	Y
Total			**~100%**		

1.6.1.2 Chemical List: BiSN Well-Lok Plugging System 3 (Plug and Abandon Contingency)

Chemicals within products in part 1.6.1.1	CAS Number	Mass Fraction (%)
Bismuth	7440-69-9	80-95
Tin	7440-22-4	0.5-5
Ferric Oxide	1309-37-1	3-8
Aluminium Powder (uncoated)	7429-90-5	1-5
Ferro Manganese	12604-53-4	≤ 3
Ferro Vanadium	12604-58-9	≤ 3
Silica Oxide	11926-00-8	≤ 3
Sodium Silicate	6834-92-0	≤ 2
Total		**~100%**

1.6.2 System Details: BiSN Well-Lok Plugging System 4 (Plug and Abandon Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	BiSN Well-Lok Plugging System 4 (Plug and Abandon Contingency)
TOTAL VOLUME OF SYSTEM PER WELL	1 - 6 m^3

1.6.2.1 Product List Details: BiSN Well-Lok Plugging System 4 (Plug and Abandon Contingency)

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
BiSN-263 [Contingency]	BiSN	Sealing Agent	80 - 95	Toxicity Bismuth – LD50 Oral-rat >5,000 mg/kg Silver – LD50 Oral-rat >5,000 mg/kg	Y
BiSN-ETC-1 [Contingency]	BiSN	Heating Agent	5 - 20	Toxicity Ferric Oxide - LD50 Oral-rat >10,000 mg/kg Ferro Vanadium – LD50 Rat oral 293 mg/kg Silica – LD50 Rat oral >22,500 mg/kg Sodium acid / silicate – LD50 Rat oral 1.1 – 1.6 g/kg Chronic Toxicity: Aluminium Powder– L50 *Pisidium casertanum* >1.0 mg/L 96h Ferro Manganese – 48 hr LC50/EC50 values ranging from 0.8 mg manganese/L (*Daphnia magna*) to 1389 mg manganese/L (*Crangonyx pseudogracilis*) Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects	Y
Total			**~100%**		

1.6.2.2 Chemical List: BiSN Well-Lok Plugging System 4 (Plug and Abandon Contingency)

Chemicals within products in part 1.6.2.1	CAS Number	Mass Fraction (%)
Bismuth	7440-69-9	45-60

Chemicals within products in part 1.6.2.1	CAS Number	Mass Fraction (%)
Tin	7440-31-5	30-45
Ferric Oxide	1309-37-1	3-8
Aluminium Powder (uncoated)	7429-90-5	1-5
Ferro Manganese	12604-53-4	≤ 3
Ferro Vanadium	12604-58-9	≤ 3
Silica Oxide	11926-00-8	≤ 3
Sodium Silicate	6834-92-0	≤ 2
Total		**~100%**

1.6.3 System Details: BiSN Well-Lok Plugging System 5 (Plug and Abandon Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	BiSN Well-Lok Plugging System 5 (Plug and Abandon)
TOTAL VOLUME OF SYSTEM PER WELL	1 – 6 m^3

1.6.3.1 Product List Details: BiSN Well-Lok Plugging System 5 (Plug and Abandon Contingency)

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
BiSN-185 [Contingency]	BiSN	Sealing Agent	80 - 95	Toxicity Bismuth – LD50 Oral-rat >5,000 mg/kg Tin – LD50 Oral-rat >700 mg/kg	Y
BiSN-ETC-1 [Contingency]	BiSN	Heating Agent	5 - 20	Toxicity Ferric Oxide - LD50 Oral-rat >10,000 mg/kg Ferro Vanadium – LD50 Rat oral 293 mg/kg Silica – LD50 Rat oral >22,500 mg/kg Sodium acid / silicate – LD50 Rat oral 1.1 – 1.6 g/kg Chronic Toxicity: Aluminium Powder– L50 *Pisidium casertanum* >1.0 mg/L 96h Ferro Manganese – 48 hr LC50/EC50 values ranging from 0.8 mg manganese/L (*Daphnia magna*) to 1389 mg manganese/L (*Crangonyx pseudogracilis*) Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects	Y
Total			**~100%**		

1.6.3.2 Chemical List: BiSN Well-Lok Plugging System 5 (Plug and Abandon Contingency)

Chemicals within products in part 1.6.3.1	CAS Number	Mass Fraction (%)
Bismuth	7440-69-9	40-99
Tin	7440-22-4	0.5-5
Ferric Oxide	1309-37-1	3-8
Aluminium Powder (uncoated)	7429-90-5	1-5
Ferro Manganese	12604-53-4	≤ 3
Ferro Vanadium	12604-58-9	≤ 3
Silica Oxide	11926-00-8	≤ 3
Sodium Silicate	6834-92-0	≤ 2
Total		**~100%**

1.6.4 SYSTEM DETAILS: BiSN Wel-Lok Sealing System 6

Operator	Chevron Australia Pty Ltd
Project	BWI – DC-F
Wells	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
System	BiSN Wel-Lok Sealing System 6
Total Volume of System	0.135 – 0.55 m^3

1.6.4.1 Product List Details: BiSN Wel-Lok Sealing System 6

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
BiSN-265	BiSN	Permanent seal for downhole use	80-95	SN -LD50 oral - rat > 5,000mg/kg; BI – LD50 oral – rat> 700mg/kg AG – LD50 oral – rat> 5,000mg/kg ECOTOXICITY No known carcinogenic, chronic, mutagenic or reproductive effects	Y
BiSN-ETC-1	BISN	Heating agent	5-20	Toxicity Ferric Oxide – LD560 Oralrat>10,000 mg/kg Ferro Vanadium – toxicity LD50 Rat oral 293 mg/kg/Vanadium oxide trisobutoxide Silica – LD50 Rat oral >22,500 mg/kg Sodium acid/silicate – LD Rat oral 1.1 – 1.6 g/kg Ecotoxicity Aluminum Powder – L50 Pisidium casertanum > 1.0mg/L 96h Ferro Manganese – 48 hr LC50/EC50 values ranging from 0.8 mg manganese/L (*Daphnia magna*) to 1389 mg manganese/L (*Crangonyx pseudogracilis*) Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.	Y
Total			**100**		

1.6.4.2 CHEMICAL LIST: BiSN Wel-Lok Sealing System 6

Chemicals within products in 1.6.4.1	CAS number	Mass fraction (%)
Bismuth	7440-69-9	40-99
Tin	7440-31-5	1-50
Silver	7440-22-4	0.1-10
Ferric Oxide	1309-37-1	3-8
Aluminum Powder (uncoated)	7429-90-5	1-5
Ferro Manganese	12604-53-4	0-3
Ferro Vanadium	12604-58-9	0-3
Silica Oxide	11926-00-8	0-3
Sodium Silicate	6834-92-0	0-2
Total	-	**~100%**

1.7 VENDOR - HALLIBURTON

1.7.1 System Details: Cement and Spacers

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Cement and Spacers
TOTAL VOLUME OF SYSTEM PER WELL	794.936 m3

1.7.1.1 Product List Details: Cement and Spacers

Trade name	Supplier	Purpose	Mass % of Total	Ecotoxicity Info	SDS
Water	n/a	Base fluid	45.78%	n/a	
Cement - Class G	Halliburton	Cement	25.9%	**CONSTITUENT 1 (≤100%):** LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >2000 mg/kg, LC50 Inhalation: >1.0 mg/L (4h) (Rat) After hardening with water or moister, cement presents no ecotoxicity risks. (Source: IUCLID 2000) Static Aquatic Toxicity - Freshwater and Marine Algae:- 72 hour EC50: >1,000 mg/L Static Aquatic Toxicity -Freshwater and Marine Invertebrates:- 48 hour LC50: >1,000 mg/L Static Aquatic Toxicity- Freshwater and Marine Fish:- 96 hour LC50: >1,500 mg/L Partition Coefficient, n-Octanol/Water: Not Applicable for inorganics Oxygen Demand, Chemical Oxygen Demand: Not Applicable for inorganics Biodegradability: Seawater – Indigenous microbes: Not Applicable for inorganics **CONSTITUENT 2 (≤10%):** LD50 Oral: >15000 mg/kg (human) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (Daphnia magna)	Y

				[Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (Danio rerio) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1)	
Pozmix A	Halliburton	Light weight cement additive	21.2%	<u>Acute Toxicity</u> Calcium oxide: Oral LD50: > 2000 mg/kg (Rat), Crystalline silica: Oral LD50 > 15000 mg/kg (human) <u>Ecotoxicity</u> Product contains no components known to be mutagenic, or sensitizing. Product does not contain any known or suspected reproductive or teratogeniz hazards. Crystalline silica dust is listed by IARC in Group 1 Calcium oxide: LC50 (96h) 1070 mg/L (Cyprinus carpio) Crystalline silica: EC50(72h) =440 mg/L (Pseudokirchneriella subcapitata) LL0(96h) =10000 mg/L (Danio rerio) LL50(24 h)>10000 mg/L (Daphnia magna) <u>Biodegradation & Bioaccumulation</u> n/a – inorganic substances	Y
HALAD-413L	Halliburton	Fluid Loss Additive	1.41%	**CONSTITUENT 1 (≤30%):** Oral LD50: >2000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 1102 mg/L (Skeletonema costatum) [OSPAR]; Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (Acartia tonsa) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (Scophthalmus maximus) [OSPAR]; Bioaccumulation Log Kow: < 3.5 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 6 % [Halliburton Funded Study]; **CONSTITUENT 2 (≤100%):**	Y

				Product is naturally occuring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
GASCON 469	Halliburton	Cement Additive Stabiliser	1.10%	**CONSTITUENT 1 <=1%** Oral LDL: 500 mg/kg (Rabbit), Dermal LD50: 1350 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 40.4 mg/L (Ceriodaphnia sp.) [ECHA]; Freshwater Fish Toxicity 96h LC50: 45.4 mg/L (Oncorhynchus mykiss) Freshwater Fish Toxicity 96h LC50: 125 mg/L (Gambusia affinis) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2 <=60%** Oral LD50: >10,000 mg/kg, Inhalation LC50: >0.69 mg/L (4h) (Rat) Freshwater Algae Toxicity 72h EC50: 440 mg/L (Selenastrum capricornutum) [IUCLID; LOLI]; Freshwater Crustacean Toxicity 48h EC50: 7600 mg/L (Ceriodaphnia dubia) [IUCLID; LOLI]; Freshwater Fish Toxicity 96h LC50: 5000 mg/L (Brachydanio rerio) [IUCLID; LOLI]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3 <= 100%** Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
Tuned Spacer III	Halliburton	Mud/Cement Spacer	1.03%	**CONSTITUENT 1 (≤30%):** Marine Water Acute Algae Toxicity 72h EC50: > 10000 mg/L (Skeletonema costatum) [Halliburton Funded Study]; Marine Water Acute Crustacean Toxicity 48h LC50: > 10000 mg/L (Acartia tonsa) [Halliburton Funded Study]; Marine Water Acute Fish Toxicity 96h LC50: > 5600 mg/L (Scophthalmus maximus) [Halliburton Funded Study];	Y

				Constituent is a clay mineral of soil and therefore biodegradability is not applicable. Constituent is a clay mineral of soil and therefore bioaccumulation is not applicable. **CONSTITUENT 2 (≤10%):** Oral LD50: >5000 mg/kg (Similar Substance), Inhalation LC0 >0.139 mg/L (Similar Substance), Dermal LC50: > 5000 mg/kg (Rabbit) Freshwater Acute Algae Toxicity 72h EC50: > 10000 mg/L (Scenedesmus subspicatus) [OECD SIDS] (similar substance); Freshwater Acute Crustacean Toxicity 24h EC50: > 10000 mg/L (Daphnia magna) [OECD SIDS] (similar substance); Freshwater Acute Fish Toxicity 72h LC50: > 10000 mg/L (Cyprinus carpio) [LOLI]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3 (≤5%):** Component is naturally occuring and not intrinsically hazardous. **CONSTITUENT 4 (≤1%):** Oral LD50 5400 mg/kg (Rat), Dermal LD50 >2000 mg/kg Freshwater Acute Crustacean Toxicity 48h EC50: > 50 mg/L (Daphnia magna) [ECHA]; Freshwater Acute Fish Toxicity 96h LC50: > 100 mg/L (Pimephales promelas) [ECHA]; Freshwater Acute Plant Toxicity 72h EC50: 990 mg/L (Lactuca sativa) [ECHA]; Bioaccumulation BCF: 3.2 [ECHA]; Freshwater Biodegradation 28d: 97 % [ECHA]; **CONSTITUENT 5 (≤100%):** Oral LD50: >15000 mg/kg (Human) Freshwater Acute Crustacean Toxicity 24h LL50: > 10000 mg/L (Daphnia magna) [Health Canada] (similar substance); Freshwater Acute Fish Toxicity 96h LL0: 10000 mg/L (Danio rerio) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 6 (≤1%):**	

				Oral LD50: >15000 mg/kg (Human) (Similar Substance) Freshwater Acute Crustacean Toxicity 24h LL50: > 10000 mg/L (Daphnia magna) [Health Canada] (similar substance); Freshwater Acute Fish Toxicity 96h LL0: 10000 mg/L (Danio rerio) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	
Latex 4000	Halliburton	Cement Expanding Additive	0.588%	**CONSTITUENT 1 (<60%):** Component is naturally occuring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards **CONSTITUENT 2 (<60%):** Trade Secret - No Data Available for non-hazardous polymer **CONSTITUENT 3 (<1%):** LD50 Oral: >2000 and <5000 mg/kg (Rat); LD50 Dermal: >10,000 mg/kg (Rabbit); Freshwater Crustacean Toxicity 48h EC50: 439 mg/L [ECHA]; Marine Water Algae Toxicity 72h EC50: 202.33 mg/L (Skeletonema costatum) [ECHA]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (Scophthalmus maximus) [Halliburton Sponsored Study]; Bioaccumulation LogPow: -1.504 [ECHA]; Biodegradation 14d: 100% [ECHA] **CONSTITUENT 4 (<0.1%):** Oral LD50: 1658 mg/kg (Rat); Inhalation LC50 >1 mg/L (Rat, saturated mist, 4hr) (Similar Substance); Freshwater Algae Toxicity 72h EC50: >100 mg/L (Desmodesmus subspicatus); Freshwater Crustacean Toxicity 24h LC50: 610 mg/L (Daphnia magna); Freshwater Fish Toxicity 96h LC50: 121 mg/L (Lepomis macrochirus); Biodegradation(28 Days): 10% (OECD306) **CONSTITUENT 5 (<0.1%):** LD50 Oral: 53 mg/kg (Rat); LD50 Dermal: 200 mg/kg (Rabbit); LC50 Inhalation: 0.11 mg/L (4h) (Rat); Freshwater Crustacean Toxicity EC50 (48h) 0.18 mg/L (Daphnia magna) (Similar Substance);	Y

				Freshwater Fish Toxicity LC50 (96h) 0.19 mg/L (Oncorhynchus mykiss) (Similar substance); Bioaccumulation: Log Pow= -0.26 **CONSTITUENT 6 (<0.1%):** LD50 Oral: 1020 mg/kg (Rat); LD50 Dermal: >2000 mg/kg (Rat); Bioaccumulation: Log Pow= 0.99 **CONSTITUENT 7 (<0.1%):** LD50 Oral: 481 mg/kg (Rat); LD50 Dermal: 1008 mg/kg (Rat); LC50 Inhalation: 1.23 mg/L (4h) (Rat); Freshwater Algae Toxicity 72h EC50: 0.11-0.16 mg/L (Pseudokirchneriella subcapitata); Freshwater Crustacean Toxicity 48h EC50: 0.18 mg/L (Daphnia magna); Freshwater Fish Toxicity LC50 (96h): 0.08 mg/L (Oncorhynchus mykiss); Bioaccumulation: Log Pow = 0.7	
Barite	Halliburton	Weighting Agent	0.548%	**CONSTITUENT 1 (≤100%):** Oral LD50: >5000 mg/kg (Rat), Oral LD50: >3000 mg/kg (Mouse), Inhalation LC50: >1.1 mg/L (Rat, Aerosal, 4h) (similar substance Freshwater Algae Toxicity 72h EC50: > 61.1 mg/L (Pseudokirchneriella subcapitata) [ECHA]; Freshwater Crustacean Toxicity 48h LC50: 14.5 mg/L (Daphnia magna) [ECHA] (similar substance); Freshwater Fish Toxicity 96h LC50: > 3.5 mg/L (Danio rerio) [ECHA]; No Marine Data Marine sub-chronic Crustacean Toxicity NOEC (7d) 100 mg/L (Cancer anthonyi) Bioaccumulation Fish BCF: 1.2-74.4 (Lepomis macrochirus) [ECHA]; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2 (≤5%):** LD50 Oral: >15000 mg/kg (human) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (Daphnia magna) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (Danio rerio) [Health Canada] (similar substance); Marine Water Algae Toxicity 72h EC50: 4717 mg/L (Skeletonema	Y

				costatum) Marine Water Crustacean Toxcity 48h LC50: 7713 mg/L (Acartia tonsa) Marine Water Fish Toxicity 96h LC50: > 4200 mg/L (Scophthalmus maximus) [Halliburton Sponsored Study]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1)	
Econolite Liquid	Halliburton	Cement Additive Stabiliser	0.400%	**CONSTITUENT 1 (≤60%):** LD50 Oral: 800 mg/kg (Rat), LD50 Oral: 770 mg/kg (Mouse), LD50 Dermal: > 5000 mg/kg (Rat) (Similar substance), LC50 Inhalation >2.06 mg/L (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: > 345 mg/L (Scenedesmus subspicatus) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 1700 mg/L (Daphnia magna) [OECD SIDS]; Freshwater Fish Toxicity 96h LC50: 1108 mg/L (Danio rerio) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2 (≤60%):** Component is naturally occuring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
SILICALITE LIQUID	Halliburton	Light weight cement additive	0.391%	**CONSTITUENT 1 (≤60%):** SiO2 is a stable substance. In the environment it occurs in different modifications and it is one of the most abundant materials on the Earth's surface. Biodegrability is not applicable for silica since it is inorganic. Additionally, bioaccumulation is not expected. Freshwater Algae Toxicity 72h EC50: 440 mg/L (Selenastrum capricornutum); Freshwater Crustacean Toxicity 48h EC50: 7600 mg/L (Ceriodaphnia dubia); Freshwater Fish Toxicity 96h LC50 5000 mg/L (Brachydanio rerio); Source: IUCLID 2000	Y

				CONSTITUENT 2 (≤60%): No Hazard - Product is naturally occuring **CONSTITUENT 3 (≤1%):** Freshwater Fish Toxicity 96h LC50: >1000 mg/L (Brachydanio rerio) Freshwater Crustacean Toxicity 24h LC50: >1000 mg/L (Daphnia magna) Marine Crustacean Toxicity 10d LC50: 50566 mg/kg (Corophium volutator)	
SCR-100L	Halliburton	Cement Retarder	0.166%	Oral Toxicity LD50: >5000 mg/kg (Rat), Dermal LD50 : >2000 mg/kg (Rabbit) Freshwater Fish Toxicity 96h LC50: 4900 mg/L (Oncorhynchus mykiss) Freshwater Crustacean Toxicity 48h LC50: 2800 mg/L (Daphnia magna) Marine Water Algae Toxicity 72h EC50: > 3300 mg/L (Skeletonema costatum) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (Acartia tonsa) [Halliburton Funded Study]; Marine Water Fishn Toxicity 96h LC50: > 1000 mg/L (Scophthalmus maximus) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 14% [Halliburton Funded Study]; Product was tested using OECD 117 no peaks detected MW>700Da. Product is not expected to be bioaccumulating No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
HALAD-344	Halliburton	Fluid Loss Additive for high temperature	0.0342%	**CONSTITUENT 1 <=100%** Marine Water Algae Toxicity EC50: >3300 mg/L (Skeletonema costatum [HES Interal Study] Marine Water Crustacean Toxicity EC50: > 2000 mg/L (Acartia tonsa) [HES study] Marine Fish Toxicity LC50: >1000 mg/L (Scophthalmus maximus) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] 0% (OECD 306) [HES Study] **CONSTITUENT 2 <=5%** **CONSTITUENT 3 <= 5%**	Y

				CONSTITUENT 4 <=5% Effect concentrations in the aquatic environment are attributable to a change in pH value. Oral LD50: 7340 mg/kg (Rat), Dermal LD50: >2500 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 49.1 mg/L (Daphnia magna) [ECHA]; Freshwater Fish Toxicity 96h LC50: 50.6 mg/L (Oncorhynchus mykiss) [ECHA]; Marine Water Crustacean Toxicity 96h LC50: 158 mg/L (Crangon septemspinosa) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Oral LD50: >2000 mg/kg (similar Product) Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (Scophthalmus maximus) [Halliburton Funded Study]; Bioaccumulation Log Pow: <0 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 0% [Halliburton Funded Study];	
NF-6	Halliburton	Reduces air entrainment into cement slurry	0.133%	Marine Water Algae Toxicity 72h EC50: 1100 mg/L (Skeletonema costatum) [Halliburton Funded Study];Marine Water Crustacean Toxicity 48h LC50: > 1000 mg/L (Acartia tonsa) [Halliburton Funded Study];Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (Scophthalmus maximus) [Halliburton Funded Study];Marine Water Biodegradation 28d: 70% [Halliburton Funded Study];CONSTITUENT 1 (≤10%)Marine Algae Toxicity 72h EC50: 991.02 mg/L (Skeletonema costatum)Marine Crustacean Toxicity 48h LC50: 2500 mg/L (Acartia tonsa);Marine Fish Toxicity 96h LC50: >3200 mg/L (Scophthalmus maximus);Bioaccumulation: Calculated Log Pow: 7.45CONSTITUENT 2 (≤5%):Oral LD50: >15900 mg/kg (Mouse), Inhalation LC50: >5 mg/L (4h) (Rat)Marine Algae Toxicity 72h EC50: 41 mg/L (Skeletonema costatum)Marine Crustacean Toxicity 48h LC50: >10000 mg/L (Acartia tonsa);Marine Fish Toxicity 96h LC50: >1800 mg/L (Scophthalmus maximus);Bioaccumulation: Calculated Log Pow: 4.28CONSTITUENT 3 (≤5%)Oral LD50: > 5000 mg/kg (Rat), Dermal LD50: >5000 mg/kg (Guinea Pig)Marine Algae Toxicity 72h EC50: 6488.87 mg/L (Skeletonema costatum)Marine Crustacean Toxicity 48h LC50: 5085.71	Y

				mg/L (Acartia tonsa);Marine Fish Toxicity 96h LC50: >5600 mg/L (Scophthalmus maximus);Bioaccumulation: Calculated Log Pow: 22.69 (MW>700) CONSTITUENT 4 (≤10%)No Hazard Product is naturally occuring CONSTITUENT 5 (≤100%)Oral LD50: 90 mg/kg (Mouse) (Similar Substance)Marine Algae Toxicity 72h EC50: >3200 mg/L (Skeletonema costatum)Marine Crustacean Toxicity 48h LC50: >10000 mg/L (Acartia tonsa);Marine Fish Toxicity 96h LC50: >5600 mg/L (Scophthalmus maximus);Bioaccumulation: Calculated Log Pow: 7.09No data available to indicate product or componetns present at greater than 0.1% are chronic health hazards	
D-AIR 3000L	Halliburton	Defoamer	0.131%	CONSTITUENT 1 (≤100%): LD50 Oral: >5000 mg/kg (Rat) (Similar Substance), LD50 Dermal: >2000 mg/kg (Rat) (Similar Substance), LC 50 Inhalation >2.1 mg/L (Rat) Freshwater Algae Toxicity 96h EC50 : 22 mg/L (Pseudokirchneriella subcapitata) Freshwater Fish Toxicity Data 96h LC50 : >1000 mg/L (Salmo gairdneri) Freshwater Crustacean Toxicity 48h EC50: 480 mg/L (Daphnia magna) Readily Biodegradable (77-81% @28d) Bioaccumulation: Log Pow >7 CONSTITUENT 2 (≤60%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >8000 mg/kg (Rat), LC50 Inhalation: >0.17 mg/L (4h) Marine Water Algae Toxicity 72h EC50: 426 mg/L (Skeletonema costatum) [OSPAR]; Marine Water Crustacean Toxicity 48h EC50: 433.2 mg/L (Acartia tonsa) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (Scophthalmus maximus) [Halliburton Funded Study]; Bioaccumulation Log Pow: 5.06 [Halliburton Funded Study]; CONSTITUENT 3 (≤1%): Component is a synthetic surface modified Amorphous Silica (CAS #: 7631-86-9); Fish and Invertebrate toxicity testing with Amorphous Silica have shown low hazard for this component. Source: OECD SIDS No data available to indicate product or components present at greater than 1% are chronic health hazards	Y

WellLock R1	Halliburton	Resin	0.0968%	COMPONENT 1 (≤ 1%): Freshwater Algae Toxicity 72 hr EC50: 15 mg/L (Pseudokirchneriella subcapitata) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 23.9 mg/L (Daphnia magna) [ECHA]; Freshwater Fish Toxicity 96h LC50: 10.6 mg/L (Pimephales promelas) [ECHA]; Bioaccumulation Log Pow: 0.42 [ECHA] COMPONENT 2 (≤ 10%): Freshwater Algae Toxicity 96h EC50: 35 mg/L (Pseudokirchneriella subcapitata) [US EPA HPV]; Freshwater Crustacean Toxicity 48h EC50: 3.9 mg/L (Daphnia magna) [US EPA HPV]; Freshwater Fish Toxicity 96h LC50: 65 mg/L (Salmo gairdneri) [US EPA HPV]; Bioaccumulation BCF: 3 [HSDB]; Freshwater Biodegradation 28d: 25% [US EPA] COMPONENT 3 (≤ 100%): Marine Water Algae Toxicity 72 hr EC50 > 10000 (Skeletonema costatum) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48 hr LC50 > 10000 mg/L (Acartia tonsa) [Halliburton Funded Study]; Marine Water Fish Toxicity 96 hr Limit Test > 10000 mg/L (Cyprinodon variegatus) [Halliburton Funded Study]; Bioaccumulation Log Pow: 3.6 [Halliburton Funded Study]; Biodegradation 28d: 11% [Halliburton Funded Study]	Y
WellLock R2	Halliburton	Resin	0.0933%	PRODUCT CEFAS LISTED Freshwater Crustacean Toxicity 48h EC50: 47 mg/L (Daphnia magna) (similar substance) [ECHA]; Freshwater Fish Toxicity 96h LC50: 30 mg/L (Oncorhynchus mykiss) (similar substance) [ECHA]; Bioaccumulation Log Pow: 0.822 (similar substance) [ECHA]; Freshwater Biodegradation 28d: 47% (activated sludge) (similar substance) [ECHA]	Y
GasStop EXP	Halliburton	Cement Additive	0.0905%	CONSTITUENT 1 (≤60%) Oral LD50: >5000 mg/Kg (Rat), Dermal LD50: >2000 mg/Kg (Rabbit),	Y

				Inhalation LC50: 0.21 mg/L Freshwater Fish Toxicity: >100 mg/L (Onchorhynchus mykiss) [Supplier data] Bioaccumulation Calculated Log Pow: >4 [REACH] Biodegradation 15-35% @ 28 days CONSTITUENT 2 (≤60%) Marine Algae toxicity EC50: >3300 mg/L (Skeletonema costatum [HES Interal Study] Marine Fish toxicity LC50: >1000 mg/L (Scophthalmus maximus) [HES study] Marine Crustacean toxicity EC50: > 2000 mg/L (Acartia tonsa) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] Biodegradation 0% (OECD 306) [HES Study] CONSTITUENT 3 (≤5%) Oral LD50: >30000 mg/kg Marine Algae toxicity EC50: 87.02 mg/L (Skeletonema costatum) [HES Study] Marine Fish toxicity LC50: >87.02 mg/L (Cyprinodon variegatus) [HES Study] Marine Crustacean toxicity LC50: 2319 mg/L (Acartia tonsa) [HES Study] Biodegradation: 48% @ 28 days (OECD 306) CONSTITUENT 4 (≤1%) Oral LD50: >39800 mg/kg Inhalation LC50: >5.27 mg/L Marine Algae toxicity EC50: 258 mg/L (Skeletonema costatum) [HES Study] Marine Fish toxicity LC50: >258 mg/L (Cyprinodon variegatus) [HES Study] Marine Crustacean LC50: 2319 mg/L (Arcartia tonsa) [HES Study] Biodegradation 56% @ 28 days (Marine BODIS) [HES Study] CONSTITUENT 5 (≤5%) Oral LD50: >5000 mg/kg (Rat), Dermal LC50: >5000 mg/L (Rat), Inhalation LC50: >200 mg/L (Rat) Marine Algae toxicity EC50: >10000 mg/L (Skeletonema costatum) [HES Study] Marine Fish toxicity LC50: >10000 (Scophthalmus Maximus) [HES Study]	

				Marine Crustacean toxicity EC50: >10000 mg/L (Acartia tonsa) [HES Study] Log Pow: -5.2 (OECD 117) [HES Study] Biodegradation 8% @ 28 days (Marine BODIS) [HES Study]	
DCA-22001	Halliburton	Cleaner	0.0822%	CONSTITUENT 1 (≤60%): LD50 Oral: 1400 mg/kg (Rat) LD50 Dermal 1.78 mL/kg (Rabbit) Freshwater Algae Toxicity EC50 (72h): 0.5 mg/L (Scenedesmus subspicatus) (Similar substance) New Zealand CCID cites algae study (Selenastrum capricornutum) EC50=0.7 mg/L Freshwater Crustacean Toxicity EC50 (48h): 0.5 - 1.9 mg/L (Similar substance) New Zealand CCID cites daphnia study with EC50=0.39 mg/L from Warne, 1999. Marine Water Algae Toxicity 72h EC50: 0.25 mg/L (Skeletonema costatum); Marine Water Crustacean Toxicity 48h LC50: 2.27 mg/L (Acartia tonsa); Marine Water Fish Toxicity 96h LC50: 7.8 mg/L (Scophthalmus maximus) Not Bioaccumulative; LogPow 1.12 Readily biodegradable (100% @ 28d) CONSTITUENT 2 (≤60%): Product is naturally occurring and not intrinsically hazardous CONSTITUENT 3 (≤30%): Oral LD50: 5840 mg/kg (Rat) LD50 Oral: 4396 mg/kg (Rat) LD50 Dermal: 6280 mg/kg (Rat) Dermal LD50: 12870 mg/kg (Rabbit) Inhalation LC50: 72.6 mg/L (Rat) 4h Freshwater Algae Toxicity 72h EC50: > 1000 mg/L (Scenedesmus subspicatus) [IUCLID]; Freshwater Crustacean Toxicity 24h EC50: > 10000 mg/L (Daphnia magna) [ECHA]; Freshwater Fish Toxicity 96h LC50: 9640 mg/L (Pimephales promelas) [ECHA]; Marine Water Algae Toxicity 72h EC50: >1000 mg/L (Scenedesmus subspicatus); Marine Water Crustacean Toxicity 48h LC50: 1400 mg/L (Crangon crangon); Marine Water Fish Toxicity 96h LC50: 9640 mg/L (Pimephales promelas);	Y

				Bioaccumulation Log Pow: 0.15 [IUCLID]; LogKow < 4.5 Readily biodegradable (53% @ 5d) Freshwater Biodegradation 14d: 83% [HSDB];	
Musol E	Halliburton	Surfactant	0.0788%	CONSTITUENT 1 <=100% Oral LD50: 3739 mg/kg (Rat), Dermal LD50: 13000 mg/kg (Rabbit), Inhalation LC50 (1hr): 24 mg/L (Rat) Freshwater Algae Toxicity 72h EC50: > 500 mg/L (Desmodesmus subspicatus) Freshwater Crustacean toxicity 48h LC50: > 500mg/L (Daphnia magna) Freshwater Fish Toxicity 96h LC50: 20800 mg/L (Pimephales promelas) Marine Algae Toxicity 72h EC50: 7631.73 mg/L (Skeletonema costatum) Marine Crustacean Toxicity 48h LC50: > 10000 mg/L (Acartia tonsa) Marine Fish Toxicity 96h LC50: > 3200 mg/L (Scophthalmus maximus) Bioaccumulation Log Pow: -0.437 BCF = 3.16 Calculated96% @ 28d Prolonged or repeated exposure may cause reproductive system damage. May cause birth defects CONSTITUENT 2 <=1% Oral LD 50: 5710 mg/kg (Rat), Dermal LD50: 5660 mg/kg (Rabbit), Inhalation LC50 (4h): 553 mg/L Freshwater Algae Toxicity 96h EC50: 7153 mg/L (Green algae) Freshwater Crustacean Toxicity 48h EC50: 19000 mg/L (Daphnia magna) Freshwater Fish Toxicity 96h LC50: 4998 mg/L (Pimephales promelas) Bioaccumulation Log Kow = -0.45 BCF = 10 Readily biodegradable (Similar Substance)	Y
SUPER CBL EXP	Halliburton	Cement Additive	0.0702%	CONSTITUENT 1 (≤60%) Oral LD50: 24 g/Kg (Rat) Inhalation LC50: 2062 ppm (Rat) 4h Freshwater Fish Toxicity: >1000 mg/L (Onchorhynchus mykiss) Bioaccumulation Log Pow: 5.71 Biodegradability: 15-35% @ 28 days CONSTITUENT 2 (≤60%) Substance not expected to exhibit toxic effects in the aquatic environment due to low solubility in transformation/dissolution assays. Inhalation LC50: 0.888 mg/L (Rat) 4 h Freshwater Algae Toxicity 72h NOEC: ≥ 0.004 mg/L (Pseudokirchneriella	Y

				subcapitata) [ECHA]; Freshwater Algae Toxicity 72h NOEC: >100 mg/L (Selenastrum capricorntum) [IUCLID 2000]; Freshwater Crustacean Toxicity 48h EC50: 1.9 mg/L (Ceriodaphnia dubia) [ECHA] (similar substance); Freshwater Crustacean Toxicity 48h NOEC: >100 mg/L (Daphnia magna) [IUCLID 2000]; Freshwater Fish Toxicity 96h LC50: 0.078-0.108 mg/L (Salmo salar) [ECHA]; Freshwater Fish Toxicity 96h NOEC: >100 mg/L(Salmo trutta) [IUCLID 2000]; Marine Water Crustacean Toxicity LC50 48h: 190 mg/L (OSPAR, 2000) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. CONSTITUENT 3 (≤5%) Oral LD50: >30000 mg/kg Freshwater Fish Toxicity 24 h LC50 >1000 mg/L Marine Water Algae toxicity EC50: 87.02 mg/L (Skeletonema costatum) [HES Study] Marine Water Crustacean toxicity LC50: 2319 mg/L (Acartia tonsa) [HES Study] Marine Water Fish toxicity LC50: >87.02 mg/L (Cyprinodon variegatus) [HES Study] 48% @ 28 days (OECD 306) Biodegradaiton data for other sorbitan esters finds the test substances not to be readily biodegradable. Sorbitan monolaurate (1338-39-2, sorbitan monooleate (1338-43-8, and sorbitan fatty acids C6-10, tetraester (228573-47-5) were not readily biodegradable in OECD 301d studies. CONSTITUENT 4 (≤5%) Oral LD50: 5000 mg/kg (Rat) Inhalation LC50: 12.6 mg/L (Rat) 4h Marine Water Algae Toxicity EC50: >10000 mg/L (Skeletonema costatum) [HES Study] Marine Water Crustacean Toxicity EC50: >10000 mg/L (Acartia tonsa) [HES Study] Marine Water Fish Toxicity LC50: >10000 (Scophthalmus Maximus) [HES Study] Bioaccumulation Log Pow: -5.2 (OECD 117) [HES Study] 8% @ 28 days (Marine BODIS) [HES Study] IUCLID BioaccumulationL Similar modified clays have been shown to have	

				very low solubility in water or hexanol. Co-efficient partition is not feasible. CONSTITUENT 5 (≤5%) Oral LD50: 39800 mg/kg (Rat) Freshwater Fish Toxicity 96h LC50: > 1000 mg/L (Oncorhynchus mykiss) [US EPA HPVIS]; Marine Water Algae Toxicity 72h EC50: 5073.11 mg/L (Skeletonema costatum) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 10000 mg/L (Acartia tonsa) [OSPAR]; Bioaccumulation log Pow: 1.8 [Duncan]; Marine Water Biodegradation 28d: 61 % [ERT Ltd.]; CONSTITUENT 6 (≤1%) Oral LD50: >39800 mg/kg Inhalation LC50: >5.27 mg/L Freshwater Crustacean Toxicity EC50(48h): 1000 mg/L (Daphnia magna) Marine Water Algae Toxicity EC50: 258 mg/L (Skeletonema costatum) [HES Study] Marine Water Crustacean LC50: 2319 mg/L (Arcartia tonsa) [HES Study] Marine Water Fish Toxicity LC50: >258 mg/L (Cyprinodon variegatus) [HES Study] Bioaccumulation BCF values of 0.9 - 36.5 L/Kg ww Not bioaccumulative Readily biodegradable Component was found to be 88.9% biodegradable in activated sludge in 28 days. (study report 2006-02-06 as cited in ECHA reg) N/A56% @ 28 days (Marine BODIS) [HES Study]	
Calcium Chloride Powder	Halliburton	Excellerator	0.0616%	PRODUCT CEFAS LISTED 100% PLONOR CONSTITUENT 1 <=100% Oral LD50: 2240 mg/kg (Rat), Dermal LD50: 5000 mg/kg (Rabbit) Freshwater Algae Toxicity 72h EC50: 2900 mg/L (Pseudokirchneriella subcapitata) [ECHA]; Freshwater Crustacean Toxicity 48h LC50: 2400 mg/L (Daphnia magna) [ECHA]; Freshwater Fish Toxicity 96h LC50: 4630 mg/L (Pimephales promelas) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable.	Y

				Biodegradation: Substance is inorganic - biodegradation is not applicable. CONSTITUENT 2 <=5% Oral LD50: 3000 mg/kg (Rat), Dermal LD50: >10000 mg/kg (Rabbit), Inhalation LC50: 42 mg/L (Rat) 1h Freshwater Algae Toxicity 96h EC50: 2430 mg/L (Navicula seminulum) [US EPA ECOTOX]; Freshwater Crustacean Toxicity 48h EC50: 402.6 mg/L (Daphnia magna) [US EPA ECOTOX]; Freshwater Fish Toxicity 96h LC50: 9675 mg/L (Lepomis macrochirus) [IUCLID]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	
SEM-8	Halliburton	Emulsifier	0.0602%	**CONSTITUENT 1 (≤100%):** Oral LD50: >2000 mg/kg (Rat) (Similar Substance), Dermal LD50: >2000 mg/kg (Rat) (Similar Substance) Marine Water Algae Toxicity 72h EC50: 32 mg/L (Selenastrum capricornutum) [Madsen et al., 2002] (similar substance); Freshwater Algae Toxicity 72h ErC50: 32 mg/L (Pseudokirchneriella subcapitata) (similar substance) Freshwater Crustacean Toxicity 96h EC50: 1.17 mg/L (Daphnia magna) [Madsen et al., 2002] (similar substance); Freshwater Fish Toxicity 96h LC50: 1-2.5 mg/L (Salmo trutta) [Madsen et al., 2002] (similar substance); Marine Water Algae Toxicity 72h EC50: 73.52 mg/L (Skeletonema costatum) Marine Water Crustacean Toxicity LC50 (48h) 232.5 mg/L (Acartia tonsa) Marine Water Fish Toxicity LC50 (96h) 350 mg/L (Scophthalmus maximus) Not Bioaccumulative; LogPow 0.7 Marine Water Biodegradation 28d: 61% [OSPAR]; **CONSTITUENT 2 (≤30%):** Oral LD50: 5840 mg/kg (Rat), Dermal LD50: 12870 mg/kg (Rabbit), Inhalation LC50: 72.6 mg/L (Rat) 4h Vapor Freshwater Algae Toxicity 72h EC50: > 1000 mg/L (Scenedesmus subspicatus) [IUCLID]; Freshwater Crustacean Toxicity 24h EC50: > 10000 mg/L (Daphnia	Y

				magna) [ECHA]; Freshwater Fish Toxicity 96h LC50: 9640 mg/L (Pimephales promelas) [ECHA]; Marine Water Fish Toxicity 96h LC50: 9640 mg/L (Pimephales promelas); Marine Water Crustacean Toxicity 48h LC50: 1400 mg/L (Crangon crangon); Marine Water Algae Toxicity 72h EC50: >1000 mg/L (Scenedesmus subspicatus); Bioaccumulation Log Pow: 0.15 [IUCLID]; LogKow < 4.5 Readily biodegradable (53% @ 5d) Freshwater Biodegradation 14d: 83% [HSDB]; **CONSTITUENT 3 (≤30%):** No Hazard - Product is naturally occuring **CONSTITUENT 4 (≤1%):** Oral LD50: 600 mg/kg (Rat) (Similar Substance), Dermal LD50: >2000 mg/kg (Rat) Similar Substance Freshwater Algae Toxicity 96h EC50: 0.7 mg/L (Selenastrum capricornutum) [CCID] (similar substance); Freshwater Crustacean Toxicity 48h EC50: 0.2 mg/L (Daphnia magna) (similar substance); Freshwater Crustacean Toxicity 48h EC50: 0.39 mg/L (Ceriodaphnia dubia) [CCID] (similar substance); Freshwater Fish Toxicity 96h LC50: 1.4 mg/L (Pimephales promelas) [CCID] (similar substance); No Marine Data Not Bioaccumulative Bioaccumulation BCF: 12.7-237 [ECHA] (similar substance); Freshwater Biodegradation 28d: 72% [ECHA] (similar substance); No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
IsoGuard	Halliburton	Additive	0.0548%	**CONSTITUENT 1 (≤100%):** LD50 Oral: >5000 mg/kg (rat); LD50 Dermal: >1000 mg/kg (rabbit); LC50 Inhalation: >5 mg/L (Rat) 4h; Freshwater Fish Toxicity 96h LC50: >10000 mg/L (Lepomis macrochirus) (similar substance); Bioaccumulation: No information available; Biodegradation: Readily biodegradable (~100% @ 28d)	Y

				CONSTITUENT 2 (≤10%): Component is naturally occuring and not intrinsically hazardous.	
MICROBOND HT Component	Halliburton	Cement Additive	0.0513%	CONSTITUENT 1 (≤100%): Oral LD50: 3990 mg/kg (Rat) Magnesium oxide has been reported to be a respiratory irritant if airborne particles (i.e., magnesium oxide fume) are inhaled (NIOSH 1994, NJ DOH 2003, IPCS 2010). Inhalation of magnesium oxide fume may result in mechanical irritation and flu-like symptoms, including headache, fever and chills, aches, and cough (NJ DOH 2003, IPCS 2010). Health effects of magnesium oxide are not known to be chronic in nature, rather, they have been reported to be short term, lasting hours to days (NIOSH 1994, NJ DOH 2003, IPCS 2010). To prevent respiratory irritation, respirators should be worn when exposed to magnesium oxide fume (NIOSH 1994, NJ DOH 2003, IPCS 2010). Magnesium oxide, its production byproducts, and its breakdown products are ionic compounds that are commonly found in seawater and minerals (USDA 2007, Atkins et al. 2008, Baird and Cann 2008, USGS 2017). As described in the “Properties of the Substance” section and Evaluation Question 4, magnesium oxide is insoluble in water, making it unlikely to contaminate water systems and giving it low bioavailability in terrestrial systems (USDA 2007). No data was available in the IUCLID for this component, as magnesium ions are a major component of all natural waters. Source: IUCLID 2000 No data available to indicate product or components present at greater than 1% are chronic health hazards	Y
Microbond M	Halliburton	Expander	0.0513%	**CONSTITUENT 1 (≤100%)** No data was available in the IUCLID for this component, as magnesium ions are a major component of all natural waters. **CONSTITUENT 2 (≤1%)** Toxicity to Algae 72 h EC50: 5131.54 mg/L (Skeletonema Costatum)	Y

				Toxicity to Crustacean 48 hr LC50: ≥10,000 mg/L (Acartia tonssa) Toxicity to Fish 96 Hr LC50: ≥320 mg/L (Scophthalmus maximus) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable Biodegradation: Substance is inorganic - bioaccumulation is not applicable **CONSTITUENT 3 (≤1%)** Freshwater Crustacean Toxicity 48h EC50: > 100 mg/L (Daphnia magna) [ECHA]; Freshwater Fish Toxicity 48h LC0: 1000 mg/L (Leuciscus idus) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable **CONSTITUENT 4 (≤5%)** Toxicity to Algae 72 h EC50 184.57 mg/L (Psuedokirchnerella subcapitata)(Similar Substance) Toxicity to Fish LC50 33.884 mg/L(Clarias gariepinus) Toxicity to Microorganisms EC50 (3h) 300.4 mg/L (activated sludge) (similar substances) Toxicity to Invertebrates EC50 (48h) 49.1 mg/L (Daphnia magna) (similar substance) Bioaccumulation: Log Kow=-0.571 BCF = 0.5 Biodegradadation: Substance is inorganic - bioaccumulation is not applicable **CONSTITUENT 5 (≤5%)** Invertebrates Toxicity 24h LL50: > 10000 mg/L (Daphnia magna) [Health Canada] (similar substance); Fish Toxicity 96h LL0: 10000 mg/L (Danio rerio) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	
Tuned Defense	Halliburton	Cement Spacer	0.0513%	**CONSTITUENT 1 (≤ 60%):** Component is naturally occuring and not intrinsically hazardous.	Y

				Marine water Crustacean Toxicity 96h TLM: >1,000,000 mg/L (Mysidopsis bahia) **CONSTITUENT 2 (≤ 30%):** No data available; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3 (≤ 30%):** Oral LD50: 2000-6450 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rat); Inhalation LC50: >3 mg/L (rat, dust, 4h) Freshwater Algae Toxicity 72h EC50: > 14 mg/L (growth rate) (Desmodesmus subspicatus); Freshwater Crustacean Toxicity 48h EC50: > 100 mg/L (saturated solution) (Daphnia magna); Freshwater Fish Toxicity 96h LC50: > 100 mg/L (saturated solution) (Oncorhynchus mykiss); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 4 (≤ 10%):** Acrylic polymer - not toxic; Bioaccumulation: No information available; Biodegradation: Not readily biodegradable. **CONSTITUENT 5 (≤ 10%):** Inhalation LC50: > 0.046 mg/L (Rat) 4h; Freshwater Algae Toxicity 96hr ErL50: > 1000 mg/L (Selenastrum capricornutum); Freshwater Crustacean Toxicity 48h EC50: > 1000 mg/L (Daphnia magna); Freshwater Fish Toxicity 96h LC50: > 1000 mg/L (Pimephales promelas); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable; Biodegradation: Substance is inorganic - biodegradation is not applicable.	

				CONSTITUENT 6 (≤ 5%): Oral LD50: > 5000 mg/kg (Rat); Inhalation LC50: > 5 mg/L (Rat) 4h; Freshwater Algae Toxicity 72h EC50: > 100 mg/L (Selenastrum capricornutum); Freshwater Crustacean Toxicity 48h LC50: > 100 mg/L (Daphnia magna); Freshwater Fish Toxicity 96h LC50: > 100 mg/L (Oncorhynchus mykiss); Bioaccumulation: Log Pow = -2.76 (calc); Biodegradation: Readily biodegradable (95% @ 28d). **CONSTITUENT 7 (≤ 5%):** Oral LD50: 5400 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rat); Freshwater Algae Toxicity 72h EC50: 18000 mg/L (Chlorella vulgaris); Freshwater Crustacean Toxicity 48h LC50: > 100 mg/L (Daphnia magna); Freshwater Fish Toxicity 96h LC50: 1516 mg/L (Lepomis macrochirus); Bioaccumulation: Log Pow = -1.61 to -1.80; Biodegradation: Readily biodegradable (97% @ 28d). **CONSTITUENT 8 (≤ 1%):** Oral LD50: 10000 mg/kg (Rat); Inhalation LC50: > 16 mg/L (Rat) 1h (similar substance); Freshwater Algae Toxicity 72h EC50: > 100 mg/L (Pseudokirchnerella subcapitata); Freshwater Crustacean Toxicity 48h LC50: 1955 mg/L (Daphnia magna); Freshwater Fish Toxicity 96h LL50: >100 mg/L (Danio Rerio); Bioaccumulation: No information available; Biodegradation: No information available. **CONSTITUENT 9 (≤ 1%):** Oral LD50: > 15000 mg/kg (human); Freshwater Algae Toxicity 72h EC50: 440 mg/L (Pseudokirchneriella subcapitata); Freshwater Crustacean Toxicity 48h LC50: > 10000 mg/L (Daphnia magna); Freshwater Fish Toxicity 96h LC50: 10000 mg/L (Danio rerio); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable;	

				Biodegradation: Substance is inorganic - biodegradation is not applicable. Class 1A Carcinogen	
CFR-8L	Halliburton	Friction Reducer	0.0507%	**CONSTITUENT 1 (≤60%):** Oral LD50: >5000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 7631.73 mg/L (Skeletonema costatum); Marine Water Crustacean Toxicity 48h LC50: 2200 mg/L (Acartia tonsa); Marine Water Fish Toxicity 96h LC50: 1006 mg/L (Scophthalmus maximus); Fresh Water Crustacean Toxicity 48h LC50: >100 mg/L (Daphnia magna); Bioaccumulation Log Pow: < 0; Inherently biodegradable: Biodegradation 28d: 38%; **CONSTITUENT 2 (≤100%):** Componenet is naturally occuring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
GasStop Additive	Halliburton	Cement Additive	0.0342%	PRODUCT DATA Marine Algae toxicity EC50: >3300 mg/L (Skeletonema costatum [HES Interal Study] Marine Fish toxicity LC50: >1000 mg/L (Scophthalmus maximus) [HES study] Marine Crustacean toxicity EC50: > 2000 mg/L (Acartia tonsa) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] Biodegradation 0% (OECD 306) [HES Study]	Y
WellLock H1	Halliburton	Hardener	0.0291%	Freshwater Algae Toxicity 72 h ErC50: 104 mg/L (Desmodesmus subspicatus) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 0.5 mg/L (Daphnia magna) [ECHA]; Freshwater Fish Toxicity 48h LC50: 200 mg/L (Leuciscus idus) [ECHA]; Bioaccumulation BCF: 2.75 [ECHA]; Biodegradation 28d: 1% [ECHA]	Y
BridgeMaker II LCM	Halliburton	Lost Circulation Control	0.0171%	**CONSTITUENT 1 (≤60%):** Oral LD50: >5000 mg/kg (Rat)	Y

				Dermal LD50: >2000 mg/kg (Rat) Inhalation LC50: >37.8 mg/L (Rat) Marine Water Algae toxicity EC50: >10000 mg/L (Skeletonema costatum) Marine Water Crustacean Toxicity EC50: >10000 mg/L (Acartia tonsa) Marine Water Fish toxicity LC50: >10000 (Cyprinodon variegatus) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2(≤60%):** Article - no data and non-hazardous **CONSTITUENT 3 (≤10%)** Product is an inert, man-made substance and not intrinsically hazardous. TWA(as dust):10 mg/m3 Freshwater Algae Toxicity 96h EC50: >1000 mg/L (Pseudokirchneriella subcapitata) [ECHA]; Freshwater Crustacean Toxicity 96h EC50: >1000 mg/L (Daphnia magna) [ECHA]; Freshwater Fish Toxicity 96h LC50: >1000 mg/L (Danio rerio) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	
Super CBL Additive	Halliburton	Cement Additive	0.0171%	CONSTITUENT 1 (≤5%) Oral LD50: 39800 mg/kg (Rat) Freshwater Fish Toxicity 96h LC50: > 1000 mg/L (Oncorhynchus mykiss) [US EPA HPVIS]; Marine Water Algae Toxicity 72h EC50: 5073.11 mg/L (Skeletonema costatum) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 10000 mg/L (Acartia tonsa) [OSPAR]; Bioaccumulation log Pow: 1.8 [Duncan]; Marine Water Biodegradation 28d: 61 % [ERT Ltd.]; CONSTITUENT 2 (≤100%) Substance not expected to exhibit toxic effects in the aquatic environment due to low solubility in transformation/dissolution assays.	Y

				Inhalation LC50: 0.888 mg/L (Rat) 4 h Freshwater Algae Toxicity 72h NOEC: ≥ 0.004 mg/L (Pseudokirchneriella subcapitata) [ECHA]; Freshwater Algae Toxicity 72h NOEC: >100 mg/L (Selenastrum capricorntum) [IUCLID 2000]; Freshwater Crustacean Toxicity 48h EC50: 1.9 mg/L (Ceriodaphnia dubia) [ECHA] (similar substance); Freshwater Crustacean Toxicity 48h NOEC: >100 mg/L (Daphnia magna) [IUCLID 2000]; Freshwater Fish Toxicity 96h LC50: 0.078-0.108 mg/L (Salmo salar) [ECHA]; Freshwater Fish Toxicity 96h NOEC: >100 mg/L(Salmo trutta) [IUCLID 2000]; Marine Water Crustacean Toxicity LC50 48h: 190 mg/L (OSPAR, 2000) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	
SA-1015	Halliburton	Suspension Agent	0.0171%	PRODUCT DATA Freshwater Algae Toxicity 72h EC50: >100 mg/L (Scenedesmus subspicatus); Freshwater Crustacean Toxicity 48h EC50: >100 mg/L (Daphnia magna); Freshwater Fish Toxicity 96h LC50: >100 mg/L (Oncorhynchus mykiss); Marine Water Algae Toxicity 72h EC50: > 5600 mg/L (Skeletonema costatum); Marine Water Crustacean Toxicity 48h LC50: 234.22 mg/L (Acartia tonsa); Marine Water Fishn Toxicity 96h LC50: > 234.22 mg/L (Cyprinodon variegatus); Readily biodegradable (95% at 28 days); Bioaccumulation Log Pow: 0	Y
Versaset	Halliburton	Accelerator	0.0171%	CONSTITUENT 1 (≤ 100%): Substance not expected to exhibit toxic effects in the aquatic environment due to low solubility in transformation/dissolution assays. Freshwater Algae Toxicity 72h EC50: 0.0169 mg/L (Pseudokirchnerella subcapitata) [ECHA]; Freshwater Crustacean Toxicity 48h LC50: 2.3 mg/L (Ceriodaphnia sp.) [ECHA];	Y

				Freshwater Fish Toxicity 64hr LD50: 0.2 mg/L (Oncorhynchus mykiss) [Peer Reviewed Journal]; Bioaccumulation BCF: 215 [US ATSDR]; Biodegradation: Substance is inorganic - biodegradation is not applicable. CONSTITUENT 2 (≤ 10%): No Hazard	
CFR-3L	Halliburton	Friction Reducer	0.0167%	CONSTITUENT 1 (≤60%): Oral LD50: >5000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: > 3300 mg/L (Skeletonema costatum) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: 1687 mg/L (Acartia tonsa) [Halliburton Funded Study]; Freshwater Fish Toxicity 48h LC50: 7478 mg/L (Aphyosemion bivittatum) [SKW Trostberg]; Bioaccumulation Log Pow: < 0 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 0% [Halliburton Funded Study]; CONSTITUENT 2 (≤60%): Componenet is naturally occuring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
WellLife 684	Halliburton	Cement Additive	0.0154%	LL50(96h): >100 mg/L (Danio rerio) EL50(48h): >100mg/L (Daphnia magna) Is a fine rigid fibrous material (carbon fibres) which is chemically inert. As such irritation resulting from contact with this product is by mechanical abrasion. Standard PPE is require to handle the product to minimise direct exposure from mechanical contact. The irritation from contact with this product was not identified being from a chemical reaction.	Y
WellLife 1094	Halliburton	Cement Enhancer	0.0154%	Product is an inert, man-made substance and not intrinsically hazardous. Is a fine rigid fibrous material (glass fibre), which is chemically inert. Biodegradation & Bioaccumulation: Not available	Y

WellLife 734	Halliburton	Cement Enhancer	0.00342%	Product is an inert, man-made substance and not intrinsically hazardous. Is a fine rigid fibrous material (glass fibre), which is chemically inert. As such irritation resulting from contact with this product is by mechanical abrasion. Standard PPE is require to handle the product to minimise direct exposure from mechanical contact. The irritation from contact with this product was not identified being from a chemical reaction.	Y
SA-541	Halliburton	Suspension Agent	0.00171%	CONSTITUENT 1 (≤1%) Algae Toxicity EC50 (72h) No effects at saturation (Scenedesmus subspicatus) Toxicity to Fish LC50 (96h) No effects at saturation (Brachydanio rerio) Toxicity to Invertebrates EC50 (24h) No effects at saturation (Daphnia magna) CONSTITUENT 2 (≤100%) Toxicity to Invertebrates EC50 (24h) No effects at saturation (Daphnia magna) Component is an inert, man-made substance and not intrinsically hazardous. CONSTITUENT 3 (≤1%) Effect concentrations in the aquatic environment are attributable to a change in pH value Freshwater Acute Crustacean Toxicity 48h EC50: 40.4 mg/L (Ceriodaphnia sp.) [ECHA]; Freshwater Acute Fish Toxicity 96h LC50: 125 mg/L (Gambusia affinis) [OECD SIDS]; Toxicity to Fish LC50(48h) 189 mg/L (Leuciscus idus melanotus) LLC50(48h) 189 mg/L (Leuciscus melanotus) LC50(24h) 145 mg/L (Poecilia reticulate) LC50(96h) 125 mg/L (Gambusia affinis) LOEL(150 d) = 25 mg/L (Lebistes reticulatus) Toxicity to Invertebrates EC50 (48h) 40.4 mg/L (Ceriodaphnia sp.) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. CONSTITUENT 4 (≤2%)	Y

Total			100.0%		

1.7.1.2 Chemical List: Cement and Spacers

Chemicals within products in 0	CAS Number	Mass %
Customer Supplied Mix Water	Not Applicable	45.7%
Portland cement	65997-15-1	22.9%
Fly ash	68131-74-8	21.0%
Calcium oxide	1305-78-8	3.39%
Crystalline silica, quartz	14808-60-7	2.06%
Crystalline silica, cristobalite	14464-46-1	1.07%
Silica, amorphous - fumed	7631-86-9	0.674%
Barium Sulfate	7727-43-7	0.520%
Humic acids, sodium salts, polymers with N,N-dimethyl-2-propenamide, sodium 2-methyl-2-[(1-oxo-2-propen-1-yl)amino]-1-propanesulfonate (1:1) and 2-propenenitrile, sodium bisulfite-terminated	473268-27-8	0.424%
Functionalized Styrene Butadiene Latex	403824-26-0	0.353%
Sepiolite	63800-37-3	0.219%
Sodium silicate	1344-09-8	0.160%
N,N-dimethylacrylamide copolymer with calcium AMPS	103115-52-2	0.119%
Rape Oil	8002-13-9	0.117%
Magnesium oxide	1309-48-4	0.0998%
Cyclohexanedimethanol diglydicyl ether	14228-73-0	0.0933%
Bisphenol A / Epichlorohydrin resin	25068-38-6	0.0870%
Calcium sulfate dihydrate	10101-41-4	0.0855%
Paraffin based petroleum oil	8012-95-1	0.0817%
Alkenes, C15-C18	93762-80-2	0.0788%
1-Methoxy-2-propanol	107-98-2	0.0784%

Acrylic acid polymer with sodium AMPS, sodium salt	37350-42-8	0.0659%
Calcium Chloride, dihydrate	10035-04-8	0.0585%
2-Propenoic acid, polymer with 1,3-butadiene and ethenylbenzene	25085-39-6	0.0515%
Poly(vinyl acetate)-poly(vinyl alcohol) polymer	25213-24-5	0.0515%
Diatomaceous earth	61790-53-2	0.0513%
Aluminum	7429-90-5	0.0490%
Polypropylene glycol	25322-69-4	0.0394%
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	0.0361%
Alcohols, C12-16, ethoxylated	68551-12-2	0.0329%
Diethyltoluenediamine	68479-98-1	0.0291%
Isopropanol	67-63-0	0.0285%
Calcium aluminate	12042-68-1	0.0208%
Sulfonated organic polymer	526203-62-3	0.0178%
Carbon	7440-44-0	0.0158%
Polypropylene	9003-07-0	0.0151%
1-Propanesulfonic acid, 2-methyl-2-((1-oxo-2-propenyl)amino)-, monosodium salt, polymer with 2-propenamide	38193-60-1	0.0143%
Calcium hydroxide	1305-62-0	0.0137%
Silica, amorphous precipitated	67762-90-7	0.0131%
Calcium carbonate	471-34-1	0.0113%
Sodium hydroxide	1310-73-2	0.0110%
Sodium aluminate	1302-42-7	0.0110%
Calcined Petroleum coke	64743-05-1	0.0109%
Citric acid	77-92-9	0.0108%
Sulfurous acid, monosodium salt, polymer with formaldehyde and acetone	40104-76-5	0.0104%
Welan gum	72121-88-1	0.0103%
Butyl glycidyl ether	2426-08-6	0.00968%

Cellulose	9004-34-6	0.00779%
Phenolic resin	9003-35-4	
Melamine	108-78-1	
Monopropylene glycol monooleate	1330-80-9	0.00664%
Soda Lime Borosilicate Glass	65997-17-3	0.00496%
Polyoxyethylene sorbitan trioleate	9005-70-3	0.00487%
Humic acids, potassium salts, polymers with acrylamide, 2-methyl-2-[(1-oxo-2-propenyl)amino]-1-propanesulfonic acid, 4-(1-oxo-2-propenyl) morpholine and sodium 4- ethenylbenzenesulfonate, sodium salts	227951-37-3	0.00359%
Sodium Chloride	7647-14-5	0.00308%
Alcohols, C6-10, ethoxylated	70879-83-3	0.00301%
Dilutan Gum	125005-87-0	0.00238%
Quaternary ammonium compounds, bis(hydrogenated tallow alkyl) dimethyl,salts with bentonite	68953-58-2	0.00218%
Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	0.00184%
Sodium sulfate	7757-82-6	0.00171%
Lecithins	8002-43-5	0.00171%
Hydroxylpropyl guar	39421-75-5	0.00167%
Sodium bicarbonate	144-55-8	0.00144%
Sorbitan, monopalmitate	26266-57-9	0.00133%
Aluminium stearate	637-12-7	0.00133%
4-Vinylcyclohexene	100-40-3	0.000588%
Styrene	100-42-5	0.000588%
Butadiene	106-99-0	0.000588%
Sodium dicyclohexyl sulfosuccinate	23386-52-9	0.000575%
2-methoxy-1-propanol	1589-47-5	0.000394%
Iron oxide	1309-37-1	0.000318%
Sorbitan, tri,(9Z)-9-octadecenoate	26266-58-0	0.000257%
Polyethylene	9002-88-4	0.000231%

2-Bromo-2-(bromomethyl)pentanedinitrile	35691-65-7	0.000166%
FD&C Blue 1	3844-45-9	0.000166%
Aluminum oxide	1344-28-1	0.0000924%
9-Octadecenoic acid (9Z)-, monoester with 1,2,3-propanetriol	25496-72-4	0.0000770%
Epichlorohydrin	106-89-8	0.0000484%
Ethylenediaminetetraacetic acid, tetrasodium salt	64-02-8	0.0000359%
Synthetic Crystalline-Free Silica Gel (Flow Agent)	112926-00-8	0.0000171%
Glycine, n,n-{bis{2-bis(carboxymethyl)amino}ethyl}-, pentasodium salt	140-01-2	0.0000154%
Acrylamide	79-06-1	0.0000154%
1,2-Benzisothiazolin-3-one	2634-33-5	0.0000120%
2-Methyl-4-isothiazolin-3-one	2682-20-4	0.0000120%
Silane, dichlorodimethyl-, reaction products with silica	68611-44-9	<0.00001%
5-Chloro-2-methyl-3(2H)-isothiazolone mixture with 2-methyl-3(2H)-isothiazolone	55965-84-9	<0.00001%
2-Bromo-2-(bromomethyl)pentanedinitrile	35691-65-7	0.000166%
FD&C Blue 1	3844-45-9	0.000166%
Aluminum oxide	1344-28-1	0.0000924%
9-Octadecenoic acid (9Z)-, monoester with 1,2,3-propanetriol	25496-72-4	0.0000770%
Epichlorohydrin	106-89-8	0.0000484%
Ethylenediaminetetraacetic acid, tetrasodium salt	64-02-8	0.0000359%
Synthetic Crystalline-Free Silica Gel (Flow Agent)	112926-00-8	0.0000171%
Glycine, n,n-{bis{2-bis(carboxymethyl)amino}ethyl}-, pentasodium salt	140-01-2	0.0000154%
Acrylamide	79-06-1	0.0000154%
1,2-Benzisothiazolin-3-one	2634-33-5	0.0000120%
2-Methyl-4-isothiazolin-3-one	2682-20-4	0.0000120%
Silane, dichlorodimethyl-, reaction products with silica	68611-44-9	<0.00001%
5-Chloro-2-methyl-3(2H)-isothiazolone mixture with 2-methyl-3(2H)-isothiazolone	55965-84-9	<0.00001%

Total		100%

1.7.2 System Details: Econoprop Proppant

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7
SYSTEM:	Econoprop Proppant
TOTAL VOLUME OF SYSTEM PER WELL	8,700 – 27,580 kg

1.7.2.1 Product List Details: Econoprop Proppant

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
CARBOECONOPROP	HALLIBURTON (CARBO)	N/A	100	Acute Toxicity Not available Chronic Toxicity No known significant effects or critical hazards. Biodegradation & Bioaccumulation: Not available	Y
Total			**100%**		

1.7.2.2 Chemical List: Econoprop Proppant

Chemicals within products in 1.7.2.2	CAS Number	Mass Fraction (%)
CERAMIC MATERIALS AND WARES, CHEMICALS	66402-68-4	100
Total		100%

1.7.3 System Details: Barite Well Control (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
System	Barite Well Control (15.5 ppg)
Total Volume of System	23.85m^3

1.7.3.1 Product Details: Barite Well Control (Contingency)

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Water	N/A	Base Fluid	47.943	n/a	N/A
Caustic soda	Halliburton	pH Control	0.040	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	Y
STARCIDE	Halliburton	Biocide	0.024	Acute toxicity Oral LD50: 900 mg/kg (rat) Fish LC50: 57.7 mg/L (*Brachidanio rerio*) Algae IC50: 5.7 mg/L (*Scenedesmus subspicatus*) Crustacean EC50: 37.9 mg/L (*Daphnia magna*) Chronic toxicity No data available to indicate product or components present at greater than 1% are chronic health hazards. Biodegradation / bioaccumulation	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Readily biodegradable and does not bioaccumulate.	
THERMA-THIN	Halliburton	Thinner	0.100	Acute toxicity Oral LD50: >5,000 mg/kg (rat) Fish LC50: 2,390-6,080 mg/L (*Cyprinus carpio*) Crustacean TLM96: 9,400 mg/L (*Crangon crangon*) Chronic toxicity No data available to indicate product or components present at greater than 1% are chronic health hazards. Biodegradation / bioaccumulation Persistence/degradability BOD (28 day): 37% of COD.	Y
FLOWZAN	SLB / MI SWACO	Drilling Fluid Additive	0.001	Acute Toxicity: None known Chronic Toxicity: None known This product has no known ecotoxicological effects. The product components are not classified as environmentally hazardous. Biodegradation/Bioaccumulation: Product components not expected to be biodegradable. Does not bioaccumulate.	Y
AQUAGEL	Halliburton	Viscosifier	1.186	Acute toxicity Fish LC50 (96hr): 1,900 mg/L (*Oncorhynchus mykiss*) Chronic toxicity Contains a known or suspected carcinogen (crystalline silica) Biodegradation / bioaccumulation This substance is not considered to be persistent, bioaccumulating nor toxic. This substance is not considered to be very persistent nor very bioaccumulating.	Y
Barite	Halliburton	Weight Additive	50.503	Acute toxicity Oral LD50: >15,000 mg/kg (rat) Fish TLM96: 7,500 mg/L (*Oncorhynchus mykiss*) Chronic toxicity	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. Individuals with silicosis are predisposed to develop tuberculosis. The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 – carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A – possible carcinogen to humans). Biodegradation / bioaccumulation Barium sulphate (major ingredient of barite ~60-100%) is insoluble in water and not biodegradable.	
NF-6	Halliburton	Reduces air entrainment into cement slurry	0.20	Ecotoxicity Marine Water Algae Toxicity 72h EC50: 1100 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 1000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Biodegradation Marine Water Biodegradation 28d: 70% [Halliburton Funded Study]; **CONSTITUENT 1** (≤10%) Ecotoxicity Marine Algae Toxicity 72h EC50: 991.02 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 2500 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >3200 mg/L (*Scophthalmus maximus*); Bioaccumulation Bioaccumulation: Calculated Log Pow: 7.45 **CONSTITUENT 2** (≤5%): Toxicity Oral LD50: >15900 mg/kg (Mouse), Inhalation LC50: >5 mg/L (4h) (Rat)	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Ecotoxicity Marine Algae Toxicity 72h EC50: 41 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >1800 mg/L (*Scophthalmus maximus*); Bioaccumulation Bioaccumulation: Calculated Log Pow: 4.28 **CONSTITUENT 3** (≤5%) Toxicity Oral LD50: > 5000 mg/kg (Rat), Dermal LD50: >5000 mg/kg (Guinea Pig) Ecotoxicity Marine Algae Toxicity 72h EC50: 6488.87 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 5085.71 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation Bioaccumulation: Calculated Log Pow: 22.69 (MW>700) **CONSTITUENT 4** (≤10%) No Hazard; product is naturally occurring **CONSTITUENT 5** (≤100%) Toxicity Oral LD50: 90 mg/kg (Mouse) (Similar Substance) No data available to indicate product or components present at greater than 0.1% are chronic health hazards Ecotoxicity Marine Algae Toxicity 72h EC50: >3200 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation Bioaccumulation: Calculated Log Pow: 7.09	
D-AIR 3000L	Halliburton	Defoamer	0.2%	**CONSTITUENT 1** (≤100%): LD50 Oral: >5000 mg/kg (Rat) (Similar Substance), LD50 Dermal: >2000 mg/kg	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				(Rat) (Similar Substance), LC 50 Inhalation >2.1 mg/L (Rat) Freshwater Algae Toxicity 96h EC50 : 22 mg/L (*Pseudokirchneriella subcapitata*) Freshwater Fish Toxicity Data 96h LC50 : >1000 mg/L (*Salmo gairdneri*) Freshwater Crustacean Toxicity 48h EC50: 480 mg/L (*Daphnia magna*) Readily Biodegradable (77-81% @28d) Bioaccumulation: Log Pow >7 **CONSTITUENT 2** (≤60%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >8000 mg/kg (Rat), LC50 Inhalation: >0.17 mg/L (4h) Marine Water Algae Toxicity 72h EC50: 426 mg/L (*Skeletonema costatum*) [OSPAR]; Marine Water Crustacean Toxicity 48h EC50: 433.2 mg/L (*Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: 5.06 [Halliburton Funded Study]; **CONSTITUENT 3** (≤1%): Component is a synthetic surface modified Amorphous Silica (CAS #: 7631-86-9); Fish and Invertebrate toxicity testing with Amorphous Silica have shown low hazard for this component. Source: OECD SIDS No data available to indicate product or components present at greater than 1% are chronic health hazards	
Total			**100%**		

1.7.3.2 Chemical List: Barite Well Control (Contingency)

Chemicals within products in 1.7.3.1	CAS number	Mass fraction (%)
Barium Sulfate	7727-43-7	47.57%
Water	7732-18-5	47%
Crystalline Silica (quartz)	14808-60-7	2.596%
Bentonite	1302-78-9	1.0905%
Rape Seed Oil	8002-13-9	0.51%

Chemicals within products in 1.7.3.1	CAS number	Mass fraction (%)
Polypropylene glycol	25322-69-4	0.3570%
Alkenes, C15-C18	93762-80-2	0.12%
Methyloxirane polymer with oxirane, ether with 1,2,3-propanetriol (3:1)	9082-00-2	0.0715%
Methyloxirane polymer with oxirane, ether with 1,2-propanediol (2:1)	53637-25-5	0.0715%
Polypropylene glycol	25322-69-4	0.06%
Sodium Polyacrylate	9003-04-7	0.0597%
Sodium Hydroxide	1310-73-2	0.0398%
Oxazdidine	66204-44-2	0.0239%
Silica, amorphous precipitated	67762-90-7	0.02%
Crystalline Silica (tridymite)	15468-32-3	0.0119%
Crystalline Silica (cristobalite)	14464-46-1	0.0119%
Xanthan Gum	11138-66-2	0.0013%
Calcium Stearate	1592-23-0	0.0001%
Total		~100%

1.7.4 System Details: Super CBL Barriers

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Super CBL Barriers
TOTAL VOLUME OF SYSTEM PER WELL	9.539 m3 (60 bbls)

1.7.4.1 Product List Details: Super CBL Barriers

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	69.26%	No Hazard	
CEMENT - CLASS G	Halliburton	Cement	29.4%	**CONSTITUENT 1** (≤100%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >2000 mg/kg, LC50 Inhalation: >1.0 mg/L (4h) (Rat) After hardening with water or moister, cement presents no ecotoxicity risks. (Source: IUCLID 2000) Static Aquatic Toxicity - Freshwater and Marine Algae:- 72 hour EC50: >1,000 mg/L Static Aquatic Toxicity -Freshwater and Marine Invertebrates:- 48 hour LC50: >1,000 mg/L Static Aquatic Toxicity- Freshwater and Marine Fish:- 96 hour LC50: >1,500 mg/L Partition Coefficient, n-Octanol/Water: Not Applicable for inorganics Oxygen Demand, Chemical Oxygen Demand: Not Applicable for inorganics Biodegradability, Seawater – Indigenous microbes: Not Applicable for inorganics **CONSTITUENT 2** (≤10%): LD50 Oral: >15000 mg/kg (human) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1)	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				The product is an integral component of this system and has been identified for use given its technical properties. There are no suitable alternatives available that are less hazardous. The use of this product has been minimised where practicable	
HALAD-413L	Halliburton	Fluid Loss Additive	1.04%	**CONSTITUENT 1** (≤30%): Oral LD50: >2000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 1102 mg/L (*Skeletonema costatum*) [OSPAR]; *Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus)* [OSPAR]; Bioaccumulation Log Kow: < 3.5 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 6 % [Halliburton Funded Study]; **CONSTITUENT 2** (≤100%): Product is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
HALAD-344	Halliburton	Fluid Loss Additive for high temperature	0.213%	**CONSTITUENT 1** <=100% Marine Water Algae Toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES internal Study] Marine Water Crustacean Toxicity EC50: > 2000 mg/L (*Acartia tonsa*) [HES study] Marine Fish Toxicity LC50: >1000 mg/L (*Scophthalmus maximus*) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] 0% (OECD 306) [HES Study] **CONSTITUENT 2** <=5% **CONSTITUENT 3** <= 5% **CONSTITUENT 4** <=5% Effect concentrations in the aquatic environment are attributable to a change in pH value. Oral LD50: 7340 mg/kg (Rat), Dermal LD50: >2500 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 49.1 mg/L (*Daphnia magna*) [ECHA];	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Fish Toxicity 96h LC50: 50.6 mg/L (*Oncorhynchus mykiss*) [ECHA]; Marine Water Crustacean Toxicity 96h LC50: 158 mg/L (*Crangon septemspinosa*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Oral LD50: >2000 mg/kg (similar Product) Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: <0 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 0% [Halliburton Funded Study]; No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
Super CBL Additive	Halliburton	Cement Additive	0.0667%	**CONSTITUENT 1** (≤5%) Oral LD50: 39800 mg/kg (Rat) Freshwater Fish Toxicity 96h LC50: > 1000 mg/L (*Oncorhynchus mykiss*) [US EPA HPVIS]; Marine Water Algae Toxicity 72h EC50: 5073.11 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 10000 mg/L (*Acartia tonsa*) [OSPAR]; Bioaccumulation log Pow: 1.8 [Duncan]; Marine Water Biodegradation 28d: 61 % [ERT Ltd.]; **CONSTITUENT 2** (≤100%) Substance not expected to exhibit toxic effects in the aquatic environment due to low solubility in transformation/dissolution assays. Inhalation LC50: 0.888 mg/L (Rat) 4 h Freshwater Algae Toxicity 72h NOEC: ≥ 0.004 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Algae Toxicity 72h NOEC: >100 mg/L (*Selenastrum capricorntum*) [IUCLID 2000]; Freshwater Crustacean Toxicity 48h EC50: 1.9 mg/L (*Ceriodaphnia dubia*) [ECHA] (similar substance); Freshwater Crustacean Toxicity 48h NOEC: >100 mg/L (*Daphnia magna*) [IUCLID 2000]; Freshwater Fish Toxicity 96h LC50: 0.078-0.108 mg/L (*Salmo salar*) [ECHA]; Freshwater Fish Toxicity 96h NOEC: >100 mg/L (*Salmo trutta*) [IUCLID 2000];	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Marine Water Crustacean Toxicity LC50 48h: 190 mg/L (OSPAR, 2000) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
SUPER CBL EXP	Halliburton	Cement Additive	0.0667%	**CONSTITUENT 1** (≤60%) Oral LD50: 24 g/Kg (Rat) Inhalation LC50: 2062 ppm (Rat) 4h Freshwater Fish Toxicity: >1000 mg/L (*Onchorhynchus mykiss*) Bioaccumulation Log Pow: 5.71 Biodegradability: 15-35% @ 28 days **CONSTITUENT 2** (≤60%) Substance not expected to exhibit toxic effects in the aquatic environment due to low solubility in transformation/dissolution assays. Inhalation LC50: 0.888 mg/L (Rat) 4 h Freshwater Algae Toxicity 72h NOEC: ≥ 0.004 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Algae Toxicity 72h NOEC: >100 mg/L (*Selenastrum capricorntum*) [IUCLID 2000]; Freshwater Crustacean Toxicity 48h EC50: 1.9 mg/L (*Ceriodaphnia dubia*) [ECHA] (similar substance); Freshwater Crustacean Toxicity 48h NOEC: >100 mg/L (*Daphnia magna*) [IUCLID 2000]; Freshwater Fish Toxicity 96h LC50: 0.078-0.108 mg/L (*Salmo salar*) [ECHA]; Freshwater Fish Toxicity 96h NOEC: >100 mg/L(*Salmo trutta)* [IUCLID 2000]; Marine Water Crustacean Toxicity LC50 48h: 190 mg/L (OSPAR, 2000) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** (≤5%) Oral LD50: >30000 mg/kg Freshwater Fish Toxicity 24 h LC50 >1000 mg/L Marine Water Algae toxicity EC50: 87.02 mg/L (*Skeletonema costatum*) [HES Study] Marine Water Crustacean toxicity LC50: 2319 mg/L (*Acartia tonsa*) [HES Study] Marine Water Fish toxicity LC50: >87.02 mg/L (*Cyprinodon variegatus*) [HES Study]	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				48% @ 28 days (OECD 306) Biodegradaiton data for other sorbitan esters finds the test substances not to be readily biodegradable. Sorbitan monolaurate (1338-39-2, sorbitan monooleate (1338-43-8, and sorbitan fatty acids C6-10, tetraester (228573-47-5) were not readily biodegradable in OECD 301d studies. **CONSTITUENT 4** (≤5%) Oral LD50: 5000 mg/kg (Rat) Inhalation LC50: 12.6 mg/L (Rat) 4h Marine Water Algae Toxicity EC50: >10000 mg/L (*Skeletonema costatum*) [HES Study] Marine Water Crustacean Toxicity EC50: >10000 mg/L (*Acartia tonsa*) [HES Study] Marine Water Fish Toxicity LC50: >10000 (*Scophthalmus Maximus*) [HES Study] Bioaccumulation Log Pow: -5.2 (OECD 117) [HES Study] 8% @ 28 days (Marine BODIS) [HES Study] IUCLID BioaccumulationL Similar modified clays have been shown to have very low solubility in water or hexanol. Co-efficient partition is not feasible. **CONSTITUENT 5** (≤5%) Oral LD50: 39800 mg/kg (Rat) Freshwater Fish Toxicity 96h LC50: > 1000 mg/L (*Oncorhynchus mykiss*) [US EPA HPVIS]; Marine Water Algae Toxicity 72h EC50: 5073.11 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 10000 mg/L (*Acartia tonsa*) [OSPAR]; Bioaccumulation log Pow: 1.8 [Duncan]; Marine Water Biodegradation 28d: 61 % [ERT Ltd.]; **CONSTITUENT 6** (≤1%) Oral LD50: >39800 mg/kg Inhalation LC50: >5.27 mg/L Freshwater Crustacean Toxicity EC50(48h): 1000 mg/L (*Daphnia magna*) Marine Water Algae Toxicity EC50: 258 mg/L (*Skeletonema costatum*) [HES Study] Marine Water Crustacean LC50: 2319 mg/L (*Arcartia tonsa*) [HES Study] Marine Water Fish Toxicity LC50: >258 mg/L (*Cyprinodon variegatus*) [HES Study]	

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Bioaccumulation BCF values of 0.9 - 36.5 L/Kg ww Not bioaccumulative Readily biodegradable Component was found to be 88.9% biodegradable in activated sludge in 28 days. (study report 2006-02-06 as cited in ECHA reg) N/A56% @ 28 days (Marine BODIS) [HES Study] No known significant effects or critical hazards related to mutagenicity, endocrine disrupting or reproductive toxicity.	
NF-6	Halliburton	Reduces air entrainment into cement slurry	0.0161%	Marine Water Algae Toxicity 72h EC50: 1100 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 1000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 70% [Halliburton Funded Study]; **CONSTITUENT 1** (≤10%) Marine Algae Toxicity 72h EC50: 991.02 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 2500 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >3200 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.45 **CONSTITUENT 2** (≤5%): Oral LD50: >15900 mg/kg (Mouse), Inhalation LC50: >5 mg/L (4h) (Rat) Marine Algae Toxicity 72h EC50: 41 mg/L (*Skeletonema costatum)* Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >1800 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 4.28 PRODUCT DATA **CONSTITUENT 3** (≤5%) Oral LD50: > 5000 mg/kg (Rat), Dermal LD50: >5000 mg/kg (Guinea Pig) Marine Algae Toxicity 72h EC50: 6488.87 mg/L (*Skeletonema costatum)* Marine Crustacean Toxicity 48h LC50: 5085.71 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 22.69 (MW>700) **CONSTITUENT 4** (≤10%) No Hazard Product is naturally occuring CONSTITUENT 5 (≤100%)	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Oral LD50: 90 mg/kg (Mouse) (Similar Substance) Marine Algae Toxicity 72h EC50: >3200 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.09 No data available to indicate product or componetns present at greater than 0.1% are chronic health hazards	
D-AIR 3000L	Halliburton	Defoamer	0.0161%	**CONSTITUENT 1** (≤100%): LD50 Oral: >5000 mg/kg (Rat) (Similar Substance), LD50 Dermal: >2000 mg/kg (Rat) (Similar Substance), LC 50 Inhalation >2.1 mg/L (Rat) Freshwater Algae Toxicity 96h EC50 : 22 mg/L (*Pseudokirchneriella subcapitata*) Freshwater Fish Toxicity Data 96h LC50 : >1000 mg/L (*Salmo gairdneri*) Freshwater Crustacean Toxicity 48h EC50: 480 mg/L (*Daphnia magna*) Readily Biodegradable (77-81% @28d) Bioaccumulation: Log Pow >7 **CONSTITUENT 2** (≤60%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >8000 mg/kg (Rat), LC50 Inhalation: >0.17 mg/L (4h) Marine Water Algae Toxicity 72h EC50: 426 mg/L (*Skeletonema costatum*) [OSPAR]; Marine Water Crustacean Toxicity 48h EC50: 433.2 mg/L (*Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: 5.06 [Halliburton Funded Study]; **CONSTITUENT 3** (≤1%): Component is a synthetic surface modified Amorphous Silica (CAS #: 7631-86-9); Fish and Invertebrate toxicity testing with Amorphous Silica have shown low hazard for this component. Source: OECD SIDS No data available to indicate product or components present at greater than 1% are chronic health hazards	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
Latex 4000 [contingency]	Halliburton	Cement Expanding Additive	18.83%	**CONSTITUENT 1** (<60%): Component is naturally occuring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards **CONSTITUENT 2** (<60%): No Data Available for non-hazardous polymer **CONSTITUENT 3** (<1%): LD50 Oral: >2000 and <5000 mg/kg (Rat); LD50 Dermal: >10,000 mg/kg (Rabbit); Freshwater Crustacean Toxicity 48h EC50: 439 mg/L [ECHA]; Marine Water Algae Toxicity 72h EC50: 202.33 mg/L (*Skeletonema costatum*) [ECHA]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Sponsored Study]; Bioaccumulation LogPow: -1.504 [ECHA]; Biodegradation 14d: 100% [ECHA] **CONSTITUENT 4** (<0.1%): Oral LD50: 1658 mg/kg (Rat); Inhalation LC50 >1 mg/L (Rat, saturated mist, 4hr) (Similar Substance); Freshwater Algae Toxicity 72h EC50: >100 mg/L (*Desmodesmus subspicatus*); Freshwater Crustacean Toxicity 24h LC50: 610 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96h LC50: 121 mg/L (*Lepomis macrochirus*); Biodegradation (28 Days): 10% (OECD306) **CONSTITUENT 5 (**<0.1%): LD50 Oral: 53 mg/kg (Rat); LD50 Dermal: 200 mg/kg (Rabbit); LC50 Inhalation: 0.11 mg/L (4h) (Rat);	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Crustacean Toxicity EC50 (48h) 0.18 mg/L (*Daphnia magna)* (Similar Substance); Freshwater Fish Toxicity LC50 (96h) 0.19 mg/L (*Oncorhynchus mykiss)* (Similar substance); Bioaccumulation: Log Pow= -0.26 **CONSTITUENT 6** (<0.1%): LD50 Oral: 1020 mg/kg (Rat); LD50 Dermal: >2000 mg/kg (Rat); Bioaccumulation: Log Pow= 0.99 **CONSTITUENT 7** (<0.1%): LD50 Oral: 481 mg/kg (Rat); LD50 Dermal: 1008 mg/kg (Rat); LC50 Inhalation: 1.23 mg/L (4h) (Rat); Freshwater Algae Toxicity 72h EC50: 0.11-0.16 mg/L (*Pseudokirchneriella subcapitata*); Freshwater Crustacean Toxicity 48h EC50: 0.18 mg/L (*Daphnia magna*); Freshwater Fish Toxicity LC50 (96h): 0.08 mg/L (*Oncorhynchus mykiss*); Bioaccumulation: Log Pow = 0.7 Contains no hazardous substances in concentrations above cut-off values according to the competent authority.	
CFR-8L [contingency]	Halliburton	Friction Reducer	10.83%	**CONSTITUENT 1** (≤60%): Oral LD50: >5000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 7631.73 mg/L (*Skeletonema costatum*); Marine Water Crustacean Toxicity 48h LC50: 2200 mg/L (*Acartia tonsa*); Marine Water Fish Toxicity 96h LC50: 1006 mg/L (*Scophthalmus maximus*); Fresh Water Crustacean Toxicity 48h LC50: >100 mg/L (*Daphnia magna*); Bioaccumulation Log Pow: < 0; Inherently biodegradable: Biodegradation 28d: 38%; **CONSTITUENT 2** (≤100%): Component is naturally occurring and not intrinsically hazardous	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
HALAD 344 [contingency]	Halliburton	Fluid Loss Additive	10.16%	**CONSTITUENT 1** (≤ 60%): Oral LD50: >5000 mg/kg (Rat) (similar substances); Dermal LD50: >2000 mg/kg (Rabbit) (Similar substances); Marine water Algae Toxicity 72h EC50: 493 mg/L (*Skeletonema costatum*); Marine water Crustacean Toxicity 48h LC50: 400 mg/L (*Acartia tonsa*); Marine water Fish Toxicity 96h LC50: >1000 mg/L (*Scophthalmus maximus*); Bioaccumulation: No information available - check ECHA; Biodegradation: No information available - check ECHA. **CONSTITUENT 2** (≤ 60%): Component is naturally occuring and not intrinsically hazardous. **CONSTITUENT 3** (≤ 30%): Oral LD50: >5000 mg/kg (Rat) (similar substances); Dermal LD50: >2000 mg/kg (Rabbit) (Similar substances); Inhalation LC50: >5.2 mg/L (rat, 4h, vapor) (similar substance); Marine water Algae Toxicity 72h EC50: >10000 mg/L (*Skeletonema costatum*); Marine water Crustacean Toxicity 24h LL50: >10000 mg/L (*Acartia tonsa*); Marine water Fish Toxicity 96h LC50: >10000 mg/L (*Scophthalmus maximus*); Bioaccumulation: Log Pow =0; Biodegradation: Readily biodegradable (68.1% @ 28d). **CONSTITUENT 4** (≤ 10%): Oral LD50: 1220 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rat); Freshwater Algae Toxicity 5d EC50: 1300 mg/L (*Chlorella vulgaris*); Freshwater Crustacean Toxicity 96h LC50: > 100 mg/L (*Gammarus fasciatus*); Freshwater Fish Toxicity 96h LC50: 34.6 mg/L (*Oncorhynchus mykiss*); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 5** (≤ 5%): Oral LD50: >5000 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rabbit) (similar substance); Freshwater Fish Toxicity 96h LC50: 5.1 mg/L (*Danio rerio*); Bioaccumulation: Log Kow = 5.51; Biodegradation: Readily biodegradable (86% @ 28d).	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				CONSTITUENT 6 (≤ 1%): Proprietary Oral LD50: 34500 µL/kg (Rat); Bioaccumulation: No information available; Biodegradation: No information available. **CONSTITUENT 7** (≤ 1%): PLONOR Oral LD50: 300 mg/kg (Human); Dermal LD50: 1000 mg/kg (Human); Inhalation LC50: 10 mg/L (Human, vapor, 4h); Freshwater Algae Toxicity 96h EC50: 22000 mg/L (*Pseudokirchnerella subcapitata*); Freshwater Crustacean Toxicity 48h EC50: 22200 mg/L (*Daphnia obtuse*); Freshwater Fish Toxicity 96h LC50: 15400 mg/L (*Lepomis macrochirus*); Bioaccumulation: Not bioaccumulative; BCF=1; Biodegradation: Readily biodegradable (95% 20d). No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
ECONOLITE LIQUID [contingency]	Halliburton	Cement Additive Stabiliser	6.40%	**CONSTITUENT 1** (≤60%): LD50 Oral: 800 mg/kg (Rat), LD50 Oral: 770 mg/kg (Mouse), LD50 Dermal: > 5000 mg/kg (Rat) (Similar substance), LC50 Inhalation >2.06 mg/L (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: > 345 mg/L (*Scenedesmus subspicatus*) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 1700 mg/L (*Daphnia magna*) [OECD SIDS]; Freshwater Fish Toxicity 96h LC50: 1108 mg/L (*Danio rerio*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤60%): Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
GASCON 469 [contingency]	Halliburton	Cement Additive Stabiliser	5.03%	**CONSTITUENT 1** <=1% Oral LDL: 500 mg/kg (Rabbit), Dermal LD50: 1350 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 40.4 mg/L (*Ceriodaphnia sp.*) [ECHA];	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Fish Toxicity 96h LC50: 45.4 mg/L (*Oncorhynchus mykiss*) Freshwater Fish Toxicity 96h LC50: 125 mg/L (*Gambusia affinis*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** <=60% Oral LD50: >10,000 mg/kg, Inhalation LC50: >0.69 mg/L (4h) (Rat) Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Selenastrum capricornutum*) [IUCLID; LOLI]; Freshwater Crustacean Toxicity 48h EC50: 7600 mg/L (*Ceriodaphnia dubia*) [IUCLID; LOLI]; Freshwater Fish Toxicity 96h LC50: 5000 mg/L (*Brachydanio rerio*) [IUCLID; LOLI]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** <= 100% Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
Calcium Chloride Powder [contingency]	Halliburton	Excellerator	1.10%	**CONSTITUENT 1** <=100% Oral LD50: 2240 mg/kg (Rat), Dermal LD50: 5000 mg/kg (Rabbit) Freshwater Algae Toxicity 72h EC50: 2900 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Crustacean Toxicity 48h LC50: 2400 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 4630 mg/L (*Pimephales promelas*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** <=5% Oral LD50: 3000 mg/kg (Rat), Dermal LD50: >10000 mg/kg (Rabbit), Inhalation LC50: 42 mg/L (Rat) 1h Freshwater Algae Toxicity 96h EC50: 2430 mg/L (*Navicula seminulum*) [US EPA ECOTOX]; Freshwater Crustacean Toxicity 48h EC50: 402.6 mg/L (*Daphnia magna*) [US EPA ECOTOX]; Freshwater Fish Toxicity 96h LC50: 9675 mg/L (*Lepomis macrochirus*) [IUCLID];	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
GasStop Additive [contingency]	Halliburton	Cement Additive	0.55%	Marine Algae toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES Interal Study] Marine Fish toxicity LC50: >1000 mg/L (*Scophthalmus maximus*) [HES study] Marine Crustacean toxicity EC50: > 2000 mg/L (*Acartia tonsa*) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] Biodegradation 0% (OECD 306) [HES Study] No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
WellLife 734 [contingency]	Halliburton	Cement Enhancer	0.55%	Product is an inert, man-made substance and not intrinsically hazardous. Is a fine rigid fibrous material (glass fibre), which is chemically inert. As such irritation resulting from contact with this product is by mechanical abrasion. Standard PPE is require to handle the product to minimise direct exposure from mechanical contact. The irritation from contact with this product was not identified being from a chemical reaction. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
SA-1015 [contingency]	Halliburton	Suspension Agent	0.022%	Freshwater Algae Toxicity 72h EC50: >100 mg/L (*Scenedesmus subspicatus*); Freshwater Crustacean Toxicity 48h EC50: >100 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96h LC50: >100 mg/L (*Oncorhynchus mykiss*); Marine Water Algae Toxicity 72h EC50: > 5600 mg/L (*Skeletonema costatum*); Marine Water Crustacean Toxicity 48h LC50: 234.22 mg/L (*Acartia tonsa*); Marine Water Fish Toxicity 96h LC50: > 234.22 mg/L (*Cyprinodon variegatus*); Readily biodegradable (95% at 28 days); Bioaccumulation Log Pow: 0 No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	Y
IsoGuard [contingency]	Halliburton	Additive	0.22%	**CONSTITUENT 1** (≤100%): limited data - nonhazardous polymer LD50 Oral: >5000 mg/kg (rat); LD50 Dermal: >1000 mg/kg (rabbit); LC50	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Inhalation: >5 mg/L (Rat) 4h; Freshwater Fish Toxicity 96h LC50: >10000 mg/L (*Lepomis macrochirus*) (similar substance); Bioaccumulation: No information available; Biodegradation: Readily biodegradable (~100% @ 28d) **CONSTITUENT 2** (≤10%): Component is naturally occurring and not intrinsically hazardous. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
Total (With Contingency)			**153.9%**		

1.7.4.2 CHEMICAL LIST: Super CBL Barriers

Chemicals within products in 1.7.4.1	CAS number	Mass fraction (%)
Customer Supplied Mix Water	Not Applicable	69.30%
Portland cement	65997-15-1	27.90%
2-Propenoic acid, polymer with 1,3-butadiene and ethenylbenzene	25085-39-6	18.61%
Propanesulfonic acid, 2-methyl-2-[(1-oxo-2-propenyl)amino]-, monosodium salt, polymer with N,N-dimethyl-2-propenamide	92815-96-8	7.50%
Sulfonated organic polymer	526203-62-3	7.00%
Sodium silicate	1344-09-8	4.75%
Hydrotreated light petroleum distillate	64742-47-8	4.02%
Silica, amorphous - fumed	7631-86-9	3.73%
Calcium Chloride, dihydrate	10035-04-8	1.93%
Crystalline silica, quartz	14808-60-7	1.47%
Rape Oil	8002-13-9	1.417%
Ammonium chloride	12125-02-9	1.21%
N,N-dimethylacrylamide copolymer with calcium AMPS	103115-52-2	1.02%

Soda Lime Borosilicate Glass	65997-17-3	1.02%
Dilutan Gum	125005-87-0	0.407%
Poly(vinyl acetate)-poly(vinyl alcohol) polymer	25213-24-5	0.383%
Humic acids, sodium salts, polymers with N,N-dimethyl-2-propenamide, sodium 2-methyl-2-[(1-oxo-2-propen-1-yl)amino]-1-propanesulfonate (1:1) and 2-propenenitrile, sodium bisulfite-terminated	473268-27-8	0.312%
9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	0.245%
Sodium dicyclohexyl sulfosuccinate	23386-52-9	0.208%
N,N-dimethylacrylamide copolymer with calcium AMPS	103115-52-2	0.181%
Ethylenediaminetetraacetic acid, tetrasodium salt	64-02-8	0.0129%
Sodium Chloride	7647-14-5	0.102%
Alkenes, C15-C18	93762-80-2	0.0097%
Sodium hydroxide	1310-73-2	0.0934%
Monopropylene glycol monooleate	1330-80-9	0.0805%
Sorbitan monooleate polyoxyethylene derivative	9005-65-6	0.0755%
Aluminum	7429-90-5	0.0634%
Methanol	67-56-1	0.0189%
Sorbitan, monopalmitate	26266-57-9	0.01610%
Aluminium stearate	637-12-7	0.01610%
Calcium hydroxide	1305-62-0	0.0107%
Sodium sulfate	7757-82-6	0.0107%
Lecithins	8002-43-5	0.0107%
Polypropylene glycol	25322-69-4	0.00483%
1,2-Benzisothiazolin-3-one	2634-33-5	0.00433%
2-Methyl-4-isothiazolin-3-one	2682-20-4	0.00433%
Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	0.00334%
Silica, amorphous precipitated	67762-90-7	0.00161%
5-Chloro-2-methyl-3(2H)-isothiazolone mixture with 2-methyl-3(2H)-isothiazolone	55965-84-9	0.000606%

Total	**-**	**~153.9%**

1.7.5 System Details: Lower Abandonment Cement

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Contingent Abandonment Cement
TOTAL VOLUME OF SYSTEM PER WELL	4.77 m^3 (30 bbls)

1.7.5.1 Product List Details: Lower Abandonment Cement

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	32.6%	N/A	n/a
Cement - Class G	Halliburton	Cement	64.7%	**CONSTITUENT 1** (≤100%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >2000 mg/kg, LC50 Inhalation: >1.0 mg/L (4h) (Rat) After hardening with water or moister, cement presents no ecotoxicity risks. (Source: IUCLID 2000) Static Aquatic Toxicity - Freshwater and Marine Algae:- 72 hour EC50: >1,000 mg/L Static Aquatic Toxicity -Freshwater and Marine Invertebrates:- 48 hour LC50: >1,000 mg/L Static Aquatic Toxicity- Freshwater and Marine Fish:- 96 hour LC50: >1,500 mg/L Partition Coefficient, n-Octanol/Water: Not Applicable for inorganics Oxygen Demand, Chemical Oxygen Demand: Not Applicable for inorganics Biodegradability, Seawater – Indigenous microbes: Not Applicable for inorganics **CONSTITUENT 2** (≤10%): LD50 Oral: >15000 mg/kg (human) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable.	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Biodegradation: Substance is inorganic - biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1) The product is an integral component of this system and has been identified for use given its technical properties. There are no suitable alternatives available that are less hazardous. The use of this product has been minimised where practicable	
HALAD-413L	Halliburton	Fluid Loss Additive	1.44%	**CONSTITUENT 1** (≤30%): Oral LD50: >2000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 1102 mg/L (*Skeletonema costatum*) [OSPAR]; Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (*Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [OSPAR]; Bioaccumulation Log Kow: < 3.5 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 6 % [Halliburton Funded Study]; **CONSTITUENT 2** (≤100%): Product is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
GASCON 469	Halliburton	Cement Additive Stabiliser	1.06%	**CONSTITUENT 1** <=1% Oral LDL: 500 mg/kg (Rabbit), Dermal LD50: 1350 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 40.4 mg/L (*Ceriodaphnia sp.*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 45.4 mg/L (*Oncorhynchus mykiss*) Freshwater Fish Toxicity 96h LC50: 125 mg/L (*Gambusia affinis*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** <=60% Oral LD50: >10,000 mg/kg, Inhalation LC50: >0.69 mg/L (4h) (Rat) Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Selenastrum capricornutum*) [IUCLID; LOLI]; Freshwater Crustacean Toxicity 48h EC50: 7600 mg/L (*Ceriodaphnia dubia*)	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				[IUCLID; LOLI]; Freshwater Fish Toxicity 96h LC50: 5000 mg/L (*Brachydanio rerio*) [IUCLID; LOLI]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** <= 100% Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
SCR-100L	Halliburton	Cement Retarder	0.160%	Oral Toxicity LD50: >5000 mg/kg (Rat), Dermal LD50 : >2000 mg/kg (Rabbit) Freshwater Fish Toxicity 96h LC50: 4900 mg/L (*Oncorhynchus mykiss*) Freshwater Crustacean Toxicity 48h LC50: 2800 mg/L (*Daphnia magna*) Marine Water Algae Toxicity 72h EC50: > 3300 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fishn Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 14% [Halliburton Funded Study]; Product was tested using OECD 117 no peaks detected MW>700Da. Product is not expected to be bioaccumulating No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
D-AIR 3000L	Halliburton	Defoamer	0.078%	**CONSTITUENT 1** (≤100%): LD50 Oral: >5000 mg/kg (Rat) (Similar Substance), LD50 Dermal: >2000 mg/kg (Rat) (Similar Substance), LC 50 Inhalation >2.1 mg/L (Rat) Freshwater Algae Toxicity 96h EC50 : 22 mg/L (*Pseudokirchneriella subcapitata*) Freshwater Fish Toxicity Data 96h LC50 : >1000 mg/L (*Salmo gairdneri*) Freshwater Crustacean Toxicity 48h EC50: 480 mg/L (*Daphnia magna*) Readily Biodegradable (77-81% @28d) Bioaccumulation: Log Pow >7 **CONSTITUENT 2** (≤60%):	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >8000 mg/kg (Rat), LC50 Inhalation: >0.17 mg/L (4h) Marine Water Algae Toxicity 72h EC50: 426 mg/L (*Skeletonema costatum*) [OSPAR]; Marine Water Crustacean Toxicity 48h EC50: 433.2 mg/L (*Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: 5.06 [Halliburton Funded Study]; **CONSTITUENT 3** (≤1%): Component is a synthetic surface modified Amorphous Silica (CAS #: 7631-86-9); Fish and Invertebrate toxicity testing with Amorphous Silica have shown low hazard for this component. Source: OECD SIDS No data available to indicate product or components present at greater than 1% are chronic health hazards	
NF-6	Halliburton	Reduces air entrainment into cement slurry	0.0640%	Marine Water Algae Toxicity 72h EC50: 1100 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 1000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 70% [Halliburton Funded Study]; **CONSTITUENT 1** (≤10%) Marine Algae Toxicity 72h EC50: 991.02 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 2500 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >3200 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.45 **CONSTITUENT 2** (≤5%): Oral LD50: >15900 mg/kg (Mouse), Inhalation LC50: >5 mg/L (4h) (Rat) Marine Algae Toxicity 72h EC50: 41 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >1800 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 4.28	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				CONSTITUENT 3 (≤5%) Oral LD50: > 5000 mg/kg (Rat), Dermal LD50: >5000 mg/kg (Guinea Pig) Marine Algae Toxicity 72h EC50: 6488.87 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 5085.71 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 22.69 (MW>700) **CONSTITUENT 4** (≤10%) No Hazard Product is naturally occurring **CONSTITUENT 5** (≤100%) Oral LD50: 90 mg/kg (Mouse) (Similar Substance) Marine Algae Toxicity 72h EC50: >3200 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (Scophthalmus maximus); Bioaccumulation: Calculated Log Pow: 7.09 No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
ECONOLITE LIQUID [contingency]	Halliburton	Cement Additive Stabiliser	30.29%	**CONSTITUENT 1** (≤60%): LD50 Oral: 800 mg/kg (Rat), LD50 Oral: 770 mg/kg (Mouse), LD50 Dermal: > 5000 mg/kg (Rat) (Similar substance), LC50 Inhalation >2.06 mg/L (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: > 345 mg/L (*Scenedesmus subspicatus*) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 1700 mg/L (*Daphnia magna*) [OECD SIDS]; Freshwater Fish Toxicity 96h LC50: 1108 mg/L (*Danio rerio*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤60%): Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
HALAD 344 [contingency]	Halliburton	Fluid Loss Additive	12.04%	**CONSTITUENT 1** (≤ 60%): Oral LD50: >5000 mg/kg (Rat) (similar substances); Dermal LD50: >2000 mg/kg (Rabbit) (Similar substances); Marine water Algae Toxicity 72h EC50: 493 mg/L (*Skeletonema costatum*); Marine water Crustacean Toxicity 48h LC50: 400 mg/L (*Acartia tonsa*); Marine water Fish Toxicity 96h LC50: >1000 mg/L (*Scophthalmus maximus*); Bioaccumulation: No information available - check ECHA; Biodegradation: No information available - check ECHA. **CONSTITUENT 2** (≤ 60%): Component is naturally occurring and not intrinsically hazardous. **CONSTITUENT 3** (≤ 30%): Oral LD50: >5000 mg/kg (Rat) (similar substances); Dermal LD50: >2000 mg/kg (Rabbit) (Similar substances); Inhalation LC50: >5.2 mg/L (rat, 4h, vapor) (similar substance); Marine water Algae Toxicity 72h EC50: >10000 mg/L (*Skeletonema costatum*); Marine water Crustacean Toxicity 24h LL50: >10000 mg/L (*Acartia tonsa*); Marine water Fish Toxicity 96h LC50: >10000 mg/L (*Scophthalmus maximus*); Bioaccumulation: Log Pow =0; Biodegradation: Readily biodegradable (68.1% @ 28d). **CONSTITUENT 4** (≤ 10%): Oral LD50: 1220 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rat); Freshwater Algae Toxicity 5d EC50: 1300 mg/L (*Chlorella vulgaris*); Freshwater Crustacean Toxicity 96h LC50: > 100 mg/L (*Gammarus fasciatus*); Freshwater Fish Toxicity 96h LC50: 34.6 mg/L (*Oncorhynchus mykiss*); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 5** (≤ 5%): Oral LD50: >5000 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rabbit) (similar substance); Freshwater Fish Toxicity 96h LC50: 5.1 mg/L (*Danio rerio*); Bioaccumulation: Log Kow = 5.51; Biodegradation: Readily biodegradable (86% @ 28d).	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				CONSTITUENT 6 (≤ 1%): Proprietary Oral LD50: 34500 µL/kg (Rat); Bioaccumulation: No information available; Biodegradation: No information available. **CONSTITUENT 7** (≤ 1%): PLONOR Oral LD50: 300 mg/kg (Human); Dermal LD50: 1000 mg/kg (Human); Inhalation LC50: 10 mg/L (Human, vapor, 4h); Freshwater Algae Toxicity 96h EC50: 22000 mg/L (*Pseudokirchnerella subcapitata*); Freshwater Crustacean Toxicity 48h EC50: 22200 mg/L (*Daphnia obtuse*); Freshwater Fish Toxicity 96h LC50: 15400 mg/L (Lepomis macrochirus); Bioaccumulation: Not bioaccumulative; BCF=1; Biodegradation: Readily biodegradable (95% 20d). No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
CFR-8L [contingency]	Halliburton	Friction Reducer	3.83%	**CONSTITUENT 1** (≤60%): Oral LD50: >5000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 7631.73 mg/L (*Skeletonema costatum*); Marine Water Crustacean Toxicity 48h LC50: 2200 mg/L (*Acartia tonsa*); Marine Water Fish Toxicity 96h LC50: 1006 mg/L (*Scophthalmus maximus*); Fresh Water Crustacean Toxicity 48h LC50: >100 mg/L (*Daphnia magna*); Bioaccumulation Log Pow: < 0; Inherently biodegradable: Biodegradation 28d: 38%; **CONSTITUENT 2** (≤100%): Component is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
SILICALITE LIQUID [contingency]	Halliburton	Light weight cement additive	1.48%	**CONSTITUENT 1** (≤60%): SiO2 is a stable substance. In the environment it occurs in different modifications and it is one of the most abundant materials on the Earth's surface. Biodegrability is not applicable for silica since it is inorganic. Additionally, bioaccumulation is not expected.	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Selenastrum capricornutum*); Freshwater Crustacean Toxicity 48h EC50: 7600 mg/L (*Ceriodaphnia dubia*); Freshwater Fish Toxicity 96h LC50 5000 mg/L (*Brachydanio rerio*); Source: IUCLID 2000 **CONSTITUENT 2** (≤60%): No Hazard - Product is naturally occurring **CONSTITUENT 3** (≤1%): Freshwater Fish Toxicity 96h LC50: >1000 mg/L (*Brachydanio rerio*) Freshwater Crustacean Toxicity 24h LC50: >1000 mg/L (*Daphnia magna*) Marine Crustacean Toxicity 10d LC50: 50566 mg/kg (*Corophium volutator*) No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
Calcium Chloride Powder [contingency]	Halliburton	Excellerator	1.30%	**CONSTITUENT 1** <=100% Oral LD50: 2240 mg/kg (Rat), Dermal LD50: 5000 mg/kg (Rabbit) Freshwater Algae Toxicity 72h EC50: 2900 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Crustacean Toxicity 48h LC50: 2400 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 4630 mg/L (*Pimephales promelas*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** <=5% Oral LD50: 3000 mg/kg (Rat), Dermal LD50: >10000 mg/kg (Rabbit), Inhalation LC50: 42 mg/L (Rat) 1h Freshwater Algae Toxicity 96h EC50: 2430 mg/L (*Navicula seminulum*) [US EPA ECOTOX]; Freshwater Crustacean Toxicity 48h EC50: 402.6 mg/L (*Daphnia magna*) [US EPA ECOTOX]; Freshwater Fish Toxicity 96h LC50: 9675 mg/L (*Lepomis macrochirus*) [IUCLID]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
GasStop Additive [contingency]	Halliburton	Cement Additive	0.65%	Marine Algae toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES Interal Study] Marine Fish toxicity LC50: >1000 mg/L (*Scophthalmus maximus*) [HES study] Marine Crustacean toxicity EC50: > 2000 mg/L (*Acartia tonsa)* [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] Biodegradation 0% (OECD 306) [HES Study] No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
HALAD-344 [contingency]	Halliburton	Fluid Loss Additive for high temperature	0.65%	**CONSTITUENT 1** <=100% Marine Water Algae Toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES Interal Study] Marine Water Crustacean Toxicity EC50: > 2000 mg/L (*Acartia tonsa)* [HES study] Marine Fish Toxicity LC50: >1000 mg/L (*Scophthalmus maximus*) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] 0% (OECD 306) [HES Study] **CONSTITUENT 2** <=5% PLONAR **CONSTITUENT 3** <= 5% PLONAR **CONSTITUENT 4** <=5% PLONAR Effect concentrations in the aquatic environment are attributable to a change in pH value. Oral LD50: 7340 mg/kg (Rat), Dermal LD50: >2500 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 49.1 mg/L (*Daphnia magna*) [ECHA];	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Fish Toxicity 96h LC50: 50.6 mg/L (*Oncorhynchus mykiss*) [ECHA]; Marine Water Crustacean Toxicity 96h LC50: 158 mg/L (*Crangon septemspinosa*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Oral LD50: >2000 mg/kg (similar Product) Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: <0 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 0% [Halliburton Funded Study]; No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
IsoGuard [contingency]	Halliburton	Additive	0.65%	**CONSTITUENT 1** (≤100%): limited data - nonhazardous polymer LD50 Oral: >5000 mg/kg (rat); LD50 Dermal: >1000 mg/kg (rabbit); LC50 Inhalation: >5 mg/L (Rat) 4h; Freshwater Fish Toxicity 96h LC50: >10000 mg/L (*Lepomis macrochirus*) (similar substance); Bioaccumulation: No information available; Biodegradation: Readily biodegradable (~100% @ 28d) **CONSTITUENT 2** (≤10%): Component is naturally occurring and not intrinsically hazardous. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
SA-1015 [contingency]	Halliburton	Suspension Agent	0.078%	Freshwater Algae Toxicity 72h EC50: >100 mg/L (*Scenedesmus subspicatus*); Freshwater Crustacean Toxicity 48h EC50: >100 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96h LC50: >100 mg/L (*Oncorhynchus mykiss*); Marine Water Algae Toxicity 72h EC50: > 5600 mg/L (*Skeletonema costatum*); Marine Water Crustacean Toxicity 48h LC50: 234.22 mg/L (*Acartia tonsa*); Marine Water Fishn Toxicity 96h LC50: > 234.22 mg/L (*Cyprinodon variegatus*);	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Readily biodegradable (95% at 28 days); Bioaccumulation Log Pow: 0 No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
Total			**151%**		

1.7.5.2 CHEMICAL LIST: Lower Abandonment Cement

Chemicals within products in 1.7.5.1	CAS number	Mass fraction (%)
Portland cement	65997-15-1	61.50%
Water	n/a	34.30%
Sodium silicate	1344-09-8	23.80%
Propanesulfonic acid, 2-methyl-2-[(1-oxo-2-propenyl)amino]-, monosodium salt, polymer with N,N-dimethyl-2-propenamide	92815-96-8	9.40%
Hydrotreated light petroleum distillate	64742-47-8	5.00%
Crystalline silica, quartz	14808-60-7	3.230%
Sulfonated organic polymer	526203-62-3	2.64%
Calcium Chloride, dihydrate	10035-04-8	2.42%
N,N-dimethylacrylamide copolymer with calcium AMPS	103115-52-2	2.36%
Silica, amorphous - fumed	7631-86-9	1.75%
Ammonium chloride	12125-02-9	1.51%
Poly(vinyl acetate)-poly(vinyl alcohol) polymer	25213-24-5	1.20%
Humic acids, sodium salts, polymers with N,N-dimethyl-2-propenamide, sodium 2-methyl-2-[(1-oxo-2-propen-1-yl)amino]-1-propanesulfonate (1:1) and 2-propenenitrile, sodium bisulfite-terminated	473268-27-8	0.431%
Silica, amorphous - fumed	7631-86-9	0.424%
9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	0.307%

Dilutan Gum	125005-87-0	0.153%
Sodium Chloride	7647-14-5	0.127%
Sorbitan monooleate polyoxyethylene derivative	9005-65-6	0.0945%
Calcium hydroxide	1305-62-0	0.0637%
Sodium sulfate	7757-82-6	0.0637%
Lecithins	8002-43-5	0.0637%
Acrylic acid polymer with sodium AMPS, sodium salt	37350-42-8	0.0635%
Rape Oil	8002-13-9	0.0563%
Alkenes, C15-C18	93762-80-2	0.0472%
Polypropylene glycol	25322-69-4	0.0236%
Methanol	67-56-1	0.0236%
Sodium hydroxide	1310-73-2	0.0106%
Silica, amorphous precipitated	67762-90-7	0.00786%
Monopropylene glycol monooleate	1330-80-9	0.0032%
Sulfurous acid, monosodium salt, polymer with formaldehyde and acetone	40104-76-5	0.00291%
Sorbitan, monopalmitate	26266-57-9	0.00064%
Aluminium stearate	637-12-7	0.00064%
2-Bromo-2-(bromomethyl)pentanedinitrile	35691-65-7	0.00016%
FD&C Blue 1	3844-45-9	0.00016%
Total	**-**	**~151%**

1.7.6 System Details: Spacer

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Contingent Spacer
TOTAL VOLUME OF SYSTEM PER WELL	1.59 m3 (10 bbls)

1.7.6.1 Product List Details: Spacer

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	30.6%	No Hazard	N
Barite	Halliburton	Weighting Agent	62.0%	PRODUCT CEFAS LISTED 100% PLONOR **CONSTITUENT 1** (≤100%): Oral LD50: >5000 mg/kg (Rat), Oral LD50: >3000 mg/kg (Mouse), Inhalation LC50: >1.1 mg/L (Rat, Aerosal, 4h) (similar substance Freshwater Algae Toxicity 72h EC50: > 61.1 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Crustacean Toxicity 48h LC50: 14.5 mg/L (*Daphnia magna*) [ECHA] (similar substance); Freshwater Fish Toxicity 96h LC50: > 3.5 mg/L (*Danio rerio*) [ECHA]; No Marine Data Marine sub-chronic Crustacean Toxicity NOEC (7d) 100 mg/L (*Cancer anthonyi*) Bioaccumulation Fish BCF: 1.2-74.4 (*Lepomis macrochirus*) [ECHA]; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤5%): LD50 Oral: >15000 mg/kg (human) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance);	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Marine Water Algae Toxicity 72h EC50: 4717 mg/L (*Skeletonema costatum*) Marine Water Crustacean Toxcity 48h LC50: 7713 mg/L (*Acartia tonsa*) Marine Water Fish Toxicity 96h LC50: > 4200 mg/L (*Scophthalmus maximus*) [Halliburton Sponsored Study]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1) The product is an integral component of this system and has been identified for use given its technical properties. There are no suitable alternatives available that are less hazardous. The use of this product has been minimised where practicable	
Tuned Spacer III	Halliburton	Mud/Cement Spacer	7.3%	**CONSTITUENT 1** (≤30%): Marine Water Acute Algae Toxicity 72h EC50: > 10000 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Acute Crustacean Toxicity 48h LC50: > 10000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Acute Fish Toxicity 96h LC50: > 5600 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Constituent is a clay mineral of soil and therefore biodegradability is not applicable. Constituent is a clay mineral of soil and therefore bioaccumulation is not applicable. **CONSTITUENT 2** (≤10%): Oral LD50: >5000 mg/kg (Similar Substance), Inhalation LC0 >0.139 mg/L (Similar Substance), Dermal LC50: > 5000 mg/kg (Rabbit) Freshwater Acute Algae Toxicity 72h EC50: > 10000 mg/L (*Scenedesmus subspicatus*) [OECD SIDS] (similar substance); Freshwater Acute Crustacean Toxicity 24h EC50: > 10000 mg/L (*Daphnia magna*) [OECD SIDS] (similar substance); Freshwater Acute Fish Toxicity 72h LC50: > 10000 mg/L (*Cyprinus carpio*) [LOLI]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** (≤5%): Component is naturally occuring and not intrinsically hazardous.	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				CONSTITUENT 4 (≤1%): Oral LD50 5400 mg/kg (Rat), Dermal LD50 >2000 mg/kg Freshwater Acute Crustacean Toxicity 48h EC50: > 50 mg/L (*Daphnia magna*) [ECHA]; Freshwater Acute Fish Toxicity 96h LC50: > 100 mg/L (*Pimephales promelas*) [ECHA]; Freshwater Acute Plant Toxicity 72h EC50: 990 mg/L (*Lactuca sativa)* [ECHA]; Bioaccumulation BCF: 3.2 [ECHA]; Freshwater Biodegradation 28d: 97 % [ECHA]; **CONSTITUENT 5** (≤100%): Oral LD50: >15000 mg/kg (Human) Freshwater Acute Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Acute Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 6** (≤1%): Oral LD50: >15000 mg/kg (Human) (Similar Substance) Freshwater Acute Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Acute Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. No known significant effects or critical hazards related to mutagenicity, endocrine disrupting or reproductive toxicity.	

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
D-AIR 3000L	Halliburton	Defoamer	0.158%	**CONSTITUENT 1** (≤100%):LD50 Oral: >5000 mg/kg (Rat) (Similar Substance), LD50 Dermal: >2000 mg/kg (Rat) (Similar Substance), LC 50 Inhalation >2.1 mg/L (Rat) Freshwater Algae Toxicity 96h EC50 : 22 mg/L (*Pseudokirchneriella subcapitata*) Freshwater Fish Toxicity Data 96h LC50 : >1000 mg/L (*Salmo gairdneri*) Freshwater Crustacean Toxicity 48h EC50: 480 mg/L (*Daphnia magna*) Readily Biodegradable (77-81% @28d) Bioaccumulation: Log Pow >7 **CONSTITUENT 2** (≤60%):LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >8000 mg/kg (Rat), LC50 Inhalation: >0.17 mg/L (4h) Marine Water Algae Toxicity 72h EC50: 426 mg/L (*Skeletonema costatum)* [OSPAR];Marine Water Crustacean Toxicity 48h EC50: 433.2 mg/L (*Acartia tonsa*) [OSPAR];Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: 5.06 [Halliburton Funded Study]; **CONSTITUENT 3** (≤1%):Component is a synthetic surface modified Amorphous Silica (CAS #: 7631-86-9); Fish and Invertebrate toxicity testing with Amorphous Silica have shown low hazard for this component. Source: OECD SIDS No data available to indicate product or components present at greater than 1% are chronic health hazards	Y
NF-6	Halliburton	Reduces air entrainment into cement slurry	0.126%	Marine Water Algae Toxicity 72h EC50: 1100 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 1000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 70% [Halliburton Funded Study]; **CONSTITUENT 1** (≤10%) Marine Algae Toxicity 72h EC50: 991.02 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 2500 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >3200 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.45 **CONSTITUENT 2** (≤5%): Oral LD50: >15900 mg/kg (Mouse), Inhalation LC50: >5 mg/L (4h) (Rat)	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Marine Algae Toxicity 72h EC50: 41 mg/L (*Skeletonema costatum)* Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >1800 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 4.28 **CONSTITUENT 3** (≤5%) Oral LD50: > 5000 mg/kg (Rat), Dermal LD50: >5000 mg/kg (Guinea Pig) Marine Algae Toxicity 72h EC50: 6488.87 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 5085.71 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 22.69 (MW>700) **CONSTITUENT 4** (≤10%) No Hazard Product is naturally occurring **CONSTITUENT 5** (≤100%) Oral LD50: 90 mg/kg (Mouse) (Similar Substance) Marine Algae Toxicity 72h EC50: >3200 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.09 No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
TUNED SPACER E+	Halliburton	Mud/Cement Spacer	27%	**CONSTITUENT 1** (≤100%): Component is naturally occuring and not intrinsically hazardous. Freshwater Algae Toxcity 72h EC50: 440 mg/L (*Pseudokirchneriella subcapitata*) Freshwater Crustacean Toxcity 48h EC50: > 100 mg/L (*Daphnia magna*) Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) **CONSTITUENT 2** (≤10%): Oral LD50: >15000 mg/kg (Human) Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Pseudokirchneriella subcapitata*) (similar substance) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance);	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance); Marine Water Algae Toxicity 72h EC50: 4717 mg/L (*Skeletonema costatum*) Marine Water Crustacean Toxcity 48h LC50: 7713 mg/L (*Acartia tonsa*) Marine Water Fish Toxicity 96h LC50: > 4200 mg/L (*Scophthalmus maximus*) [Halliburton Sponsored Study]; Bioaccumulation/Biodegradation: Substance is inorganic - bioaccumulation/biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1) **CONSTITUENT 3** (≤1%): Oral LD50: >15000 mg/kg (Human) (Similar Substance) Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Pseudokirchneriella subcapitata*) (similar substance) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LC50: 5000 mg/L (*Danio rerio*) (similar substance) Bioaccumulation/Biodegradation: Substance is inorganic - bioaccumulation/biodegradation is not applicable. **CONSTITUENT 4** (≤1%): Oral LD50: >15000 mg/kg (Human) (Similar Substance) Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Pseudokirchneriella subcapitata*) (similar substance) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LC50: 5000 mg/L (*Danio rerio*) (similar substance) Bioaccumulation/Biodegradation: Substance is inorganic - bioaccumulation/biodegradation is not applicable. **CONSTITUENT 5** (≤30%): Oral LC50: >5000 mg/L, Inhalation LC50: > 480 mg/m3 Freshwater Algae Toxicity LC50: >600 mg/L (*Scenedesmus subspicatus*) Freshwater Crustacean Toxicity 48h EC50: > 2100 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 48h LC50: 7300 mg/L (*Oncorhynchus mykiss*) [US EPA ECOTOX]; Freshwater Fish Toxicity LC50: >1000 mg/L (*Danio rerio*)	

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Marine Water Algae Toxicity 72h EC50: 301 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: 1261 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Bioaccumulation Log Kow: -3.45 [EPISUITE] (similar substance); Freshwater Biodegradation 10d: 29 % [US EPA HPV Haz. Char. Doc.] (similar substance); **CONSTITUENT 6** (≤10%): Component is naturally occurring and not intrinsically hazardous. Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. No known significant effects or critical hazards related to mutagenicity, endocrine disrupting or reproductive toxicity.	
BENTONITE [contingency]	Halliburton	Viscosifier	19.5%	**CONSTITUENT 1** (≤ 100%): Component is naturally occurring and not intrinsically hazardous. **CONSTITUENT 2** (≤ 1%): Oral LD50: >15000 mg/kg (Human) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** (≤ 5%): Oral LD50: >15000 mg/kg (Human) (Similar Substance) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada]	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				(similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 4** (≤ 1%): Oral LD50: >15000 mg/kg (Human) (Similar Substance) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1) A contingency component of this system. Product use will be minimised where practicable.	
ECONOLITE LIQUID [contingency]	Halliburton	Cement Additive Stabiliser	15.7%	**CONSTITUENT 1** (≤60%): LD50 Oral: 800 mg/kg (Rat), LD50 Oral: 770 mg/kg (Mouse), LD50 Dermal: > 5000 mg/kg (Rat) (Similar substance), LC50 Inhalation >2.06 mg/L (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: > 345 mg/L (*Scenedesmus subspicatus*) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 1700 mg/L (*Daphnia magna*) [OECD SIDS]; Freshwater Fish Toxicity 96h LC50: 1108 mg/L (*Danio rerio*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤60%): Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
CFR-8L [contingency]	Halliburton	Friction Reducer	13.3%	**CONSTITUENT 1** (≤60%): Oral LD50: >5000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 7631.73 mg/L (*Skeletonema*	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				costatum); Marine Water Crustacean Toxicity 48h LC50: 2200 mg/L (*Acartia tonsa*); Marine Water Fish Toxicity 96h LC50: 1006 mg/L (*Scophthalmus maximus*); Fresh Water Crustacean Toxicity 48h LC50: >100 mg/L (*Daphnia magna*); Bioaccumulation Log Pow: < 0; Inherently biodegradable: Biodegradation 28d: 38%; **CONSTITUENT 2** (≤100%): Component is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
SA-1015 [contingency]	Halliburton	Suspension Agent	0.67%	Freshwater Algae Toxicity 72h EC50: >100 mg/L (*Scenedesmus subspicatus*); Freshwater Crustacean Toxicity 48h EC50: >100 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96h LC50: >100 mg/L (*Oncorhynchus mykiss*); Marine Water Algae Toxicity 72h EC50: > 5600 mg/L (*Skeletonema costatum*); Marine Water Crustacean Toxicity 48h LC50: 234.22 mg/L (*Acartia tonsa*); Marine Water Fishn Toxicity 96h LC50: > 234.22 mg/L (*Cyprinodon variegatus*); Readily biodegradable (95% at 28 days); Bioaccumulation Log Pow: 0 No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	Y
Total			**176%**		

1.7.6.2 Chemical List: Spacer

Chemicals within products in 1.7.6.1	CAS number	Mass fraction (%)
Barium Sulfate	7727-43-7	58.90%
Bentonite	1302-78-9	45.10%
Water	n/a	30.60%

Chemicals within products in 1.7.6.1	CAS number	Mass fraction (%)
Crystalline silica, quartz	14808-60-7	10.75%
Sodium Lignosulfonate	8061-51-6	10.60%
Sodium silicate	1344-09-8	8.30%
Sulfonated organic polymer	526203-62-3	6.10%
Welan gum	72121-88-1	1.77%
Sepiolite	63800-37-3	1.47%
Dilutan Gum	125005-87-0	0.884%
Crystalline silica, cristobalite	14464-46-1	0.610%
Crystalline silica, tridymite	15468-32-3	0.610%
Diatomaceous earth	61790-53-2	0.366%
Rape Oil	8002-13-9	0.111%
Alkenes, C15-C18	93762-80-2	0.0947%
Crystalline silica, cristobalite	14464-46-1	0.07330%
Welan gum	72121-88-1	0.07330%
Citric acid	77-92-9	0.07330%
Polypropylene glycol	25322-69-4	0.0474%
Silica, amorphous precipitated	67762-90-7	0.0158%
Monopropylene glycol monooleate	1330-80-9	0.00631%
Sorbitan, monopalmitate	26266-57-9	0.00126%
Aluminium stearate	637-12-7	0.00126%
Total	**-**	**~176.56%**

1.7.7 System Details: CO2 resistant Cement Barrier

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	CO2 resistant Cement Barrier
TOTAL VOLUME OF SYSTEM PER WELL:	9.539 m3

1.7.7.1 Product List Details: CO2 resistant Cement Barrier

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
Water	N/A	Base Fluid	20.2%	n/a	n/a
CEMENT - CLASS G	Halliburton	Cement	36.6%	**CONSTITUENT 1** (≤100%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >2000 mg/kg, LC50 Inhalation: >1.0 mg/L (4h) (Rat) After hardening with water or moister, cement presents no ecotoxicity risks. (Source: IUCLID 2000) Static Aquatic Toxicity - Freshwater and Marine Algae:- 72 hour EC50: >1,000 mg/L Static Aquatic Toxicity -Freshwater and Marine Invertebrates:- 48 hour LC50: >1,000 mg/L Static Aquatic Toxicity- Freshwater and Marine Fish:- 96 hour LC50: >1,500 mg/L Partition Coefficient, n-Octanol/Water: Not Applicable for inorganics Oxygen Demand, Chemical Oxygen Demand: Not Applicable for inorganics Biodegradability, Seawater – Indigenous microbes: Not Applicable for inorganics **CONSTITUENT 2** (≤10%): LD50 Oral: >15000 mg/kg (human) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (Danio rerio) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable.	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Biodegradation: Substance is inorganic - biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1) The product is an integral component of this system and has been identified for use given its technical properties. There are no suitable alternatives available that are less hazardous. The use of this product has been minimised where practicable	
POZMIX A	Halliburton	Light weight cement additive	36.6%	**CONSTITUENT 1** (≤100%): Freshwater Algae Toxicity 72h EC10: 1400-2000 mg/L (*Scenedesmus subspicatus*) [IUCLID]; Freshwater Crustacean Toxicity 24h EC50: 140-2000 mg/L (*Daphnia magna*) [IUCLID]; Freshwater Fish Toxicity 96h LC50: 120 mg/L (*Poecilia reticulata*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤10%): Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (*Danio rerio*) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. No known significant effects or critical hazards related to mutagenicity, endocrine disrupting or reproductive toxicity.	Y
HALAD-413L	Halliburton	Fluid Loss Additive	3.04%	**CONSTITUENT 1** (≤30%): Oral LD50: >2000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 1102 mg/L (*Skeletonema costatum*) [OSPAR]; Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (*Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [OSPAR];	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Bioaccumulation Log Kow: < 3.5 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 6 % [Halliburton Funded Study]; **CONSTITUENT 2** (≤100%): Product is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
ECONOLITE LIQUID	Halliburton	Cement Additive Stabiliser	1.94%	**CONSTITUENT 1** (≤60%): LD50 Oral: 800 mg/kg (Rat), LD50 Oral: 770 mg/kg (Mouse), LD50 Dermal: > 5000 mg/kg (Rat) (Similar substance), LC50 Inhalation >2.06 mg/L (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: > 345 mg/L (*Scenedesmus subspicatus*) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 1700 mg/L (*Daphnia magna*) [OECD SIDS]; Freshwater Fish Toxicity 96h LC50: 1108 mg/L (Danio rerio) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤60%): Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
GASCON 469	Halliburton	Cement Additive Stabiliser	1.52%	**CONSTITUENT 1** <=1% Oral LDL: 500 mg/kg (Rabbit), Dermal LD50: 1350 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 40.4 mg/L (*Ceriodaphnia sp.*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 45.4 mg/L (*Oncorhynchus mykiss*) Freshwater Fish Toxicity 96h LC50: 125 mg/L (*Gambusia affinis*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. CONSTITUENT 2 <=60% Oral LD50: >10,000 mg/kg, Inhalation LC50: >0.69 mg/L (4h) (Rat) Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Selenastrum capricornutum*)	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				[IUCLID; LOLI]; Freshwater Crustacean Toxicity 48h EC50: 7600 mg/L (*Ceriodaphnia dubia*) [IUCLID; LOLI]; Freshwater Fish Toxicity 96h LC50: 5000 mg/L (*Brachydanio rerio*) [IUCLID; LOLI]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. CONSTITUENT 3 <= 100% Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
SCR-100L	Halliburton	Cement Retarder	0.0917%	Oral Toxicity LD50: >5000 mg/kg (Rat), Dermal LD50 : >2000 mg/kg (Rabbit) Freshwater Fish Toxicity 96h LC50: 4900 mg/L (*Oncorhynchus mykiss*) Freshwater Crustacean Toxicity 48h LC50: 2800 mg/L (*Daphnia magna*) Marine Water Algae Toxicity 72h EC50: > 3300 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fishn Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 14% [Halliburton Funded Study]; Product was tested using OECD 117 no peaks detected MW>700Da. Product is not expected to be bioaccumulating No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
D-AIR 3000L	Halliburton	Defoamer	0.0735	**CONSTITUENT 1** (≤100%): LD50 Oral: >5000 mg/kg (Rat) (Similar Substance), LD50 Dermal: >2000 mg/kg (Rat) (Similar Substance), LC 50 Inhalation >2.1 mg/L (Rat) Freshwater Algae Toxicity 96h EC50 : 22 mg/L (*Pseudokirchneriella subcapitata*) Freshwater Fish Toxicity Data 96h LC50 : >1000 mg/L (*Salmo gairdneri*) Freshwater Crustacean Toxicity 48h EC50: 480 mg/L (*Daphnia magna*) Readily Biodegradable (77-81% @28d) Bioaccumulation: Log Pow >7	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				CONSTITUENT 2 (≤60%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >8000 mg/kg (Rat), LC50 Inhalation: >0.17 mg/L (4h) Marine Water Algae Toxicity 72h EC50: 426 mg/L (*Skeletonema costatum*) [OSPAR]; Marine Water Crustacean Toxicity 48h EC50: 433.2 mg/L (*Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: 5.06 [Halliburton Funded Study]; **CONSTITUENT 3** (≤1%): Component is a synthetic surface modified Amorphous Silica (CAS #: 7631-86-9); Fish and Invertebrate toxicity testing with Amorphous Silica have shown low hazard for this component. Source: OECD SIDS No data available to indicate product or components present at greater than 1% are chronic health hazards	
NF-6	Halliburton	Reduces air entrainment into cement slurry	0.0735%	Marine Water Algae Toxicity 72h EC50: 1100 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 1000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (Scophthalmus maximus) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 70% [Halliburton Funded Study]; **CONSTITUENT 1** (≤10%) Marine Algae Toxicity 72h EC50: 991.02 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 2500 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >3200 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.45 **CONSTITUENT 2** (≤5%): Oral LD50: >15900 mg/kg (Mouse), Inhalation LC50: >5 mg/L (4h) (Rat) Marine Algae Toxicity 72h EC50: 41 mg/L (*Skeletonema costatum)* Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*);	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Marine Fish Toxicity 96h LC50: >1800 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 4.28 **CONSTITUENT 3** (≤5%) Oral LD50: > 5000 mg/kg (Rat), Dermal LD50: >5000 mg/kg (Guinea Pig) Marine Algae Toxicity 72h EC50: 6488.87 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 5085.71 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 22.69 (MW>700) **CONSTITUENT 4** (≤10%) No Hazard Product is naturally occurring **CONSTITUENT 5** (≤100%) Oral LD50: 90 mg/kg (Mouse) (Similar Substance) Marine Algae Toxicity 72h EC50: >3200 mg/L (*Skeletonema costatum)* Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.09 No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
CFR-8L	Halliburton	Friction Reducer	0.0468%	**CONSTITUENT 1** (≤60%): Oral LD50: >5000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 7631.73 mg/L (Skeletonema costatum); Marine Water Crustacean Toxicity 48h LC50: 2200 mg/L (Acartia tonsa); Marine Water Fish Toxicity 96h LC50: 1006 mg/L (Scophthalmus maximus); Fresh Water Crustacean Toxicity 48h LC50: >100 mg/L (Daphnia magna); Bioaccumulation Log Pow: < 0; Inherently biodegradable: Biodegradation 28d: 38%; **CONSTITUENT 2** (≤100%): Component is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
LATEX 4000 [CONTINGENCY]	Halliburton	Cement Expanding Additive	27.84%	**CONSTITUENT 1** (<60%): Component is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards **CONSTITUENT 2** (<60%): No Data Available for non-hazardous polymer **CONSTITUENT 3** (<1%): LD50 Oral: >2000 and <5000 mg/kg (Rat); LD50 Dermal: >10,000 mg/kg (Rabbit); Freshwater Crustacean Toxicity 48h EC50: 439 mg/L [ECHA]; Marine Water Algae Toxicity 72h EC50: 202.33 mg/L (*Skeletonema costatum*) [ECHA]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Sponsored Study]; Bioaccumulation LogPow: -1.504 [ECHA]; Biodegradation 14d: 100% [ECHA] **CONSTITUENT 4** (<0.1%): Oral LD50: 1658 mg/kg (Rat); Inhalation LC50 >1 mg/L (Rat, saturated mist, 4hr) (Similar Substance); Freshwater Algae Toxicity 72h EC50: >100 mg/L (*Desmodesmus subspicatus*); Freshwater Crustacean Toxicity 24h LC50: 610 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96h LC50: 121 mg/L (*Lepomis macrochirus*); Biodegradation (28 Days): 10% (OECD306) **CONSTITUENT 5** (<0.1%): LD50 Oral: 53 mg/kg (Rat); LD50 Dermal: 200 mg/kg (Rabbit);	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				LC50 Inhalation: 0.11 mg/L (4h) (Rat); Freshwater Crustacean Toxicity EC50 (48h) 0.18 mg/L (*Daphnia magna)* (Similar Substance); Freshwater Fish Toxicity LC50 (96h) 0.19 mg/L (*Oncorhynchus mykiss)* (Similar substance); Bioaccumulation: Log Pow= -0.26 **CONSTITUENT 6** (<0.1%): LD50 Oral: 1020 mg/kg (Rat); LD50 Dermal: >2000 mg/kg (Rat); Bioaccumulation: Log Pow= 0.99 **CONSTITUENT 7** (<0.1%): LD50 Oral: 481 mg/kg (Rat); LD50 Dermal: 1008 mg/kg (Rat); LC50 Inhalation: 1.23 mg/L (4h) (Rat); Freshwater Algae Toxicity 72h EC50: 0.11-0.16 mg/L (*Pseudokirchneriella subcapitata*); Freshwater Crustacean Toxicity 48h EC50: 0.18 mg/L (*Daphnia magna*); Freshwater Fish Toxicity LC50 (96h): 0.08 mg/L (*Oncorhynchus mykiss*); Bioaccumulation: Log Pow = 0.7 Contains no hazardous substances in concentrations above cut-off values according to the competent authority.	
SILICALITE LIQUID [CONTINGENCY]	Halliburton	Light weight cement additive	18.51%	**CONSTITUENT 1** (≤60%): SiO2 is a stable substance. In the environment it occurs in different modifications and it is one of the most abundant materials on the Earth's surface. Biodegradability is not applicable for silica since it is inorganic. Additionally, bioaccumulation is not expected. Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Selenastrum capricornutum*); Freshwater Crustacean Toxicity 48h EC50: 7600 mg/L (*Ceriodaphnia dubia*); Freshwater Fish Toxicity 96h LC50 5000 mg/L (*Brachydanio rerio)*; Source: IUCLID 2000	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				CONSTITUENT 2 (≤60%): No Hazard - Product is naturally occurring **CONSTITUENT 3** (≤1%): Freshwater Fish Toxicity 96h LC50: >1000 mg/L (*Brachydanio rerio*) Freshwater Crustacean Toxicity 24h LC50: >1000 mg/L (*Daphnia magna*) Marine Crustacean Toxicity 10d LC50: 50566 mg/kg (*Corophium volutator*) No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
HALAD 344 [CONTINGENCY]	Halliburton	Fluid Loss Additive	7.49%	**CONSTITUENT 1** (≤ 60%): Oral LD50: >5000 mg/kg (Rat) (similar substances); Dermal LD50: >2000 mg/kg (Rabbit) (Similar substances); Marine water Algae Toxicity 72h EC50: 493 mg/L (*Skeletonema costatum*); Marine water Crustacean Toxicity 48h LC50: 400 mg/L (*Acartia tonsa*); Marine water Fish Toxicity 96h LC50: >1000 mg/L (*Scophthalmus maximus*); Bioaccumulation: No information available - check ECHA; Biodegradation: No information available - check ECHA. **CONSTITUENT 2** (≤ 60%): Component is naturally occurring and not intrinsically hazardous. **CONSTITUENT 3** (≤ 30%): Oral LD50: >5000 mg/kg (Rat) (similar substances); Dermal LD50: >2000 mg/kg (Rabbit) (Similar substances); Inhalation LC50: >5.2 mg/L (rat, 4h, vapor) (similar substance); Marine water Algae Toxicity 72h EC50: >10000 mg/L (*Skeletonema costatum*); Marine water Crustacean Toxicity 24h LL50: >10000 mg/L (*Acartia tonsa*); Marine water Fish Toxicity 96h LC50: >10000 mg/L (*Scophthalmus maximus*); Bioaccumulation: Log Pow =0; Biodegradation: Readily biodegradable (68.1% @ 28d). **CONSTITUENT 4** (≤ 10%): Oral LD50: 1220 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rat); Freshwater Algae Toxicity 5d EC50: 1300 mg/L (*Chlorella vulgaris*); Freshwater Crustacean Toxicity 96h LC50: > 100 mg/L (*Gammarus*	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				fasciatus); Freshwater Fish Toxicity 96h LC50: 34.6 mg/L (*Oncorhynchus mykiss*); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 5** (≤ 5%): Oral LD50: >5000 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rabbit) (similar substance); Freshwater Fish Toxicity 96h LC50: 5.1 mg/L (*Danio rerio*); Bioaccumulation: Log Kow = 5.51; Biodegradation: Readily biodegradable (86% @ 28d). **CONSTITUENT 6** (≤ 1%): Proprietary Oral LD50: 34500 µL/kg (Rat); Bioaccumulation: No information available; Biodegradation: No information available. **CONSTITUENT 7** (≤ 1%): PLONOR Oral LD50: 300 mg/kg (Human); Dermal LD50: 1000 mg/kg (Human); Inhalation LC50: 10 mg/L (Human, vapor, 4h); Freshwater Algae Toxicity 96h EC50: 22000 mg/L (*Pseudokirchnerella subcapitata*); Freshwater Crustacean Toxicity 48h EC50: 22200 mg/L (*Daphnia obtuse*); Freshwater Fish Toxicity 96h LC50: 15400 mg/L (*Lepomis macrochirus*); Bioaccumulation: Not bioaccumulative; BCF=1; Biodegradation: Readily biodegradable (95% 20d). No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
GASSTOP EXP [CONTINGENCY]	Halliburton	Cement Additive	7.13%	**CONSTITUENT 1** (≤60%) Oral LD50: >5000 mg/Kg (Rat), Dermal LD50: >2000 mg/Kg (Rabbit), Inhalation LC50: 0.21 mg/L Freshwater Fish Toxicity: >100 mg/L (*Onchorhynchus mykiss)* [Supplier data] Bioaccumulation Calculated Log Pow: >4 [REACH] Biodegradation 15-35% @ 28 days **CONSTITUENT 2** (≤60%) Marine Algae toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES Interal	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Study] Marine Fish toxicity LC50: >1000 mg/L (*Scophthalmus maximus*) [HES study] Marine Crustacean toxicity EC50: > 2000 mg/L (*Acartia tonsa*) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] Biodegradation 0% (OECD 306) [HES Study] **CONSTITUENT 3** (≤5%) Oral LD50: >30000 mg/kg Marine Algae toxicity EC50: 87.02 mg/L (*Skeletonema costatum*) [HES Study] Marine Fish toxicity LC50: >87.02 mg/L (*Cyprinodon variegatus*) [HES Study] Marine Crustacean toxicity LC50: 2319 mg/L (*Acartia tonsa*) [HES Study] Biodegradation: 48% @ 28 days (OECD 306) **CONSTITUENT 4** (≤1%) Oral LD50: >39800 mg/kg Inhalation LC50: >5.27 mg/L Marine Algae toxicity EC50: 258 mg/L (*Skeletonema costatum*) [HES Study] Marine Fish toxicity LC50: >258 mg/L (*Cyprinodon variegatus*) [HES Study] Marine Crustacean LC50: 2319 mg/L (*Arcartia tonsa*) [HES Study] Biodegradation 56% @ 28 days (Marine BODIS) [HES Study] **CONSTITUENT 5** (≤5%) Oral LD50: >5000 mg/kg (Rat), Dermal LC50: >5000 mg/L (Rat), Inhalation LC50: >200 mg/L (Rat) Marine Algae toxicity EC50: >10000 mg/L (*Skeletonema costatum*) [HES Study] Marine Fish toxicity LC50: >10000 (Scophthalmus Maximus) [HES Study] Marine Crustacean toxicity EC50: >10000 mg/L (*Acartia tonsa*) [HES Study] Log Pow: -5.2 (OECD 117) [HES Study] Biodegradation 8% @ 28 days (Marine BODIS) [HES Study] No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
MICROBOND [CONTINGENCY]	Halliburton	Expander	3.23%	**CONSTITUENT 1** (≤ 100%): Oral LD50: 3000 mg/kg, Inhalation LD50: >3.26 mg/L (4h), Dermal LD50: >2500 mg/kg (Rabbit)Freshwater Algae Toxicity 72h EC50: > 100 mg/L	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				(*Selenastrum capricornutum*) [OECD SIDS];Freshwater Crustacean Toxicity 48h EC50: > 100 mg/L (Daphnia magna) [OECD SIDS];Freshwater Fish Toxicity 96h EC50: > 100 mg/L (*Oryzias latipes*) [OECD SIDS];Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable.Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤ 30%): Oral LD50: >2000 mg/kg (Rat) (Similar Substance), Dermal LD50: >2000 mg/kg (Rat) (Similar Substance), Inhalation LC50: 1.9 mg/L air (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: 3.6 mg/L (Desmodesmus subspicatus) [ECHA];Freshwater Crustacean Toxicity 48h EC50: 5.4 mg/L (*Daphnia magna*) [ECHA];Freshwater Fish Toxicity 96h EC50: > 100 mg/L (Danio rerio) [ECHA];Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable.Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** (≤ 10%): Oral LD50: 7340 mg/kg (Rat), Dermal LD50: >2500 mg/kg (Rabbit), Effect concentrations in the aquatic environment are attributable to a change in pH value.Freshwater Crustacean Toxicity 48h EC50: 49.1 mg/L (*Daphnia magna*) [ECHA];Marine Water Crustacean Toxicity 96h LC50: 158 mg/L (*Crangon septemspinosa*) [ECHA];Freshwater Fish Toxicity 96h LC50: 50.6 mg/L (*Oncorhynchus mykiss*) [ECHA];Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable.Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 4** (≤ 5%): LD50 Oral: 4220 mg/kg (Rat), Inhalation LD50: >4.74 mg/L (4h) (Rat)Freshwater Algae Toxicity 96h EC50: 650 mg/L (*Navicula seminulum*) [US EPA ECOTOX];Freshwater Crustacean Toxicity 48h EC50: 1020 mg/L (*Ceriodaphnia dubia*) [ECHA];Freshwater Fish Toxicity 96h LC50: 7100 mg/L (*Lepomis macrochirus)* [ECHA];Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable.Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
BRIDGEMAKER II LCM [CONTINGENCY]	Halliburton	Lost Circulation Control	1.62%	**CONSTITUENT 1** (≤60%): Oral LD50: >5000 mg/kg (Rat) Dermal LD50: >2000 mg/kg (Rat) Inhalation LC50: >37.8 mg/L (Rat) Marine Water Algae toxicity EC50: >10000 mg/L (*Skeletonema costatum*) Marine Water Crustacean Toxicity EC50: >10000 mg/L (*Acartia tonsa*) Marine Water Fish toxicity LC50: >10000 (*Cyprinodon variegatus*) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤60%): Article - no data and non-hazardous **CONSTITUENT 3** (≤10%) Product is an inert, man-made substance and not intrinsically hazardous. TWA(as dust):10 mg/m3 Freshwater Algae Toxicity 96h EC50: >1000 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Crustacean Toxicity 96h EC50: >1000 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h LC50: >1000 mg/L (*Danio rerio*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	Y
CALCIUM CHLORIDE POWDER [CONTINGENCY]	Halliburton	Excellerator	1.62%	**CONSTITUENT 1** <=100% Oral LD50: 2240 mg/kg (Rat), Dermal LD50: 5000 mg/kg (Rabbit) Freshwater Algae Toxicity 72h EC50: 2900 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Crustacean Toxicity 48h LC50: 2400 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 4630 mg/L (*Pimephales promelas*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** <=5% Oral LD50: 3000 mg/kg (Rat), Dermal LD50: >10000 mg/kg (Rabbit),	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Inhalation LC50: 42 mg/L (Rat) 1h Freshwater Algae Toxicity 96h EC50: 2430 mg/L (*Navicula seminulum*) [US EPA ECOTOX]; Freshwater Crustacean Toxicity 48h EC50: 402.6 mg/L (*Daphnia magna*) [US EPA ECOTOX]; Freshwater Fish Toxicity 96h LC50: 9675 mg/L (*Lepomis macrochirus*) [IUCLID]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
GASSTOP ADDITIVE [CONTINGENCY]	Halliburton	Cement Additive	0.812%	Marine Algae toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES Interal Study] Marine Fish toxicity LC50: >1000 mg/L (S*cophthalmus maximus*) [HES study] Marine Crustacean toxicity EC50: > 2000 mg/L (*Acartia tonsa*) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] Biodegradation 0% (OECD 306) [HES Study] No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
HALAD-344 [CONTINGENCY]	Halliburton	Fluid Loss Additive for high temperature	0.812%	**CONSTITUENT 1** <=100% Marine Water Algae Toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES Internal Study] Marine Water Crustacean Toxicity EC50: > 2000 mg/L (*Acartia tonsa*) [HES study] Marine Fish Toxicity LC50: >1000 mg/L (*Scophthalmus maximus*) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] 0% (OECD 306) [HES Study] **CONSTITUENT 2** <=5% PLONOR **CONSTITUENT 3** <= 5% PLONOR **CONSTITUENT 4** <=5%	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				PLONOR Effect concentrations in the aquatic environment are attributable to a change in pH value. Oral LD50: 7340 mg/kg (Rat), Dermal LD50: >2500 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 49.1 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 50.6 mg/L (*Oncorhynchus mykiss*) [ECHA]; Marine Water Crustacean Toxicity 96h LC50: 158 mg/L (*Crangon septemspinosa*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. PRODUCT DATA Oral LD50: >2000 mg/kg (similar Product) Marine Water Fish Toxicity 96h LC50: > 1000 mg/L *(Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: <0 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 0% [Halliburton Funded Study]; No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
WELLLIFE 734 [CONTINGENCY]	Halliburton	Cement Enhancer	0.812%	Product is an inert, man-made substance and not intrinsically hazardous. Is a fine rigid fibrous material (glass fibre), which is chemically inert. As such irritation resulting from contact with this product is by mechanical abrasion. Standard PPE is require to handle the product to minimise direct exposure from mechanical contact. The irritation from contact with this product was not identified being from a chemical reaction. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
SUPER CBL ADDITIVE [CONTINGENCY]	Halliburton	Cement Additive	0.323%	**CONSTITUENT 1** (≤5%) Oral LD50: 39800 mg/kg (Rat) Freshwater Fish Toxicity 96h LC50: > 1000 mg/L (*Oncorhynchus mykiss*) [US EPA HPVIS]; Marine Water Algae Toxicity 72h EC50: 5073.11 mg/L (*Skeletonema costatum)* [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 10000 mg/L (*Acartia tonsa*) [OSPAR];	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Bioaccumulation log Pow: 1.8 [Duncan]; Marine Water Biodegradation 28d: 61 % [ERT Ltd.]; **CONSTITUENT 2 (**≤100%) Substance not expected to exhibit toxic effects in the aquatic environment due to low solubility in transformation/dissolution assays. Inhalation LC50: 0.888 mg/L (Rat) 4 h Freshwater Algae Toxicity 72h NOEC: ≥ 0.004 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Algae Toxicity 72h NOEC: >100 mg/L (*Selenastrum capricorntum*) [IUCLID 2000]; Freshwater Crustacean Toxicity 48h EC50: 1.9 mg/L (*Ceriodaphnia dubia*) [ECHA] (similar substance); Freshwater Crustacean Toxicity 48h NOEC: >100 mg/L (*Daphnia magna*) [IUCLID 2000]; Freshwater Fish Toxicity 96h LC50: 0.078-0.108 mg/L (*Salmo salar)* [ECHA]; Freshwater Fish Toxicity 96h NOEC: >100 mg/L(*Salmo trutta*) [IUCLID 2000]; Marine Water Crustacean Toxicity LC50 48h: 190 mg/L (OSPAR, 2000) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
ISOGUARD [CONTINGENCY]	Halliburton	Additive	0.323%	**CONSTITUENT 1** (≤100%): limited data - nonhazardous polymer LD50 Oral: >5000 mg/kg (rat); LD50 Dermal: >1000 mg/kg (rabbit); LC50 Inhalation: >5 mg/L (Rat) 4h; Freshwater Fish Toxicity 96h LC50: >10000 mg/L (*Lepomis macrochirus*) (similar substance); Bioaccumulation: No information available; Biodegradation: Readily biodegradable (~100% @ 28d) **CONSTITUENT 2** (≤10%): Component is naturally occurring and not intrinsically hazardous. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
SA-1015 [CONTINGENCY]	Halliburton	Suspension Agent	0.162%	Freshwater Algae Toxicity 72h EC50: >100 mg/L (*Scenedesmus subspicatus*); Freshwater Crustacean Toxicity 48h EC50: >100 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96h LC50: >100 mg/L (*Oncorhynchus mykiss*);	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Marine Water Algae Toxicity 72h EC50: > 5600 mg/L (*Skeletonema costatum*); Marine Water Crustacean Toxicity 48h LC50: 234.22 mg/L (*Acartia tonsa*); Marine Water Fishn Toxicity 96h LC50: > 234.22 mg/L (*Cyprinodon variegatus*); Readily biodegradable (95% at 28 days); Bioaccumulation Log Pow: 0 No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	
Total			**170.8%**		

1.7.7.2 CHEMICAL LIST: CO2 resistant Cement Barrier

Chemicals within products in 1.7.7.1	CAS number	Mass fraction (%)
Water	n/a	24.5%
Portland cement	65997-15-1	34.7%
Fly ash	68131-74-8	33.6%
2-Propenoic acid, polymer with 1,3-butadiene and ethenylbenzene	25085-39-6	27.52%
Silica, amorphous - fumed	7631-86-9	16.3%
N,N-dimethylacrylamide copolymer with calcium AMPS	103115-52-2	6.4%
Paraffin based petroleum oil	8012-95-1	5.4%
Crystalline silica, quartz	14808-60-7	4.75%
Propanesulfonic acid, 2-methyl-2-[(1-oxo-2-propenyl)amino]-, monosodium salt, polymer with N,N-dimethyl-2-propenamide	92815-96-8	4.22%
Calcium sulfate dihydrate	10101-41-4	3.27%
Hydrotreated light petroleum distillate	64742-47-8	2.26%
Calcium Chloride, dihydrate	10035-04-8	2.18%
Soda Lime Borosilicate Glass	65997-17-3	1.35%

Chemicals within products in 1.7.7.1	CAS number	Mass fraction (%)
Calcined Petroleum coke	64743-05-1	1.04%
Cellulose	9004-34-6	1.04%
Phenolic resin	9003-35-4	
Melamine	108-78-1	
Humic acids, sodium salts, polymers with N,N-dimethyl-2-propenamide, sodium 2-methyl-2-[(1-oxo-2-propen-1-yl)amino]-1-propanesulfonate (1:1) and 2-propenenitrile, sodium bisulfite-terminated	473268-27-8	0.913%
Calcium aluminate	12042-68-1	0.797%
Sodium silicate	1344-09-8	0.774%
Ammonium chloride	12125-02-9	0.680%
Calcium hydroxide	1305-62-0	0.516%
Aluminum	7429-90-5	0.435%
Poly(vinyl acetate)-poly(vinyl alcohol) polymer	25213-24-5	0.431%
Sodium dicyclohexyl sulfosuccinate	23386-52-9	0.3072%
Polyoxyethylene sorbitan trioleate	9005-70-3	0.306%
Dilutan Gum	125005-87-0	0.229%
Ethylenediaminetetraacetic acid, tetrasodium salt	64-02-8	0.0192%
9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	0.138%
Sodium Chloride	7647-14-5	0.115%
Quaternary ammonium compounds, bis(hydrogenated tallow alkyl) dimethyl,salts with bentonite	68953-58-2	0.101%
Rape Oil	8002-13-9	0.0647%
Sodium sulfate	7757-82-6	0.0573%
Lecithins	8002-43-5	0.0573%
Sodium bicarbonate	144-55-8	0.0550%
Alkenes, C15-C18	93762-80-2	0.0441%
Sorbitan monooleate polyoxyethylene derivative	9005-65-6	0.0425%
Acrylic acid polymer with sodium AMPS, sodium salt	37350-42-8	0.0365%

Chemicals within products in 1.7.7.1	CAS number	Mass fraction (%)
Sulfurous acid, monosodium salt, polymer with formaldehyde and acetone	40104-76-5	0.0262%
Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	0.0229%
Polypropylene glycol	25322-69-4	0.0220%
Sulfonated organic polymer	526203-62-3	0.0164%
Sorbitan, tri,(9Z)-9-octadecenoate	26266-58-0	0.0162%
Sodium hydroxide	1310-73-2	0.0152%
Methanol	67-56-1	0.0106%
Silica, amorphous precipitated	67762-90-7	0.00735%
1,2-Benzisothiazolin-3-one	2634-33-5	0.0064%
2-Methyl-4-isothiazolin-3-one	2682-20-4	0.0064%
Monopropylene glycol monooleate	1330-80-9	0.00367%
5-Chloro-2-methyl-3(2H)-isothiazolone mixture with 2-methyl-3(2H)-isothiazolone	55965-84-9	0.00089%
Sorbitan, monopalmitate	26266-57-9	0.000735%
Aluminium stearate	637-12-7	0.000735%
2-Bromo-2-(bromomethyl)pentanedinitrile	35691-65-7	0.0000917%
FD&C Blue 1	3844-45-9	0.0000917%
Total	**-**	**~170.87%**

1.7.8 System Details: Thermatek Barriers

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Contingent Thermatek Barriers
TOTAL VOLUME OF SYSTEM PER WELL	9.539 m3 (60 bbls)

1.7.8.1 Product List Details: Thermatek Barriers

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	50.6%	No Hazard	N
C-TEK	Halliburton	THERMATEK Additive	24.2%	**CONSTITUENT 1** (≤100%): Oral LD50: 8100 mg/kg (Rat) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤5%): Oral LD50: 2240 mg/kg (Rat) Dermal LD50: 5000 mg/kg (Rabbit) Freshwater Algae Toxicity 72h EC50: 2900 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Crustacean Toxicity 48h LC50: 2400 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 4630 mg/L (*Pimephales promelas*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** (≤1%): Oral LD50: 3000 mg/kg (Rat) Dermal LD50: >10000 mg/kg (Rabbit) Inhalation LC50: 42 mg/L (Rat) 1h Freshwater Algae Toxicity 96h EC50: 2430 mg/L (*Navicula seminulum*) [US EPA ECOTOX]; Freshwater Crustacean Toxicity 48h EC50: 402.6 mg/L (*Daphnia magna*) [US	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				EPA ECOTOX]; Freshwater Fish Toxicity 96h LC50: 9675 mg/L (*Lepomis macrochirus*) [IUCLID]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 4** (≤1%): Oral LD50: 2600 mg/kg (Rat) Freshwater Algae Toxicity 72h EC50: > 100 mg/L (*Scenedesmus subspicatus*) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 660 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 880 mg/L (*Pimephales promelas*) [ECHA]; Bioaccumulation BCF: 0.47 [OECD SIDS]; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 5** (≤0.1%): Oral LD50: 3990 mg/kg (Rat) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	
THERMATEK LT	Halliburton	Additive	24.2%	**CONSTITUENT 1** (≤100%): Oral LD50: 3990 mg/kg (Rat) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. No data was available in the IUCLID for this component, as "magnesium ions are a major component of all natural waters". Source: IUCLID 2000 **CONSTITUENT 2** (≤5%): Oral LD50: >15000 mg/kg (Human) (Similar Substance) Freshwater Algae Toxicity 72 h EC50 184.57 mg/L (*Psuedokirchnerella subcapitata*)(Similar Substance) Freshwater Algae Toxicity EC50 (3h) 300.4 mg/L (activated sludge) (similar substances)	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Crustacean Toxicity EC50 (48h) 49.1 mg/L (*Daphnia magna*) (similar substance) Freshwater Fish Toxicity 96h LC50: 1070 mg/L (*Cyprinus carpio*) [ECHA]; Freshwater Fish Toxicity LC50 33.884 mg/L (*Clarias gariepinus*) Bioaccumulation: Log Kow=-0.571 BCF = 0.5[ECHA]; Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	
R-TEK	Halliburton	THERMATEK Retarder	0.653%	**CONSTITUENT 1** (≤100%): Oral LD50: 2400 mg/kg (Rat) Inhalation LD50: 3.69 mg/L (Rat) 4h No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	Y
S-TEK	Halliburton	THERMATEK Waterproofing Additive	0.0555%	**CONSTITUENT 1** (≤60%): Component is naturally occuring and not intrinsically hazardous. **CONSTITUENT 2** (≤60%): Freshwater Algae Toxicity 72h EC50: 3.6 mg/L (*Pseudokirchnerella subcapitata*)(similar substance) Freshwater Invertebrate Toxicity 48h EC50: 100 mg/L (Daphnia magna) Freshwater Fish Toxicity 96h LC50: 500 mg/L (Danio rerio)(Similar substance) **CONSTITUENT 3** (≤1%): LD50 Oral: 6200 mg/kg (Rat) LD50 Dermal: 15840 mg/kg (Rabbit) LC50 Inhalation: 22500 ppm (Rat) 8h Freshwater Algae Toxicity 72h EC50: 22000 mg/L (*Pseudokirchnerella subcapitata*); Freshwater Crustacean Toxicity 48h EC50: 22000 mg/L (*Daphnia obtuse*); Freshwater Fish Toxicity 96h LC50: 15400 mg/L (*Lepomis macrochirus*); Readily biodegradable (95% @ 20d) Not Bioaccumulative; BCF=1 Prolonged or repeated exposure may cause reproductive system damage. Prolonged or repeated exposure may cause embryo and fetus toxicity	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
BARAZAN D Plus	Halliburton	Viscosifier	0.0185%	**CONSTITUENT 1** (≤100%): Freshwater Crustacean toxicity 48h LC50: 980 mg/L (*Daphnia magna*) Freshwater Fish Toxicity 96h LC50: 490 mg/L (*Oncorhynchus mykiss*) Marine Invertebrate Toxicity TLM96: >75000 ppm (*Mysidopsis bahia*) Biodegradable. (93% @ 28d) **CONSTITUENT 2** (≤1%): Oral LD50: 200 mg/kg (Rat) Dermal LD50: 12700 mg/kg (Rabbit) Inhalation LC50: 2.44 mg/L (Rat) 4h Freshwater Algae Toxicity 72h EC50: > 100 mg/L (*Desmodesmus subspicatus*) Freshwater Crustacean toxicity 21d NOEC: 3.19 mg/L (*Daphnia magna*) Marine Invertebrate Toxicity 96h LC50: 53.2 mg/L (*Americamysis bahia*) Bioaccumulation Log Pow: -1.15 BCF = 3.2 Calculated Readily Biodegradable (90% @ 19d) No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	Y
ECONOLITE LIQUID [contingency]	Halliburton	Cement Additive Stabiliser	40.5%	**CONSTITUENT 1** (≤60%): LD50 Oral: 800 mg/kg (Rat), LD50 Oral: 770 mg/kg (Mouse), LD50 Dermal: > 5000 mg/kg (Rat) (Similar substance), LC50 Inhalation >2.06 mg/L (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: > 345 mg/L (*Scenedesmus subspicatus*) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 1700 mg/L (*Daphnia magna*) [OECD SIDS]; Freshwater Fish Toxicity 96h LC50: 1108 mg/L (*Danio rerio*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤60%): Component is naturally occuring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
BARAZAN D [contingency]	Halliburton	Viscosifier	1.16%	**CONSTITUENT 1** (≤100%): Freshwater Crustacean toxicity 48h LC50: 980 mg/L (*Daphnia magna*) Freshwater Fish Toxicity 96h LC50: 490 mg/L (*Oncorhynchus mykiss*) Marine Invertebrate Toxicity TLM96: >75000 ppm (*Mysidopsis bahia*) Biodegradable. (93% @ 28d) **CONSTITUENT 2** (≤1%): Oral LD50: 200 mg/kg (Rat) Dermal LD50: 12700 mg/kg (Rabbit) Inhalation LC50: 2.44 mg/L (Rat) 4h Freshwater Algae Toxicity 72h EC50: > 100 mg/L (*Desmodesmus subspicatus*) Freshwater Crustacean toxicity 21d NOEC: 3.19 mg/L (*Daphnia magna*) Marine Invertebrate Toxicity 96h LC50: 53.2 mg/L (*Americamysis bahia*) Bioaccumulation Log Pow: -1.15 BCF = 3.2 Calculated Readily Biodegradable (90% @ 19d) No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
Total			**141.739%**		

1.7.8.2 CHEMICAL LIST: Thermatek Barriers

Chemicals within products in 1.7.8.1	CAS number	Mass fraction (%)
Water	n/a	67.39%
Sodium silicate	1344-09-8	38.9%
Magnesium oxide	1309-48-4	31.2%
Xanthan gum	11138-66-2	2.8044%
Metaphosphoric acid hexasodium salt	10124-56-8	0.861%
Calcium oxide	1305-78-8	0.637%
Methanol	67-56-1	0.000659%

Glyoxal	107-22-2	0.000028%
Total	**-**	**~141.79%**

1.7.9 System Details: Halliburton Tracer Pill (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Tracer Pill (contingency)
TOTAL VOLUME OF SYSTEM PER WELL	1 – 5 m^3

1.7.9.1 Product List Details: Halliburton Tracer Pill (Contingency)

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
Water	N/A	Base Fluid	82.5193	n/a	N/A
Sodium Chloride	Halliburton	Clay Control	17.3630	Toxicity Oral LD50: 3000 mg/kg (Rat) Dermal LD50: >10000 mg/kg (Rabbit) Inhalation LC50: 42 mg/L (Rat) 1h Ecotoxicity Freshwater Acute Algae Toxicity 96h EC50: 2430 mg/L (*Navicula seminulum*); Freshwater Acute Crustacean Toxicity 48h EC50: 402.6 mg/L (*Daphnia magna*); Freshwater Acute Fish Toxicity 96h LC50: 9675 mg/L (*Lepomis macrochirus*) Bioaccumulation/ Biodegradation Substance is inorganic - bioaccumulation is not applicable. Substance is inorganic - biodegradation is not applicable.	Y
Sodium Fluorescein Powder	Halliburton	Tracer	0.1177	Toxicity Oral LD50: 2500 mg/kg (Rabbit) Ecotoxicity Fish Toxicity LC50 (96h) 1372 mg/L (*Oncorhynchus mykiss*) Fish Toxicity LC50 (96h) 997 mg/L (*Psetta maxima*) Invertebrates LC50 (48h) 337 mg/L (*Daphnia Pulex*)	Y

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Bioaccumulation/ Biodegradation Readily biodegradable (100% @ 20d) Log Kow = -0.67 (estimated)	
Total			**100**		

1.7.9.2 CHEMICAL LIST: Halliburton Tracer Pill (Contingency)

Chemicals within products in 1.7.9.1	CAS number	Mass fraction (%)
Water	7732-18-5	82.5193
Sodium Chloride	7647-14-5	17.3630
Sodium Fluorescein	518-47-8	0.1177
Total	-	**100**

1.8 VENDOR - EXPRO

1.8.1 System Details: Thread Compound Epoxy Part

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Thread compound - epoxy
TOTAL VOLUME OF SYSTEM PER WELL	~0.8kg

1.8.1.1 Product List Details: Thread Compound - ThredOn Epoxy

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
T-Lok 900 (epoxy)	Expro	Thread compound / Thread Lock Epoxy	100	Acute Toxicity LC50 (*Oncorhynchus mykiss* (rainbow trout)): 2 mg/l/96h LC50 (*Oncorhynchus mykiss* (rainbow trout)): 7.5 mg/l/96h EC50 (*Daphnia magna* (water flea)) 1.8 mg/l/48h Chronic toxicity EC50 (Daphnia magna (water flea)): 3.3 mg/l/48h EC50 – *Scenedesmus capricornutum* (fresh water algae):11 mg/l/72h EC50 (*Scenedesmus capricornutum* (fresh water algae)): 5.1 mg/l/72h Persistence/degradability: Not expected to be readily biodegradable Bioaccumulation potential: Moderate	Y
Total			**100%**		

1.8.1.2 Chemical List: Thread Compound Epoxy

Chemicals within products in part 1.8.1.1	CAS Number	Mass Fraction (%)
Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers	25085-99-8	30

Chemicals within products in part 1.8.1.1	CAS Number	Mass Fraction (%)
1,2-Epoxy-3-(2-methylphenoxy)propane	2210-79-9	20
Talc	14807-96-6	20
Calcium Carbonate	1317-65-3	20
Organoclay	71011-24-0	10
Total		100%

1.8.2 System Details: Thread Compound Catalyst

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Thread compound - catalyst
TOTAL VOLUME OF SYSTEM PER WELL	~0.8kg

1.8.2.1 Product List Details: Thread Compound - ThredOn Catalyst

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
ThredOn T-Lok 900 (catalyst)	Expro	Thread compound / Thread Lock Catalyst	100	Acute Toxicity Polyethylenepolyamine: LD50(rabbit): 5500 mg/kg LD50 (mouse): 38.5 mg/kg LD50 (rat): 1080 mg/kg Polyethylenepolyamine #1: LD50 (rat): 2800 mg/kg LD50 (rabbit): 550 mg/kg No ecological data available. Chronic Toxicity Suspected of damaging fertility or the unborn child. Classified as a suspected human reproductive or developmental toxicant. Persistence/degradability: Not available Bioaccumulation potential: Not available	Y
Total			**100%**		

1.8.2.2 Chemical List: Thread Compound

Chemicals within products in part 1.8.2.1	CAS Number	Mass Fraction (%)
Polyethylpolyamine	68131-73-7	100
Total		100%

1.8.3 System Details: Thread Compound - 72733

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Thread compound
TOTAL VOLUME OF SYSTEM PER WELL	70 Kg

1.8.3.1 Product List Details: Thread Compound - 72733

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
72733	Bestolife	Thread compound	100	Acute Toxicity Distillates (petroleum), hydrotreated heavy naphthenic: LD50 (Rat): > 5,000 mg/kg (oral) LC50 (Rat): > 5.53 mg/l (inhalational) Lead: LD50 (Rat): > 2,000 mg/kg (oral) LD50 (Rat): > 2,000 mg/kg (dermal) Graphite: LD50 (Rat): > 2,000 mg/kg (oral) LC50 (Rat): > 2 mg/l (inhalational) Copper metal powder: LD50 (Rat): > 2,500 mg/kg (oral) LC50 (Rat): > 5.11 mg/l (inhalational) LD50 (Rat): > 2,000 mg/kg (dermal) Talc: LD50 (Rat): > 5,000 mg/kg (oral) (similar substance) Quartz: LD50 (Rat): > 5,000 mg/kg (oral) 12-Hydroxy lithium stearate: LD50 (Rat): > 2,000 mg/kg (oral)	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Distillates (petroleum), hydrotreated light naphthenic: LD50 (Rat): > 5,000 mg/kg (oral) LC50 (Rat): > 5.53 mg/l (inhalational) LD50 (Rabbit): > 2,000 mg/kg (dermal) Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate): LD50 (Rat): 1,750 mg/kg (oral) (similar substance) Acute toxicity estimate: 1.5 mg/l (inhalational) LD50 (Rat): > 10,000 mg/kg (dermal) (similar substance) <u>Ecological data</u> [distillates (petroleum), hydrotreated heavy naphthenic (64742-52-5) (≥ 30 - < 50%)] EC50 *Pseudokirchneriella subcapitata* (green algae): > 100 mg/L (72 h) (similar substance) [lead (7439-92-1) (≥ 30 - < 50%)] ErC50 *Pseudokirchneriella subcapitata* (green algae): 0.025 mg/L (72 h) EC10 *Pseudokirchneriella subcapitata* (green algae): 6.1 µg/L (72 h) [graphite (7782-42-5) (≥ 1 - < 20%)] EL50 *Pseudokirchneriella subcapitata* (green algae): > 100 mg/L (72 h) NOELR *Pseudokirchneriella subcapitata* (green algae): > 100 mg/L (72 h) [quartz (14808-60-7) (≥ 1 - < 5%)] no toxicity at the limit of solubility [12-hydroxy lithium stearate (7620-77-1) (≥ 1 - < 5%)] NOELR *Pseudokirchneriella subcapitata* (green algae): > 100 mg/L (72 h) [distillates (petroleum), hydrotreated light naphthenic (64742-53-6) (≥ 1 - < 5%)] NOELR *Pseudokirchneriella subcapitata* (green algae): >= 100 mg/L (72 h) [barium bis(dinonylnaphthalenesulphonate) (25619-56-1) (≥ 1 - < 5%)] EL50 *Pseudokirchneriella subcapitata* (green algae): > 1 mg/L (72 h) (similar substance) EL10 *Pseudokirchneriella subcapitata* (green algae): > 1 mg/L (72 h) (similar substance) [distillates (petroleum), hydrotreated heavy naphthenic (64742-52-5) (≥ 30 - < 50%)]	

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				LC50 *Pimephales promelas* (fathead minnow): > 100 mg/L (96 h) (similar substance) [lead (7439-92-1) (≥ 30 - < 50%)] LC50 *Oncorhynchus mykiss* (rainbow trout): 0.107 mg/L (96 h) EC10 *Pimephales promelas* (fathead minnow): 20 µg/L (30 d) [graphite (7782-42-5) (≥ 1 - < 20%)] LL50 *Danio rerio* (zebra fish): > 100 mg/L (96 h) [copper metal powder (7440-50-8) (≥ 1 - < 5%)] LC50: > 10 – 100 µg/L (96 h) NOEC: > 1 – 10 µg/L [talc (14807-96-6) (≥ 1 - < 5%)] LC50 *Brachydanio rerio* (zebrafish): > 100,000 mg/L (24 h) [quartz (14808-60-7) (≥ 1 - < 5%)] no toxicity at the limit of solubility [12-hydroxy lithium stearate (7620-77-1) (≥ 1 - < 5%)] LL50 *Oncorhynchus mykiss* (rainbow trout): > 100 mg/L (96 h) [distillates (petroleum), hydrotreated light naphthenic (64742-53-6) (≥ 1 - < 5%)] LL50 *Pimephales promelas* (fathead minnow): > 100 mg/L (96 h) [barium bis(dinonylnaphthalenesulphonate) (25619-56-1) (≥ 1 - < 5%)] LL50 *Cyprinus carpio* (Carp): > 100 mg/L (98 h) (similar substance) [distillates (petroleum), hydrotreated heavy naphthenic (64742-52-5) (≥ 30 - < 50%)] EC50 *Daphnia magna* (Water flea): > 10,000 mg/L (48 h) (similar substance) NOEC *Daphnia magna* (Water flea): 10 mg/L (21 d) [lead (7439-92-1) (≥ 30 - < 50%)] EC50 *Ceriodaphnia dubia* (water flea): 0.029 mg/L (48 h) EC10 *Ceriodaphnia dubia* (water flea): 1.7 µg/L (7 d) [graphite (7782-42-5) (≥ 1 - < 20%)] EL50 *Daphnia magna* (Water flea): > 100 mg/L (48 h) [quartz (14808-60-7) (≥ 1 - < 5%)] no toxicity at the limit of solubility	

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				[12-hydroxy lithium stearate (7620-77-1) (≥ 1 - < 5%)] EL50 *Daphnia magna* (Water flea): > 100 mg/L (48 h) [distillates (petroleum), hydrotreated light naphthenic (64742-53-6) (≥ 1 - < 5%)] EL50 *Daphnia magna* (Water flea): > 10,000 mg/L (48 h) NOEC *Daphnia magna* (Water flea): 10 mg/L (21 d) [barium bis(dinonylnaphthalenesulphonate) (25619-56-1) (≥ 1 - < 5%)] EL50 *Daphnia magna* (Water flea): > 100 mg/L (48 h) (similar substance) <u>Chronic Toxicity</u> H351 Suspected of causing cancer. H360FD May damage fertility. May damage the unborn child. H362 May cause harm to breast-fed children. H372 Causes damage to organs (Kidney, Central nervous system, Blood) through prolonged or repeated exposure. <u>Persistence/degradability:</u> [distillates (petroleum), hydrotreated heavy naphthenic (64742-52-5) (≥ 30 - < 50%)] not readily biodegradable 2 – 4% (28 d) [12-hydroxy lithium stearate (7620-77-1) (≥ 1 - < 5%)] readily biodegradable 78% (28 d) [distillates (petroleum), hydrotreated light naphthenic (64742-53-6) (≥ 1 - < 5%)] not readily biodegradable 2 – 8% (28 d) [barium bis(dinonylnaphthalenesulphonate) (25619-56-1) (≥ 1 - < 5%)] not readily biodegradable (similar substance) <u>Bioaccumulation potential</u>: [barium bis(dinonylnaphthalenesulphonate) (25619-56-1) (≥ 1 - < 5%)] log Pow: 23.3	

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Total			**100%**		

1.8.3.2 Chemical List: Thread Compound - 72733

Chemicals within products in part 1.8.3.1	CAS Number	Mass Fraction (%)
distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	≥ 30 - < 50%
Lead	7439-92-1	≥ 30 - < 50%
graphite	7782-42-5	≥ 1 - < 20%
copper metal powder	7440-50-8	≥ 1 - < 5%
talc	14807-96-6	≥ 1 - < 5%
quartz	14808-60-7	≥ 1 - < 5%
12-hydroxy lithium stearate	7620-77-1	≥ 1 - < 5%
distillates (petroleum), hydrotreated light naphthenic	64742-53-6	≥ 1 - < 5%
barium bis(dinonylnaphthalenesulphonate)	25619-56-1	≥ 1 - < 5%
Total		100%

1.8.4 System Details: Thread Compound – API-MODIFIED

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Thread compound
TOTAL VOLUME OF SYSTEM PER WELL	25 Kg

1.8.4.1 Product List Details: Thread Compound – API Modified

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
API-MODIFIED	Bestolife	Thread compound	100	Acute Toxicity Distillates (petroleum), hydrotreated heavy naphthenic: LD50 (Rat): > 5,000 mg/kg (oral) LC50 (Rat): > 5.53 mg/l (inhalational) LD50 (Rabbit): > 5,000 mg/kg (dermal) Lead: LD50 (Rat): > 2,000 mg/kg (oral) LD50 (Rat): > 2,000 mg/kg (dermal) Graphite: LD50 (Rat): > 2,000 mg/kg (oral) LC50 (Rat): > 2 mg/l (inhalational) Copper metal powder: LD50 (Rat): > 2,500 mg/kg (oral) LC50 (Rat): > 5.11 mg/l (inhalational) LD50 (Rat): > 2,000 mg/kg (dermal) Talc: LD50 (Rat): > 5,000 mg/kg (oral) Quartz: LD50 (Rat): > 5,000 mg/kg (oral) Ecological data	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Zinc: ErC50: 0.15 mg/L Zinc oxide: NOEC: 0.0299 mg/L Lead monoxide: ErC50 Chlorella sp.: 388 µg/L (48 h) Cadmium oxide, stabilised: ErC50: 0.09 mg/L Graphite: EC50: 19 mg/L EC50: 7.2 mg/L ErC50: > 100 mg/L Calcium oxide: EC50 *Pseudokirchneriella subcapitata*: > 100 mg/L (72 h) EC50 *Navicula seminulum*: > 1130.3 mg/L (96 h) Calcium carbonate: EC50 *Desmodesmus subspicatus*: > 14 mg/L (72 h) EC50: 22,000 mg/L (96 h) Zinc LC50: 0.169 mg/L LC50: 0.78 mg/L Zinc oxide: LC50 *Oncorhynchus mykiss*: 0.169 mg/L (96 h) Lead monoxide: LC50 *Oncorhynchus mykiss*: 1170 µg/L LC50 *Oncorhynchus mykiss*: 107 µg/L Cadmium oxide, stabilised: LC50 *Carassius auratus*: 748 µg/L (4 d) Graphite: LC50: > 100 mg/L	

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Calcium carbonate: LC50: > 100% (96 h) Copper: LC50 *Pimephales promelas*: 38.4 – 256.2 µg/L (96 h) Lead massive: particle diameter ≥1mm LC50: 1170 µg/L LC50 107 µg/L Calcium oxide: LC50 *Poecilia reticulata*: 387 mg/L NOEC *Tilapia nilotica*: 100 mg/L (46 d) Copper: EC50 *Daphnia magna*: 3.8 – 118.5 µg/L (48h) Calcium carbonate: EC50 *Daphnia magna*: > 100% (48 h) <u>Chronic Toxicity</u> • H351 Suspected of causing cancer. • H360FD May damage fertility. May damage the unborn child. • H362 May cause harm to breast-fed children. • H372 Causes damage to organs (Kidney, Central nervous system, Blood) through prolonged or repeated exposure. <u>Persistence/degradability:</u> Calcium oxide: not applicable quartz: not applicable zinc oxide: not applicable calcium carbonate: not applicable magnesium oxide: not applicable lead monoxide: not applicable cadmium oxide: not applicable <u>Bioaccumulation potential</u>: Lead massive: log Pow: 0.73 (estimated)	

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Graphite: Zinc: BCF: 116 / log Pow: -0.47 Quartz: unlikely Zinc oxide: log Pow: 1.53 Calcium carbonate: Log Pow: 2.12 & log Kow: < 4 Cadmium oxide, stabilised: BCF: 1,385 (92 d)	
Total Fluid			**100%**		

1.8.4.2 Chemical List: Thread Compound – API Modified

Chemicals within products in part 1.8.4.1	CAS Number	Mass Fraction (%)
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	>= 30 - < 50
Lead	7439-92-1	>= 30 - < 50
Graphite	7782-42-5	>= 10 - < 20
Copper metal powder	7440-50-8	>= 1 - < 5
Talc	14807-96-6	>= 1 - < 5
Quartz	14808-60-7	>= 1 - < 5
Total		100%

1.8.5 System Details: Thread Compound – Copper Supreme Special Blend

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Thread compound
TOTAL VOLUME OF SYSTEM PER WELL	40 L

1.8.5.1 Product List Details: Thread Compound – Copper Supreme Special Blend

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
Copper Supreme Special Blend	Bestolife	Thread compound	100	Acute Toxicity Acute toxicity estimate: 2,000 to > 5,000 mg/kg (similar substances) Distillates (petroleum), hydrotreated heavy paraffinic: LD50 (Rat): > 5,000 mg/kg (oral) LC50 (Rat): > 5.53 mg/l (inhalational) LD50 (Rabbit): > 5,000 mg/kg (dermal) Distillates (petroleum), hydrotreated heavy naphthenic: LD50 (Rat): > 5,000 mg/kg (oral) LC50 (Rat): > 5.53 mg/l (inhalational) LD50 (Rabbit): > 5,000 mg/kg (dermal) Graphite: LD50 (Rat): > 2,000 mg/kg (oral) LC50 (Rat): > 2 mg/l (inhalational) Copper metal powder: LD50 (Rat): > 2,500 mg/kg (oral) LC50 (Rat): > 5.11 mg/l (inhalational) LD50 (Rat): > 2,000 mg/kg (dermal) Talc: LD50 (Rat): > 5,000 mg/kg (oral) Dilithium azelate:	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				LD50 (Rat): > 300 - 2,000 mg/kg (oral) LD50 (Rat): > 2,000 mg/kg (dermal) Tris[bis(2-ethylhexyl)dithiocarbamato-S,S'] antimony: LD50 (Rat): > 5,000 mg/kg (oral) LD50 (Rabbit): > 5,000 mg/kg (dermal) Calcium oxide: LD50 (Rat): > 2,000 mg/kg (oral) LD50 (Rabbit): > 2,500 mg/kg (dermal) Antimony, dialkyl dithiocarbamate: LD50 (Rat): > 5,000 mg/kg (oral) LD50 (Rabbit): > 5,000 mg/kg (dermal) Quartz: LD50 (Rat): > 5,000 mg/kg (oral) 2,5-Bis(octyldithio)-1,3,4-thiadiazole: LD50 (Rat): > 5,000 mg/kg (oral) LC50 (Rat): 3.08 mg/l (inhalational) LD50 (Rabbit): > 2,000 mg/kg (dermal) Benzenesulphonic acid, propenated, calcium salts, overbased: LD50 (Rat): > 5,000 mg/kg (oral) LC50 (Rat): > 1.9 mg/l (inhalational) LD50 (Rat): > 5,000 mg/kg (dermal) Ecological data EC50 *Selenastrum capricornutum* (green algae): 70,100 mg/l (96 h) NOEC *Selenastrum capricornutum* (green algae): 60,000 mg/l (96 h) LC50 *Pimephales promelas* (fathead minnow): 10,250 mg/L (96 h) EC50 *Daphnia magna* (Water flea): 15,470 mg/l (96 h) EC50 *Daphnia magna* (Water flea): 30,940 mg/l (48 h) Chronic Toxicity May cause an allergic skin reaction. Persistence/degradability:	

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				readily biodegradeable Bioaccumulation potential: [dilithium azelate: log Pow: -3.53 [2,5-bis(octyldithio)-1,3,4-thiadiazole: log Pow: > 6.5 [benzenesulphonic acid, propenated, calcium salts, overbased: log Pow: > 4	
Total Fluid			**100%**		

1.8.5.2 Chemical List: Thread Compound – Copper Supreme Special Blend

Chemicals within products in part 1.8.5.1	CAS Number	Mass Fraction (%)
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	>= 30 -< 60
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	>= 30 -< 60
Graphite	7782-42-5	>= 10 -< 30
Copper metal powder	7440-50-8	>= 10 -< 30
Talc	14807-96-6	< 10
Dilithium azelate	38900-29-7	< 10
Tris[bis(2-ethylhexyl)dithiocarbamato-S,S'] antimony	15991-76-1	< 10
Calcium oxide	1305-78-8	>= 1 -< 3
Antimony, dialkyl dithiocarbamate	15890-25-2	< 10
Quartz	14808-60-7	>= 1 -< 10
2,5-Bis(octyldithio)-1,3,4-thiadiazole	13539-13-4	>= 0.1 -< 10
Benzenesulphonic acid, propenated, calcium salts, overbased	68610-84-4	< 1
Total		100%

1.8.6 System Details: Thread Compound – SEAL-GUARD

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Thread compound
TOTAL VOLUME OF SYSTEM PER WELL	80kg

1.8.6.1 Product List Details: Thread Compound – Seal Guard

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
SEAL-GUARD	XTEX	Thread compound	100	Acute Toxicity Acute toxicity (oral): Not classified Acute toxicity (dermal): Not classified Acute toxicity (inhalation): Not classified Skin corrosion/irritation: Not classified Serious eye damage/irritation: Not classified Respiratory or skin sensitisation: Not classified Germ cell mutagenicity: Not classified Carcinogenicity: Not classified Reproductive toxicity: Not classified STOT-single exposure: Not classified STOT-repeated exposure: Not classified Aspiration hazard: Not classified Ecological data Hazardous to the aquatic environment, short–term (acute): Not classified Hazardous to the aquatic environment, long–term (chronic): Not classified Chronic Toxicity No chronic toxicity GHS risk statements. Persistence/degradability: Not rapidly degradable	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Bioaccumulation potential: No product level data available	
Total Fluid			**100%**		

1.8.6.2 Chemical List: Thread Compound – Seal Guard

Chemicals within products in part 1.8.6.1	CAS Number	Mass Fraction (%)
Lubricating grease (petroleum base)	74869-21-9	50 -70%
graphite, synthetic	7782-42-5	5 -10%
Calcium fluoride	7789-75-5	20 - 25%
pulp, cellulose	65996-61-4	0 - 2.5%
PTFE	9002-84-0	2 - 5%
Total		**100%**

1.8.7 System Details: Thread Compound – SEAL-GUARD ECF

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Thread compound
TOTAL VOLUME OF SYSTEM PER WELL	40kg

1.8.7.1 Product List Details: Thread Compound - Seal Guard ECF

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
SEAL-GUARD ECF	XTEX	Thread compound	100	Acute Toxicity Acute toxicity (oral): Not classified Acute toxicity (dermal): Not classified Acute toxicity (inhalation): Not classified Skin corrosion/irritation: Not classified pH: 7 Serious eye damage/irritation: Not classified pH: 7 Respiratory or skin sensitisation: Not classified Germ cell mutagenicity: Not classified Carcinogenicity: Not classified Reproductive toxicity: Not classified STOT-single exposure: Not classified STOT-repeated exposure: Not classified Aspiration hazard: Not classified Ecological data The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment. Hazardous to the aquatic environment, short-term (acute): Not classified Hazardous to the aquatic environment, long-term (chronic): Not classified Chronic Toxicity No chronic toxicity GHS risk statements.	Y

Tradename	Supplier	Purpose	Product in system fluid (wt/wt%)	Toxicity & Ecotoxicity Info	SDS
				Persistence/degradability: No product level data Bioaccumulation potential: No product level data	
Total Fluid			**100%**		

1.8.7.2 Chemical List: Thread Compound - Seal Guard ECF

Chemicals within products in part 1.8.7.1	CAS Number	Mass Fraction (%)
Lubricating grease (synthetic base)	74869-22-0	60 - 70%
Calcium fluoride	7789-75-5	25 - 35%
pulp, cellulose	65996-61-4	0 - 2.5%
graphite (synthetic)	7440-44-0	0 - 2.5%
Total		**100%**

1.8.8 System Details: Gas Tight Cement Barrier

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Contingent Gas Tight Cement Barrier
TOTAL VOLUME OF SYSTEM PER WELL	4.77 m^3 (30 bbls)

1.8.8.1 Product List Details: Gas Tight Cement Barrier

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	60.0%	No Hazard	
CEMENT - CLASS G	Halliburton	Cement	32.3%	**CONSTITUENT 1** (≤100%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >2000 mg/kg, LC50 Inhalation: >1.0 mg/L (4h) (Rat) After hardening with water or moister, cement presents no ecotoxicity risks. (Source: IUCLID 2000) Static Aquatic Toxicity - Freshwater and Marine Algae:- 72 hour EC50: >1,000 mg/L Static Aquatic Toxicity -Freshwater and Marine Invertebrates:- 48 hour LC50: >1,000 mg/L Static Aquatic Toxicity- Freshwater and Marine Fish:- 96 hour LC50: >1,500 mg/L Partition Coefficient, n-Octanol/Water: Not Applicable for inorganics Oxygen Demand, Chemical Oxygen Demand: Not Applicable for inorganics Biodegradability, Seawater – Indigenous microbes: Not Applicable for inorganics **CONSTITUENT 2** (≤10%): LD50 Oral: >15000 mg/kg (human) Freshwater Crustacean Toxicity 24h LL50: > 10000 mg/L (*Daphnia magna*) [Health Canada] (similar substance); Freshwater Fish Toxicity 96h LL0: 10000 mg/L (Danio rerio) [Health Canada] (similar substance); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. Carcinogenicity: Classified as a human carcinogen (IARC Group 1)	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				The product is an integral component of this system and has been identified for use given its technical properties. There are no suitable alternatives available that are less hazardous. The use of this product has been minimised where practicable	
LATEX 4000	Halliburton	Cement Expanding Additive	2.46%	PRODUCT CEFAS LISTED **CONSTITUENT 1** (<60%): Componenet is naturally occuring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards **CONSTITUENT 2** (<60%): No Data Available for non-hazardous polymer **CONSTITUENT 3** (<1%): LD50 Oral: >2000 and <5000 mg/kg (Rat); LD50 Dermal: >10,000 mg/kg (Rabbit); Freshwater Crustacean Toxicity 48h EC50: 439 mg/L [ECHA]; Marine Water Algae Toxicity 72h EC50: 202.33 mg/L (*Skeletonema costatum*) [ECHA]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Sponsored Study]; Bioaccumulation LogPow: -1.504 [ECHA]; Biodegradation 14d: 100% [ECHA] **CONSTITUENT 4** (<0.1%): Oral LD50: 1658 mg/kg (Rat); Inhalation LC50 >1 mg/L (Rat, saturated mist, 4hr) (Similar Substance); Freshwater Algae Toxicity 72h EC50: >100 mg/L (*Desmodesmus subspicatus*); Freshwater Crustacean Toxicity 24h LC50: 610 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96h LC50: 121 mg/L (*Lepomis macrochirus*); Biodegradation(28 Days): 10% (OECD306) **CONSTITUENT 5** (<0.1%): LD50 Oral: 53 mg/kg (Rat); LD50 Dermal: 200 mg/kg (Rabbit); LC50 Inhalation: 0.11 mg/L (4h) (Rat);	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Crustacean Toxicity EC50 (48h) 0.18 mg/L (*Daphnia magna*) (Similar Substance); Freshwater Fish Toxicity LC50 (96h) 0.19 mg/L (*Oncorhynchus mykiss*) (Similar substance); Bioaccumulation: Log Pow= -0.26 **CONSTITUENT 6** (<0.1%): LD50 Oral: 1020 mg/kg (Rat); LD50 Dermal: >2000 mg/kg (Rat); Bioaccumulation: Log Pow= 0.99 **CONSTITUENT 7** (<0.1%): LD50 Oral: 481 mg/kg (Rat); LD50 Dermal: 1008 mg/kg (Rat); LC50 Inhalation: 1.23 mg/L (4h) (Rat); Freshwater Algae Toxicity 72h EC50: 0.11-0.16 mg/L (*Pseudokirchneriella subcapitata*); Freshwater Crustacean Toxicity 48h EC50: 0.18 mg/L (*Daphnia magna*); Freshwater Fish Toxicity LC50 (96h): 0.08 mg/L (*Oncorhynchus mykiss*); Bioaccumulation: Log Pow = 0.7 Contains no hazardous substances in concentrations above cut-off values according to the competent authority.	
LATEX 3000	Halliburton	Cement Expanding Additive	2.46%	**CONSTITUENT 1** (≤ 60%): Marine Fish Toxicity LC50 96h: >1000 mg/L (*Cyprinodon variegatus*) **CONSTITUENT 2** (≤ 60%): No Hazard **CONSTITUENT 3** (≤ 0.1%): Freshwater Fish Toxicity 48h LC50: > 1,000 mg/L [Catalyst Partners SDS]; **CONSTITUENT 4** (≤ 0.1%): Freshwater Algae Toxicity 72 h EC50: 4.9 mg/L (*Selenastrum capricornutum*); Freshwater Crustacean Toxicity 48 h EC50: 4.7 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96 h LC50: 4.02 mg/L (Fathead minnow [*Pimephales promelas*]); Source: OECD SIDS	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				CONSTITUENT 5 (≤ 0.1%): Freshwater Crustacean Toxicity 96h EC50: 34.8 mg/L (*Daphnia magna*); Marine Fish Toxicity 24 h LC50: 71.5 mg/L (*Lagodon rhomboides*); Bioaccumulation BCF: 13 No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
HALAD-413L	Halliburton	Fluid Loss Additive	1.84%	**CONSTITUENT 1** (≤30%): Oral LD50: >2000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 1102 mg/L (*Skeletonema costatum*) [OSPAR]; Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (*Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [OSPAR]; Bioaccumulation Log Kow: < 3.5 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 6 % [Halliburton Funded Study]; **CONSTITUENT 2** (≤100%): Product is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
MICROBOND	Halliburton	Expander	1.34%	**CONSTITUENT 1** (≤ 100%): Oral LD50: 3000 mg/kg, Inhalation LD50: >3.26 mg/L (4h), Dermal LD50: >2500 mg/kg (Rabbit) Freshwater Algae Toxicity 72h EC50: > 100 mg/L (*Selenastrum capricornutum*) [OECD SIDS]; Freshwater Crustacean Toxicity 48h EC50: > 100 mg/L (*Daphnia magna*) [OECD SIDS]; Freshwater Fish Toxicity 96h EC50: > 100 mg/L (*Oryzias latipes*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤ 30%): Oral LD50: >2000 mg/kg (Rat) (Similar Substance), Dermal LD50: >2000 mg/kg (Rat) (Similar Substance), Inhalation LC50: 1.9 mg/L air (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: 3.6 mg/L (*Desmodesmus subspicatus*)	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				[ECHA]; Freshwater Crustacean Toxicity 48h EC50: 5.4 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h EC50: > 100 mg/L (*Danio rerio*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** (≤ 10%): Oral LD50: 7340 mg/kg (Rat), Dermal LD50: >2500 mg/kg (Rabbit), Effect concentrations in the aquatic environment are attributable to a change in pH value. Freshwater Crustacean Toxicity 48h EC50: 49.1 mg/L (*Daphnia magna*) [ECHA]; Marine Water Crustacean Toxicity 96h LC50: 158 mg/L (*Crangon septemspinosa*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 50.6 mg/L (*Oncorhynchus mykiss*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 4** (≤ 5%): LD50 Oral: 4220 mg/kg (Rat), Inhalation LD50: >4.74 mg/L (4h) (Rat) Freshwater Algae Toxicity 96h EC50: 650 mg/L (*Navicula seminulum*) [US EPA ECOTOX]; Freshwater Crustacean Toxicity 48h EC50: 1020 mg/L (*Ceriodaphnia dubia*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 7100 mg/L (*Lepomis macrochirus*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	
ECONOLITE LIQUID	Halliburton	Cement Additive Stabiliser	1.33%	**CONSTITUENT 1** (≤60%): LD50 Oral: 800 mg/kg (Rat), LD50 Oral: 770 mg/kg (Mouse), LD50 Dermal: > 5000 mg/kg (Rat) (Similar substance), LC50 Inhalation >2.06 mg/L (Rat) 4h (Similar substance) Freshwater Algae Toxicity 72h EC50: > 345 mg/L (*Scenedesmus subspicatus*) [ECHA]; Freshwater Crustacean Toxicity 48h EC50: 1700 mg/L (*Daphnia magna*) [OECD SIDS]; Freshwater Fish Toxicity 96h LC50: 1108 mg/L (Danio rerio) [OECD SIDS];	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** (≤60%): Component is naturally occuring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
CFR-8L	Halliburton	Friction Reducer	0.588%	**CONSTITUENT 1** (≤60%): Oral LD50: >5000 mg/kg (Rat) Marine Water Algae Toxicity 72h EC50: 7631.73 mg/L (*Skeletonema costatum*); Marine Water Crustacean Toxicity 48h LC50: 2200 mg/L (*Acartia tonsa*); Marine Water Fish Toxicity 96h LC50: 1006 mg/L (*Scophthalmus maximus*); Fresh Water Crustacean Toxicity 48h LC50: >100 mg/L (*Daphnia magna*); Bioaccumulation Log Pow: < 0; Inherently biodegradable: Biodegradation 28d: 38%; **CONSTITUENT 2** (≤100%): Component is naturally occurring and not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
SCR-100L	Halliburton	Cement Retarder	0.105%	Oral Toxicity LD50: >5000 mg/kg (Rat), Dermal LD50 : >2000 mg/kg (Rabbit) Freshwater Fish Toxicity 96h LC50: 4900 mg/L (*Oncorhynchus mykiss*) Freshwater Crustacean Toxicity 48h LC50: 2800 mg/L (*Daphnia magna*) Marine Water Algae Toxicity 72h EC50: > 3300 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 2000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fishn Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 14% [Halliburton Funded Study]; Product was tested using OECD 117 no peaks detected MW>700Da. Product is not expected to be bioaccumulating No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
D-AIR 3000L	Halliburton	Defoamer	0.0840%	**CONSTITUENT 1** (≤100%): LD50 Oral: >5000 mg/kg (Rat) (Similar Substance), LD50 Dermal: >2000 mg/kg (Rat) (Similar Substance), LC 50 Inhalation >2.1 mg/L (Rat)	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Algae Toxicity 96h EC50 : 22 mg/L (*Pseudokirchneriella subcapitata*) Freshwater Fish Toxicity Data 96h LC50 : >1000 mg/L (*Salmo gairdneri*) Freshwater Crustacean Toxicity 48h EC50: 480 mg/L (*Daphnia magna*) Readily Biodegradable (77-81% @28d) Bioaccumulation: Log Pow >7 **CONSTITUENT 2** (≤60%): LD50 Oral: >2000 mg/kg (Rat), LD50 Dermal: >8000 mg/kg (Rat), LC50 Inhalation: >0.17 mg/L (4h) Marine Water Algae Toxicity 72h EC50: 426 mg/L (*Skeletonema costatum*) [OSPAR]; Marine Water Crustacean Toxicity 48h EC50: 433.2 mg/L (*Acartia tonsa*) [OSPAR]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: 5.06 [Halliburton Funded Study]; **CONSTITUENT 3** (≤1%): Component is a synthetic surface modified Amorphous Silica (CAS #: 7631-86-9); Fish and Invertebrate toxicity testing with Amorphous Silica have shown low hazard for this component. Source: OECD SIDS No data available to indicate product or components present at greater than 1% are chronic health hazards	
NF-6	Halliburton	Reduces air entrainment into cement slurry	0.0840%	Marine Water Algae Toxicity 72h EC50: 1100 mg/L (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Crustacean Toxicity 48h LC50: > 1000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Marine Water Biodegradation 28d: 70% [Halliburton Funded Study]; **CONSTITUENT 1** (≤10%) Marine Algae Toxicity 72h EC50: 991.02 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 2500 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >3200 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.45	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				CONSTITUENT 2 (≤5%): Oral LD50: >15900 mg/kg (Mouse), Inhalation LC50: >5 mg/L (4h) (Rat) Marine Algae Toxicity 72h EC50: 41 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >1800 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 4.28 **CONSTITUENT 3** (≤5%) Oral LD50: > 5000 mg/kg (Rat), Dermal LD50: >5000 mg/kg (Guinea Pig) Marine Algae Toxicity 72h EC50: 6488.87 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: 5085.71 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 22.69 (MW>700) **CONSTITUENT 4** (≤10%) No Hazard Product is naturally occurring **CONSTITUENT 5 (**≤100%) Oral LD50: 90 mg/kg (Mouse) (Similar Substance) Marine Algae Toxicity 72h EC50: >3200 mg/L (*Skeletonema costatum*) Marine Crustacean Toxicity 48h LC50: >10000 mg/L (*Acartia tonsa*); Marine Fish Toxicity 96h LC50: >5600 mg/L (*Scophthalmus maximus*); Bioaccumulation: Calculated Log Pow: 7.09 No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
GASCON 469 [CONTINGENCY]	Halliburton	Cement Additive Stabiliser	32.2%	**CONSTITUENT 1** <=1% Oral LDL: 500 mg/kg (Rabbit), Dermal LD50: 1350 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 40.4 mg/L (*Ceriodaphnia sp.*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 45.4 mg/L (*Oncorhynchus mykiss*) Freshwater Fish Toxicity 96h LC50: 125 mg/L (*Gambusia affinis*) [OECD SIDS]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** <=60% Oral LD50: >10,000 mg/kg, Inhalation LC50: >0.69 mg/L (4h) (Rat) Freshwater Algae Toxicity 72h EC50: 440 mg/L (*Selenastrum capricornutum*) [IUCLID; LOLI];	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Freshwater Crustacean Toxicity 48h EC50: 7600 mg/L (*Ceriodaphnia dubia*) [IUCLID; LOLI]; Freshwater Fish Toxicity 96h LC50: 5000 mg/L (*Brachydanio rerio*) [IUCLID; LOLI]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 3** <= 100% Component is naturally occurring and is not intrinsically hazardous No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
HALAD 344 [CONTINGENCY]	Halliburton	Fluid Loss Additive	16.27%	**CONSTITUENT 1** (≤ 60%): Oral LD50: >5000 mg/kg (Rat) (similar substances); Dermal LD50: >2000 mg/kg (Rabbit) (Similar substances); Marine water Algae Toxicity 72h EC50: 493 mg/L (*Skeletonema costatum*); Marine water Crustacean Toxicity 48h LC50: 400 mg/L (*Acartia tonsa*); Marine water Fish Toxicity 96h LC50: >1000 mg/L (*Scophthalmus maximus*); Bioaccumulation: No information available - check ECHA; Biodegradation: No information available - check ECHA. **CONSTITUENT 2** (≤ 60%): Component is naturally occurring and not intrinsically hazardous. **CONSTITUENT 3** (≤ 30%): Oral LD50: >5000 mg/kg (Rat) (similar substances); Dermal LD50: >2000 mg/kg (Rabbit) (Similar substances); Inhalation LC50: >5.2 mg/L (rat, 4h, vapor) (similar substance); Marine water Algae Toxicity 72h EC50: >10000 mg/L (*Skeletonema costatum*); Marine water Crustacean Toxicity 24h LL50: >10000 mg/L (*Acartia tonsa*); Marine water Fish Toxicity 96h LC50: >10000 mg/L (*Scophthalmus maximus*); Bioaccumulation: Log Pow =0; Biodegradation: Readily biodegradable (68.1% @ 28d). **CONSTITUENT 4** (≤ 10%): Oral LD50: 1220 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rat); Freshwater Algae Toxicity 5d EC50: 1300 mg/L (*Chlorella vulgaris*); Freshwater Crustacean Toxicity 96h LC50: > 100 mg/L (*Gammarus fasciatus*); Freshwater Fish Toxicity 96h LC50: 34.6 mg/L (*Oncorhynchus mykiss)*;	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable; Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 5** (≤ 5%): Oral LD50: >5000 mg/kg (Rat); Dermal LD50: >2000 mg/kg (rabbit) (similar substance); Freshwater Fish Toxicity 96h LC50: 5.1 mg/L (*Danio rerio*); Bioaccumulation: Log Kow = 5.51; Biodegradation: Readily biodegradable (86% @ 28d). **CONSTITUENT 6** (≤ 1%): Proprietary Oral LD50: 34500 µL/kg (Rat); Bioaccumulation: No information available; Biodegradation: No information available. **CONSTITUENT 7** (≤ 1%): PLONOR Oral LD50: 300 mg/kg (Human); Dermal LD50: 1000 mg/kg (Human); Inhalation LC50: 10 mg/L (Human, vapor, 4h); Freshwater Algae Toxicity 96h EC50: 22000 mg/L (*Pseudokirchnerella subcapitata*); Freshwater Crustacean Toxicity 48h EC50: 22200 mg/L (*Daphnia obtuse*); Freshwater Fish Toxicity 96h LC50: 15400 mg/L (*Lepomis macrochirus)*; Bioaccumulation: Not bioaccumulative; BCF=1; Biodegradation: Readily biodegradable (95% 20d). No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
WELLLIFE 734 [CONTINGENCY]	Halliburton	Cement Enhancer	5.24%	Product is an inert, man-made substance and not intrinsically hazardous. Is a fine rigid fibrous material (glass fibre), which is chemically inert. As such irritation resulting from contact with this product is by mechanical abrasion. Standard PPE is require to handle the product to minimise direct exposure from mechanical contact. The irritation from contact with this product was not identified being from a chemical reaction. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
GASSTOP ADDITIVE [CONTINGENCY]	Halliburton	Cement Additive	1.76%	Marine Algae toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES Interal Study] Marine Fish toxicity LC50: >1000 mg/L (*Scophthalmus maximus*) [HES study] Marine Crustacean toxicity EC50: > 2000 mg/L (*Acartia tonsa*) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] Biodegradation 0% (OECD 306) [HES Study] No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
HALAD-344 [CONTINGENCY]	Halliburton	Fluid Loss Additive for high temperature	1.76%	**CONSTITUENT 1** <=100% Marine Water Algae Toxicity EC50: >3300 mg/L (*Skeletonema costatum* [HES Interal Study] Marine Water Crustacean Toxicity EC50: > 2000 mg/L (*Acartia tonsa)* [HES study] Marine Fish Toxicity LC50: >1000 mg/L (*Scophthalmus maximus*) [HES study] Bioaccumulation Log Pow: <0 OECD 117 [HES Study] 0% (OECD 306) [HES Study] **CONSTITUENT 2** <=5% PLONAR **CONSTITUENT 3** <= 5% PLONAR **CONSTITUENT 4** <=5% PLONAR Effect concentrations in the aquatic environment are attributable to a change in pH value. Oral LD50: 7340 mg/kg (Rat), Dermal LD50: >2500 mg/kg (Rabbit) Freshwater Crustacean Toxicity 48h EC50: 49.1 mg/L (*Daphnia magna*) [ECHA]; Freshwater Fish Toxicity 96h LC50: 50.6 mg/L (*Oncorhynchus mykiss*) [ECHA]; Marine Water Crustacean Toxicity 96h LC50: 158 mg/L (*Crangon septemspinosa*) [ECHA]; Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. PRODUCT DATA	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Oral LD50: >2000 mg/kg (similar Product) Marine Water Fish Toxicity 96h LC50: > 1000 mg/L (*Scophthalmus maximus*) [Halliburton Funded Study]; Bioaccumulation Log Pow: <0 [Halliburton Funded Study]; Marine Water Biodegradation 28d: 0% [Halliburton Funded Study]; No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
CALCIUM CHLORIDE POWDER [CONTINGENCY]	Halliburton	Excellerator	0.88%	**CONSTITUENT 1** <=100% Oral LD50: 2240 mg/kg (Rat), Dermal LD50: 5000 mg/kg (Rabbit) Freshwater Algae Toxicity 72h EC50: 2900 mg/L (*Pseudokirchneriella subcapitata*) Freshwater Crustacean Toxicity 48h LC50: 2400 mg/L (*Daphnia magna*) Freshwater Fish Toxicity 96h LC50: 4630 mg/L (*Pimephales promelas*) Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. **CONSTITUENT 2** <=5% Oral LD50: 3000 mg/kg (Rat), Dermal LD50: >10000 mg/kg (Rabbit), Inhalation LC50: 42 mg/L (Rat) 1h Freshwater Algae Toxicity 96h EC50: 2430 mg/L (*Navicula seminulum*) Freshwater Crustacean Toxicity 48h EC50: 402.6 mg/L (*Daphnia magna*) Freshwater Fish Toxicity 96h LC50: 9675 mg/L (*Lepomis macrochirus*); Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable. No data available to indicate product or components present at greater than 0.1% are chronic health hazards	Y
ISOGUARD [CONTINGENCY]	Halliburton	Additive	0.88%	**CONSTITUENT 1** (≤100%): limited data - nonhazardous polymer LD50 Oral: >5000 mg/kg (rat); LD50 Dermal: >1000 mg/kg (rabbit); LC50 Inhalation: >5 mg/L (Rat) 4h; Freshwater Fish Toxicity 96h LC50: >10000 mg/L (*Lepomis macrochirus*) (similar substance); Bioaccumulation: No information available; Biodegradation: Readily biodegradable (~100% @ 28d) **CONSTITUENT 2** (≤10%): Component is naturally occurring and not intrinsically hazardous.	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				No data available to indicate product or components present at greater than 0.1% are chronic health hazards	
SA-1015 [CONTINGENCY]	Halliburton	Suspension Agent	0.527%	Freshwater Algae Toxicity 72h EC50: >100 mg/L (*Scenedesmus subspicatus*); Freshwater Crustacean Toxicity 48h EC50: >100 mg/L (*Daphnia magna*); Freshwater Fish Toxicity 96h LC50: >100 mg/L (*Oncorhynchus mykiss*); Marine Water Algae Toxicity 72h EC50: > 5600 mg/L (*Skeletonema costatum*); Marine Water Crustacean Toxicity 48h LC50: 234.22 mg/L (*Acartia tonsa*); Marine Water Fishn Toxicity 96h LC50: > 234.22 mg/L (*Cyprinodon variegatus*); Readily biodegradable (95% at 28 days); Bioaccumulation Log Pow: 0 No data available to indicate product or components present at greater than 0.1% are chronic health hazards.	Y
Total (With Contingency)			**162.14%**		

1.8.8.2 CHEMICAL LIST: Gas Tight Cement Barrier

Chemicals within products in 1.8.8.1	CAS number	Mass fraction (%)
Water	-	63.34%
Portland cement	65997-15-1	30.60%
Silica, amorphous - fumed	7631-86-9	21.70%
Propanesulfonic acid, 2-methyl-2-[(1-oxo-2-propenyl)amino]-, monosodium salt, polymer with N,N-dimethyl-2-propenamide	92815-96-8	10.90%
Soda Lime Borosilicate Glass	65997-17-3	8.90%
Hydrotreated light petroleum distillate	64742-47-8	5.80%
N,N-dimethylacrylamide copolymer with calcium AMPS	103115-52-2	5.50%
2-Propenoic acid, polymer with 1,3-butadiene and ethenylbenzene	25085-39-6	2.43%
Ammonium chloride	12125-02-9	1.75%
Crystalline silica, quartz	14808-60-7	1.61%

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Chemicals within products in 1.8.8.1	CAS number	Mass fraction (%)
Functionalized Styrene Butadiene Latex	403824-26-0	1.48%
Calcium Chloride, dihydrate	10035-04-8	1.40%
Poly(vinyl acetate)-poly(vinyl alcohol) polymer	25213-24-5	1.39%
Calcium sulfate dihydrate	10101-41-4	0.955%
Dilutan Gum	125005-87-0	0.885%
Humic acids, sodium salts, polymers with N,N-dimethyl-2-propenamide, sodium 2-methyl-2-[(1-oxo-2-propen-1-yl)amino]-1-propanesulfonate (1:1) and 2-propenenitrile, sodium bisulfite-terminated	473268-27-8	0.551%
Sodium hydroxide	1310-73-2	0.541%
Sodium silicate	1344-09-8	0.531%
9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-,(Z)	93-83-4	0.356%
Calcium hydroxide	1305-62-0	0.280%
Calcium aluminate	12042-68-1	0.233%
Sulfonated organic polymer	526203-62-3	0.206%
Sodium sulfate	7757-82-6	0.148%
Lecithins	8002-43-5	0.148%
Sorbitan monooleate polyoxyethylene derivative	9005-65-6	0.109%
Rape Oil	8002-13-9	0.0739%
Sodium Chloride	7647-14-5	0.0738%
Alkenes, C15-C18	93762-80-2	0.0504%
Acrylic acid polymer with sodium AMPS, sodium salt	37350-42-8	0.0417%
Methanol	67-56-1	0.0274%
Sodium dicyclohexyl sulfosuccinate	23386-52-9	0.0271%
Polypropylene glycol	25322-69-4	0.0252%
Sodium bicarbonate	144-55-8	0.0160%
Silica, amorphous precipitated	67762-90-7	0.0084%

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Chemicals within products in 1.8.8.1	CAS number	Mass fraction (%)
Monopropylene glycol monooleate	1330-80-9	0.004200%
4-Vinylcyclohexene	100-40-3	0.002460%
Styrene	100-42-5	0.002460%
Butadiene	106-99-0	0.002460%
Ethylenediaminetetraacetic acid, tetrasodium salt	64-02-8	0.001697%
Sorbitan, monopalmitate	26266-57-9	0.000840%
Aluminium stearate	637-12-7	0.000840%
1,2-Benzisothiazolin-3-one	2634-33-5	0.000565%
2-Methyl-4-isothiazolin-3-one	2682-20-4	0.000565%
2-Bromo-2-(bromomethyl)pentanedinitrile	35691-65-7	0.000105%
FD&C Blue 1	3844-45-9	0.000105%
5-Chloro-2-methyl-3(2H)-isothiazolone mixture with 2-methyl-3(2H)-isothiazolone	55965-84-9	0.00007917%
Total	**-**	**~162.14%**

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1.9 VENDOR – Multiple

1.9.1 System Details: Calcium Chorlide Well Control (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Calcium Chloride Fluid
TOTAL VOLUME OF SYSTEM PER WELL:	23.85m^3 per well

1.9.1.1 Product List Details : Calcium Chloride Well Control (Contingency)

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	45	Water; not classified as a hazardous chemical	NA
CALCIUM CHLORIDE (ALL GRADES)	M-I Australia Pty Ltd / Schlumberger / Baker Hughes / Halliburton	Weight Additive	55	Acute toxicity Oral LD50: 1,000 mg/kg (rat) Fish LC50 (96hr): 1,000 mg/L (*Morone saxatilis*) Crustacean EC50 (48hr): 2,400 mg/L (*Daphnia magna*) Algae EC50 (96hr): 2,430 mg/L (*Navicula seminulum*) Chronic toxicity No data available to indicate product or components present at greater than 1% are chronic health hazards. Biodegradation / bioaccumulation Not applicable as product is inorganic	Y
Total			**100%**		

1.9.1.2 Chemical List : Calcium Chloride Well Control (Contingency)

Chemicals within products in 1.9.1.1	CAS number	Mass fraction (%)
Water	-	45%

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Chemicals within products in 1.9.1.1	CAS number	Mass fraction (%)
Calcium Chloride	10043-52-4	55%
Total		100%

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1.9.2 System Details: Drilplex Well Control (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Drilplex
TOTAL VOLUME OF SYSTEM PER WELL:	27m^3

1.9.2.1 Product List Details : Drilplex Well Control (Contingency)

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	98.6977	Water; not classified as a hazardous chemical	N/A
DRILPLEX HDD	M-I Australia Pty Ltd	Viscosifier	0.1	Acute toxicity LD50 Oral: >5000 mg/kg (Rat) Fish LC50 (96 hr) = 300 mg/L (*Lepomis macrochirus*) Fish LC50 (96 hr) = 310 - 1220 mg/L (*Pimephale promelas*) Algae EC50 (120 hr) = 242 mg/L (*Nitzschia*) Crustacean EC50 (48 hr) = 265 mg/L (*Daphnia magna*) Chronic toxicity No known carcinogenic properties or chronic impacts Biodegradation/ bioaccumulation Not applicable as product is inorganic	Y
M-I GEL	SLB / M-I SWACO	Gel	1.2	Acute toxicity **Component 1 (60-100%)** LD50 Oral: >5000 mg/kg (Rat) **Component 2 (1-5%)** LD50 Oral: >500 mg/kg (Rat) Chronic toxicity **Component 1 (60-100%)** Fish LC50 (96 hr) = 19000 mg/L (*Oncorhynchus mykiss*)	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Fish LC50 (96 hr) = 8.0 – 19.0 g/L (*Salmo gairdneri*) **Component 2 (1-5%)** No information available Biodegradation / bioaccumulation Not applicable as product is inorganic	
MAX GEL (CONTINGENCY)	M-I Australia Pty Ltd	Gel	1.2	Acute toxicity LD50 Oral: 500 mg/kg (Rat) Fish LC50 (96 hr) = 1970 mg/L (*Pimephales promelas*) Fish LC50 (96 hr) = 2980 mg/L (*Lepomis macrochirus*) Algae EC50 (120 hr) = 3200 mg/L (*Nitscheria linearis*) Chronic toxicity No known carcinogenic properties or chronic impacts Biodegradation / bioaccumulation Not applicable as product is inorganic	Y
SODA ASH	SLB / M-I SWACO	pH adjusting agent	0.0001	Acute toxicity Algae EC50 (120 hr): 242 mg/L (*Nitzschia*) Fish LC50 (96 hr): 300 mg/L [static] (*Lepomis macrochirus*) Fish LC50 (96 hr): 310 - 1220 mg/L [static] (*Pimephales promelas*) Crustacean EC50 (48 hr): 265 mg/L (*Daphnia magna*) Chronic toxicity No known carcinogenic properties or chronic impacts Biodegradation/ bioaccumulation Not applicable as product is inorganic	Y
CAUSTIC SODA	M-I Australia Pty Ltd	pH adjusting agent	0.0001	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates.	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Biodegradation/Bioaccumulation: N/A Inorganic chemical	
CITRIC ACID	M-I Australia Pty Ltd / Redox	pH adjusting agent	0.0001	Acute toxicity LD50 Oral: > 7000 mg/kg (Rabbit) Fish LC50 (96 hr): 440 – 760 mg/L Chronic toxicity No known carcinogenic properties or chronic impacts Biodegradation/Bioaccumulation Log Kow: -1.72 BOD 5: 0.42 ThOD: 0.686 Readily biodegradable	Y
SAPP	M-I Australia Pty Ltd	pH adjusting agent	0.003	Acute toxicity LD50 Oral: > 1800 mg/kg (Rat) Not considered Toxic to algae, aquatic invertebrates or fish Chronic toxicity No known carcinogenic properties or chronic impacts Persistence/Bioaccumulation N/A – inorganic chemical	Y
Total			**101.2%**		

*Max Gel is an optional contingency product that may be used instead of M-I Gel Supreme and will not exceed 1.2% product content in the system.

1.9.2.2 Chemical List : Drilplex Well Control (Contingency)

Chemicals within products in 1.9.2.1	CAS number	Mass fraction (%)
Water (Including Mix Water Supplied by WA Oil)	7732-18-5	98.6977
Bentonite	1302-78-9	2.63098
Sodium carbonate	497-19-8	0.20510
Crystalline silica (impurity)	14808-60-7	0.14145

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Chemicals within products in 1.9.2.1	CAS number	Mass fraction (%)
Magnesium oxide	1309-48-4	0.07638
Aluminium oxide	1344-28-1	0.05092
Silica - crystalline, tridymite	15468-32-3	0.02829
Citric acid, monohydrate	5949-29-1	0.02829
Sodium hydroxide	1310-73-2	0.02829
Gypsum	13397-24-5	0.02829
Calcium dihydroxide	1305-62-0	0.00594
Calcium carbonate	471-34-1	0.00113
Disodium dihydrogen diphosphate	7758-16-9	0.0029
Total		~102%

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1.9.3 System Details: Drilplex Well Control (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
System	Drilplex Well Control (Contingency)
Total Volume of System	27 m^3 (170 bbls)

1.9.3.1 Product List Details: Drilplex Well Control (Contingency)

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	98.498	n/a	N/A
SAFE-VIS* E	M-I Australia Pty Ltd	Viscosifier	1.4	Acute toxicity LD50 Oral: 9579 mg/kg (Rat) EC50 (72 hr): 0.0022 mg/L (*Scenedesmus subspicatus)* Chronic toxicity No known carcinogenic properties or chronic impacts Biodegradation/Bioaccumulation Method OECD 306: >73% in 28d	Y
DUO-VIS	MI SWACO	Viscosifier	0.05	Acute toxicity Component: Glyoxal LD50 Oral = 200 mg/kg (Rat) LD50 Dermal = 12700 mg/kg (Rabbit) LC50 Inhalation = 2410 mg/m³, 3-4 hrs Ecotoxicity The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Component: Glyoxal Toxicity to fish 460 - 680 mg/L LC50 *Leuciscuidus* 96 h = 215 mg/L LC50 *Pimephales promelas* 96 h Toxicity to algae <= 348.59 mg/L EC50 *Pseudokirchneriella subcapitata* 96h > 500 mg/L EC50	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Desmodesmus subspicatus 96 h > 500 mg/L EC50 *Desmodesmus subspicatus* 72 h Toxicity to daphnia and other aquatic invertebrates = 404 mg/L EC50 Daphnia magna 48 h Biodegradation / Bioaccumulation Readily biodegradable/Does not bio-accumulate.	
CAUSTIC SODA	M-I Australia Pty Ltd	pH adjusting agent	0.05	Acute Toxicity: LD50 Oral (rat): 325 mg/kg, LD50 Dermal (rabbit): 1350 mg/kg Chronic Toxicity: Not known to be carcinogenic, mutagenic, or sensitizing. No known reproductive or developmental hazards Ecotoxicity: Not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: N/A Inorganic chemical	Y
SODA ASH	SLB / M-I SWACO	pH adjusting agent	0.001	Acute toxicity Algae EC50 (120 hr): 242 mg/L (*Nitzschia*) Fish LC50 (96 hr): 300 mg/L [static] (*Lepomis macrochirus*) Fish LC50 (96 hr): 310 - 1220 mg/L [static] (*Pimephales promelas*) Crustacean EC50 (48 hr): 265 mg/L (*Daphnia magna*) Chronic toxicity No known carcinogenic properties or chronic impacts Biodegradation/ bioaccumulation Not applicable as product is inorganic	Y
CITRIC ACID	M-I Australia Pty Ltd / Redox	pH adjusting agent	0.001	Acute toxicity LD50 Oral: > 7000 mg/kg (Rabbit) Fish LC50 (96 hr): 440 – 760 mg/L Chronic toxicity No known carcinogenic properties or chronic impacts Biodegradation/Bioaccumulation	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Log Kow: -1.72 BOD 5: 0.42 ThOD: 0.686 Readily biodegradable	
Total Fluid			**100%**		

1.9.3.2 Chemical List: Drilplex Well Control (Contingency)

Chemicals within products in 1.9.3.1	CAS number	Mass fraction (%)
Water (Including Mix Water Supplied by Client)*	7732-18-5	98.50792
Hydroxyethyl cellulose	9004-62-0	0.54255
Tetradecane	629-59-4	0.52294
Pentadecane	629-62-9	0.19610
Sodium carbonate	497-19-8	0.05684
Ethenylbenzene polymer w/ 2-methyl-1,3-butadiene	68648-89-5	0.04576
Sodium hydroxide	1310-73-2	0.04263
Citric acid, monohydrate	5949-29-1	0.04263
Xanthan gum	11138-66-2	0.04225
Glyoxal	107-22-2	0.00038
Total		**~100%**

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1.9.4 System Details: Inhibited P&A Fluids (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Contingent Zonal Isolation Material: *SandAband®
TOTAL VOLUME OF SYSTEM PER WELL:	1 – 10 m^3

1.9.4.1 Product List Details: Inhibited P&A Fluids

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	10.9	Water; not classified as a hazardous chemical	n/a
SILICA SAND	Flopetrol Well Barrier / Sand Express	Inert mineral particles	50.3	<u>Information on toxicological effects</u> The inhalation of quartz containing dust, in particular the fine dust fraction (respirable size), in high concentrations or over repeated or prolonged periods of time can be hazardous to health and may lead to chronic lung disease and an increased risk of lung cancer. This risk will be minimal if correct working practices are observed and applied. According to the International Agency for Research on Cancer (IARC Monograph Volume 100C - 2012) "Crystalline silica inhaled in the form of quartz or cristobalite is carcinogenic to humans (Group 1). <u>Acute toxicity</u> Not classified. LD50 / LC50 = 500 mg/kg (Oral LD50; Rat) Skin corrosion/irritation: Not classified. Serious eye damage/irritation: Not classified. Respiratory or skin sensitisation: Not classified. Germ cell mutagenicity: Not classified. Carcinogenicity: Suspected of causing cancer. Reproductive toxicity: Not classified. Specific target organ toxicity - single exposure: Not classified. Specific target organ toxicity – repeated exposure: Not classified. Aspiration hazard: Not classified.	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Additional information: Dust may irritate respiratory system or lungs. May cause irritation in the mouth and to the mucous membranes. May cause skin irritation/eczema. Particles in the eyes may cause irritation and smarting. <u>Ecotoxicity</u> Ecotox – Natural product. On PLONAR List. <u>Bioaccumulation / biodegradation</u> Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	
MICROSILICA	Flopetrol Well Barrier	Inert mineral particles	12.7	<u>Information on toxicological effects</u> Acute toxicity: Not classified. Skin corrosion/irritation: Not classified. Serious eye damage/irritation: Not classified. Respiratory or skin sensitisation: Not classified. Germ cell mutagenicity: Not classified. Carcinogenicity: Not classified. Reproductive toxicity: Not classified. Specific target organ toxicity - single exposure: Not classified. Specific target organ toxicity – repeated exposure: Not classified. Aspiration hazard: Not classified. Additional information: Dust may irritate respiratory system or lungs. May cause irritation in the mouth and to the mucous membranes. May cause skin irritation/eczema. Particles in the eyes may cause irritation and smarting. Acute Exposure/ Doses of 1-2 mg colloidal **silica** or 25 mg crystalline quartz were lethal to mice following their iv injection. Iv injection of 1-2 mg colloidal **silica** was fatal to mice within minutes; doses of 30-70 mg killed rabbits, although daily doses of 10 mg were tolerated. (Approximate particle size, presumably 0.002 um, based on preparation techniques.) Death was	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				concluded to be by intravenous clotting resulting from damage to the vascular endothelium. /Colloidal **silica**/ (Source:ToxNet) Ecotoxicity Ecotox – Natural product. On PLONAR List. Bioaccumulation / biodegradation Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	
STONE BOULDERS	Flopetrol Well Barrier	Inert mineral particles	21.1	Information on toxicological effects Acute toxicity: Not classified. Skin corrosion/irritation: Not classified. Serious eye damage/irritation: Not classified. Respiratory or skin sensitisation: Not classified. Germ cell mutagenicity: Not classified. Ecotoxicity Ecotox – Not classified as dangerous for the environment Bioaccumulation / biodegradation Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	Y
IS FLR H10	Lamberti	Natural polymer derivative in hydro/glycolic solution	0.9	Information on toxicological effects Toxicological information of the mixture: Acute toxicity: Toxicity Oral Rat LD50> 2000 mg/kg - Calculated data. Skin corrosion/irritation: Irritation Skin: repeated and prolonged contacts may cause slight irritation. Serious eye damage/irritation: Irritation Eye: repeated and prolonged contacts may cause slight irritation.STOT-repeated exposure: May cause damage to organs through prolonged or repeated exposure. Toxicological information of the main substances found in the mixture: Ethylene glycol Acute toxicity Oral Rat LD50= 7712 mg/kg - Literature data. Inhalation Rat LC50 > 2.5 mg/l - Duration: 6h - Literature data.	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Skin Mouse LD50> 3500 mg/kg - Literature data. Oral: harmful. - Duration: > 90 days. - Literature data. Skin corrosion/irritation: Irritation Skin Rabbit: Not irritant. - Literature data. serious eye damage/irritation: Irritation Eye Rabbit: Not irritant. - Duration: 24h - Literature data. Respiratory or skin sensitisation: Guinea pig maximization test Skin Guinea pig: Not sensitizing. - Literature data. Germ cell mutagenicity: OECD 474 Mouse: Not mutagenic. - Literature data. i) STOT-repeated exposure: Repeated dose effects. Oral Rat NOAEL = 150 mg/kg - Duration: > 90 days. Literature data. - Notes: STOT - Kidneys. <u>Toxicity</u> Aquatic acute toxicity of the mixture not available; ecological information of the main substances found in the mixture: Ethylene glycol: a) Aquatic acute toxicity: EPA Guideline Fish LC50 = 72860 mg/l - Duration h: 96 - Notes: Literature data. OECD 202 *Daphnia magna* EC50 > 100 mg/l - Duration h: 48 - Notes: Literature data. <u>Biodegradation</u> Biodegradability of the mixture not available; ecological information of the main substances found in the mixture: Ethylene glycol: Biodegradability: Readily biodegradable - Test: OECD 301 A - Duration: 10 days: 90% - Notes: Literature data. <u>Bioaccumulative potential</u> Bioaccumulation of the mixture not available; ecological information of the main substances found in the mixture: Ethylene glycol: Bioaccumulation: Not bioaccumulative - Test: BCF - Bioconcentration factor 10 - Duration: 72h - Notes: Literature data. <u>Mobility in soil</u> Mobility in soil information of the mixture not available; ecological information of the main substances found in the mixture: Ethylene glycol: Mobility in soil: Very high - Test: Koc: 1 - Notes: Calculated data (in silico).	

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Results of PBT and vPvB assessment vPvB Substances: None - PBT Substances: None Other adverse effects: None	
IS 3116	Lamberti	Polymeric solution	3.8	Information on toxicological effects Toxicological information of the mixture: a) acute toxicity: Toxicity Oral Rat LD50> 2000 mg/kg - Based on components. b) skin corrosion/irritation: Irritation Skin: repeated and prolonged contacts may cause slight irritation. c) serious eye damage/irritation: Irritation Eye: repeated and prolonged contacts may cause slight irritation. Toxicity Ecological information of the mixture: a) Aquatic acute toxicity: EC50/LC50 > 100 mg/l - aquatic species (Lamberti internal data). Persistence and degradability Ecological information of the mixture: Biodegradability: Readily biodegradable. - Test OECD 306: > 60% - Lamberti internal data. Results of PBT and vPvB assessment vPvB Substances: None - PBT Substances: None Other adverse effects: None	Y
Total			**100%**		

1.9.4.2 CHEMICAL LIST: Inhibited P&A Fluids

Chemicals within products in 1.9.4.1	CAS number	Mass fraction (%)
Silicon dioxide, crystalline	14808-60-7	62.4 %
Water	7732-18-5	14.8 %

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Chemicals within products in 1.9.4.1	CAS number	Mass fraction (%)
Silicon dioxide, amorphous	69012-64-2	12.7 %
Feldspar, crystalline	68476-25-5	6.4 %
Mica, crystalline	12001-26-2	2.6 %
Polycarboxylic acid	30915-61-8	0.69 %
1,2 Ethanediol (Ethylene glycol)	107-21-1	0.24 %
Hydroxyethyl cellulose, 2-Hydroxyetethyl ether cellulose	9004-62-0	0.17%
Total	**-**	**~100**

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1.9.5 System Details: Zonal Isolation Material: QuartzPack® (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Zonal Isolation Material: QuartzPack®
TOTAL VOLUME OF SYSTEM PER WELL	1 – 15 m^3

1.9.5.1 Product List Details: Zonal Isolation Material: QuartzPack®

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WATER	N/A	Base Fluid	15	Water; not classified as a hazardous chemical	N/A
SILICA SAND	Flopetrol Well Barrier	Inert mineral particles	50	Information on toxicological effects The inhalation of quartz containing dust, in particular the fine dust fraction (respirable size), in high concentrations or over repeated or prolonged periods of time can be hazardous to health and may lead to chronic lung disease and an increased risk of lung cancer. This risk will be minimal if correct working practices are observed and applied. According to the International Agency for Research on Cancer (IARC Monograph Volume 100C - 2012) "Crystalline silica inhaled in the form of quartz or cristobalite is carcinogenic to humans (Group 1). Acute toxicity Not classified. LD50 / LC50 = 500 mg/kg (Oral LD50; Rat) Skin corrosion/irritation: Not classified. Serious eye damage/irritation: Not classified. Respiratory or skin sensitisation: Not classified. Germ cell mutagenicity: Not classified. Carcinogenicity: Suspected of causing cancer. Reproductive toxicity: Not classified. Specific target organ toxicity - single exposure: Not classified. Specific target organ toxicity – repeated exposure: Not classified. Aspiration hazard: Not classified.	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Additional information: Dust may irritate respiratory system or lungs. May cause irritation in the mouth and to the mucous membranes. May cause skin irritation/eczema. Particles in the eyes may cause irritation and smarting. <u>Ecotoxicity</u> Ecotox – Natural product. On PLONAR List. <u>Bioaccumulation / biodegradation</u> Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable	
MICROSILICA	Flopetrol Well Barrier	Inert mineral particles	11	<u>Information on toxicological effects</u> Acute toxicity: Not classified. Skin corrosion/irritation: Not classified. Serious eye damage/irritation: Not classified. Respiratory or skin sensitisation: Not classified. Germ cell mutagenicity: Not classified. Carcinogenicity: Not classified. Reproductive toxicity: Not classified. Specific target organ toxicity - single exposure: Not classified. Specific target organ toxicity – repeated exposure: Not classified. Aspiration hazard: Not classified. Additional information: Dust may irritate respiratory system or lungs. May cause irritation in the mouth and to the mucous membranes. May cause skin irritation/eczema. Particles in the eyes may cause irritation and smarting. Acute Exposure/ Doses of 1-2 mg colloidal **silica** or 25 mg crystalline quartz were lethal to mice following their iv injection. Iv injection of 1-2 mg colloidal **silica** was fatal to mice within minutes; doses of 30-70 mg killed rabbits, although daily doses of 10 mg were tolerated. (Approximate particle size, presumably 0.002 um, based on preparation techniques.) Death was	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				concluded to be by intravenous clotting resulting from damage to the vascular endothelium. /Colloidal **silica**/ (Source:ToxNet) Ecotoxicity Ecotox – Natural product. On PLONOR List. Bioaccumulation / biodegradation Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	
STONE BOULDERS	Flopetrol Well Barrier	Inert mineral particles	21	Information on toxicological effects Acute toxicity: Not classified. Skin corrosion/irritation: Not classified. Serious eye damage/irritation: Not classified. Respiratory or skin sensitisation: Not classified. Germ cell mutagenicity: Not classified. Ecotoxicity Ecotox – Not classified as dangerous for the environment Bioaccumulation / biodegradation Bioaccumulation: Substance is inorganic - bioaccumulation is not applicable. Biodegradation: Substance is inorganic - biodegradation is not applicable.	Y
DYNAMON SX-130	Mapei	Plasticizer Recommended use: Admixture for concrete	2.2	There is no toxicological data available on the mixture. Consider the individual concentration of each component to assess toxicological effects resulting from exposure to the mixture. Toxicological information of the product: N/A Toxicological information of the main substances found in the product: N/A Corrosive/Irritating Properties: Eye: The product can cause a temporary irritation by contact. Cancerogenic Effects: No effects are known. Mutagenic Effects: No effects are known. Teratogenic Effects: No effects are known.	Y
MAPEFAST HA	Mapei	Admixture for concrete	0.6	There is no toxicological data available on the mixture. Consider the individual concentration of each component to assess toxicological effects resulting from exposure to the mixture.	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				The following tests refer to a mixture with a similar composition. Toxicological information of the main substances found in the product: sodium thiocyanate - CAS: 540-72-7 Acute toxicity: Test: LD50 - Route: Oral - Species: Rat = 764 mg/kg Test: LD50 - Route: Oral - Species: Mouse = 362,000 mg/kg 2,2'-iminodiethanol; diethanolamine - CAS: 111-42-2 Test: LD50 - Route: Oral - Species: Rat > 1600 mg/kg Corrosive/Irritating Properties: Skin: The product can cause irritation by contact. Eye: The product can cause irritation by contact Cancerogenic Effects: No effects are known. Mutagenic Effects: No effects are known. Teratogenic Effects: No effects are known.	
VISCOSTAR 6K	Mapei	Rheology modifier, viscosifier	0.2	Toxicological information of the product: N/A Toxicological information of the main substances found in the product: N/A Corrosive/Irritating Properties: Eye: The product can cause a temporary irritation by contact. Cancerogenic Effects: No effects are known. Mutagenic Effects: No effects are known. Teratogenic Effects: No effects are known.	Y
Total Fluid			**100%**		

1.9.5.2 CHEMICAL LIST: Zonal Isolation Material: QuartzPack®

Chemicals within products in 1.9.5.1	CAS number	Mass fraction (%)
Silicon dioxide, crystalline	14808-60-7	61.4%
Water	7732-18-5	14.8%

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Chemicals within products in 1.9.5.1	CAS number	Mass fraction (%)
Silicon dioxide, amorphous	69012-64-2	11.3%
Feldspar, crystalline	68476-25-5	6.4%
Mica, crystalline	12001-26-2	2.6%
Polycarboxylate ether (PCE)	97105-14-1	2.1%
Sodium Thiocyanate	540-72-7	< 0.4%
Dietanolamin	111-42-2	< 0.2%
Glycerine	56-81-5	< 0.1%
Carboxymethyl 2-hydroxypropyl ether (starch)	69331-40-4	< 0.1%
Propylene glycol	57-55-6	< 0.1%
Methanol	14548-60-8	< 0.02%
Polyethylene glycol	68412-54-4	< 0.01%
Benzenesulfonic acid	68584-24-7	< 0.01%
Tri-isobutyl phosphate	126-71-6	< 0.01%
Isobutanol	78-83-1	< 0.01%
Total		**~100%**

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1.9.6 System Details: Halliburton WellLock (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	WellLock
TOTAL VOLUME OF SYSTEM PER WELL	0.5 – 5 m^3

1.9.6.1 Product List Details: Halliburton WellLock

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
WellLock A2	Halliburton	Accelerator	3.7556	Ecotoxicity Freshwater Acute Algae Toxicity 72h EC50: 84 mg/L (*Desmodesmus subspicatus*) Marine Water Acute Crustacean Toxicity 48h LC50: 238.81 mg/L (*Acartia tonsa*) Marine Water Acute Fish Toxicity 96h Limit Test: 70.36 mg/L (*Scophthalmus maximus*) Bioaccumulation / Biodegradation Bioaccumulation Log Pow: 3.5 [Halliburton Funded Study]; Marine biodegradation 28d: 3% [Halliburton Funded Study]	Y
WellLock R1	Halliburton	Resin	56.0538	**COMPONENT 1** (≤ 1%) Ecotoxicity Freshwater Acute Algae Toxicity 72 hr EC50: 15 mg/L (*Pseudokirchneriella subcapitata*) [ECHA]; Freshwater Acute Crustacean Toxicity 48h EC50: 23.9 mg/L (*Daphnia magna*) [ECHA]; Freshwater Acute Fish Toxicity 96h LC50: 10.6 mg/L (*Pimephales promelas*) [ECHA] Bioaccumulation / Biodegradation Bioaccumulation Log Pow: 0.42 [ECHA] **COMPONENT 2** (≤ 10%)	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Ecotoxicity Freshwater Acute Algae Toxicity 96h EC50: 35 mg/L (*Pseudokirchneriella subcapitata*) [US EPA HPV]; Freshwater Acute Crustacean Toxicity 48h EC50: 3.9 mg/L (*Daphnia magna*) [US EPA HPV]; Freshwater Acute Fish Toxicity 96h LC50: 65 mg/L (*Salmo gairdneri*) [US EPA HPV] Bioaccumulation / Biodegradation Bioaccumulation BCF: 3 [HSDB]; Freshwater Biodegradation 28d: 25% [US EPA] **COMPONENT 3** (≤ 100%) Ecotoxicity Marine Water Acute Algae Toxicity 72 hr EC50 > 10000 (*Skeletonema costatum*) [Halliburton Funded Study]; Marine Water Acute Crustacean Toxicity 48 hr LC50 > 10000 mg/L (*Acartia tonsa*) [Halliburton Funded Study]; Marine Water Acute Fish Toxicity 96 hr Limit Test > 10000 mg/L (*Cyprinodon variegatus*) [Halliburton Funded Study] Bioaccumulation / Biodegradation Bioaccumulation Log Pow: 3.6 [Halliburton Funded Study]; Biodegradation 28d: 11% [Halliburton Funded Study]" This product contains a suspected carcinogen. May cause heritable genetic damage. Prolonged or repeated exposure may cause reproductive system damage. May cause birth defects. The product is an integral component of this system and has been identified for use given its technical properties. There are no suitable alternatives available that are less hazardous. The use of this product has been minimised where practicable.	
WellLock R2	Halliburton	Resin	18.4978	Ecotoxicity Freshwater Acute Crustacean Toxicity 48h EC50: 47 mg/L (*Daphnia magna*) (similar substance) [ECHA]; Freshwater Acute Fish Toxicity 96h LC50: 30 mg/L (*Oncorhynchus mykiss*) (similar substance) [ECHA]	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Bioaccumulation / Biodegradation Bioaccumulation Log Pow: 0.822 (similar substance) [ECHA]; Freshwater Biodegradation 28d: 47% (activated sludge) (similar substance) [ECHA]	
WellLock H1	Halliburton	Hardener	21.6928	Ecotoxicity Freshwater Acute Algae Toxicity 72 h ErC50: 104 mg/L (*Desmodesmus subspicatus*) [ECHA]; Freshwater Acute Crustacean Toxicity 48h EC50: 0.5 mg/L (*Daphnia magna*) [ECHA]; Freshwater Acute Fish Toxicity 48h LC50: 200 mg/L (*Leuciscus idus*) [ECHA] Bioaccumulation / Biodegradation Bioaccumulation BCF: 2.75 [ECHA]; Biodegradation 28d: 1% [ECHA]	Y
Total Fluid			**100**		

1.9.6.2 CHEMICAL LIST: Halliburton WellLock

Chemicals within products in 1.9.6.1	CAS number	Mass fraction (%)
Bisphenol A / Epichlorohydrin resin	25068-38-6	50.42
Diethyltoluenediamine	68479-98-1	21.69
Cyclohexanedimethanol diglydicyl ether	14228-73-0	18.50
Butyl glycidyl ether	2426-08-6	5.61
2,4,6 Tridimethylaminomethyl phenol	90-72-2	3.76
Epichlorohydrin	106-89-8	0.03
Total	-	**100**

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1.9.7 System Details: Resolute Plug and abandonment (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	Resolute plug and abandonment
TOTAL VOLUME OF SYSTEM PER WELL:	5 m^3

1.9.7.1 Product List Details: Resolute Plug and abandonment

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
Water	N/A	Base Fluid	~50	n/a	N/A
Mono Ethylene Glycol (MEG)	R & D Solutions	Carrier fluid	~40*	Acute Toxicity LD50 (Oral): 4700 mg/kg (Rat) LDLo (Oral): 398 mg/kg (Human) TDLo (Oral): 5500 mg/kg (Child) TCLo (Inhalation): 10000 mg/m³ (Human) LD50 (Dermal): 9530 mg/kg (Rabbit) LC50 (Inhalation): 50100 mg/m³ (8 h) (Rat) Ecotoxicity Fish – Low toxicity: LC/EC/IC50 > 100mg/l Aquatic invertebrate – Low toxicity: LC/EC/IC50 > 100mg/l Algae – Low toxicity: LC/EC/IC50 > 100mg/l Microorganisms - Low toxicity: LC/EC/IC50 > 100mg/l Biodegradation/Bioaccumulation Biodegradable, and does not bioaccumulate No known carcinogenic, chronic, mutagenic or reproductive effects known	Y
Propylene Glycol (MPG)	R & D Solutions	Alternative Carrier fluid	~40*	Acute Toxicity LD50 (Oral): > 2000 mg/kg (Rat) LD50 (Dermal): > 2000 mg/kg (Rabbit)	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				LC50 (Inhalation): greater than near saturated vapour concentration. Ecotoxicity Fish - Low toxicity: LC/EC/IC50 >100 mg/L Aquatic Invertebrates - Low toxicity: LC/EC/IC50 >100 mg/L Algae - Low toxicity: LC/EC/IC50 >100 mg/L Microorganisms - Expected to have low toxicity: LC/EC/IC50 >100 mg/L Biodegradation/Bioaccumulation Bioaccumulation Potential: Does not bioaccumulate significantly. No known carcinogenic, chronic, mutagenic or reproductive effects known	
Swellable EPG	R & D Solutions	Subsurface permeability blocker	10	Acute Toxicity LD50 (Oral): > 5000 mg/kg (Rat) LD50 (Dermal): > 5000 mg/kg Ecotoxicity The product is insoluble. Fish – Toxicity 96h LC50: > 100 mg/L Algae –72h LC50: > 100 mg/L Crustacean - 48h EC50: > 100 mg/L (*Daphnia magna*) Biodegradation/Bioaccumulation Insoluble in water. Not bioaccumulating No known carcinogenic, chronic, mutagenic or reproductive effects known	Y
Total			**100**		

1.9.7.2 CHEMICAL LIST: Resolute Plug and abandonment

Chemicals within products in 1.9.7.1	CAS number	Mass fraction (%)
Water	7732-18-5	50
1,2-Ethanediol	107-21-1	~40*
Propane-1,2-Diol	57-55-6	~40*
2-Propenoic acid, potassium salt (1:1), polymer with 2-propenamide	31212-13-2	>10

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Chemicals within products in 1.9.7.1	CAS number	Mass fraction (%)
2-Propenamide	79-06-1	< 0.05
2-Propenoic acid, potassium salt	26159-89-7	<0.05
Total	-	**~100**

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1.9.8 System Details: BioSqueeze Plug and Abandonment Remedial Treatment (Contingency)

OPERATOR:	Chevron Australia PTY LTD
PROJECT:	BWI – DC-F
WELLS:	F-WP5, F-WP6, F-WP7, F-WI5, F-WI6, A-I10, A-I11
SYSTEM:	BioSqueeze Plug and Abandonment Remedial Treatment
TOTAL VOLUME OF SYSTEM PER WELL:	1 to 3 m^3

1.9.8.1 Product List Details: BioSqueeze Plug and Abandonment Remedial Treatment

Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
MICROBIAL MIXTURE	R&D Solutions	Microbe and carbonate source	0.1 to 0.5 %	Acute Toxicity (ammonium hydroxide) LD50 (oral rat) > 350 mg/kg ATE US (oral) > 350 mg/kg ATE US (dermal) > 10000 mg/kg ATE US (dust, mist) > 10.714 mg/l/4 hr Acute Toxicity (urea) LD50 (oral rat) > 8471 mg/kg Ecotoxicity (ammonium hydroxide) LC50 (fish 1) > 7650 mg/L EC50 daphnia 1 >1000 mg/L Biodegradation / bioaccumulation (ammonium hydroxide) Readily biodegradable (soil and water) Low bioaccumulation expected Biodegradation / bioaccumulation (urea) Readily biodegradable (soil and water) Low bioaccumulation expected No known carcinogenic, chronic, mutagenic or reproductive effects	Y
UREA SOLUTION (DIESEL	All Chemicals	Microbial nutrient	25 to 30%	Acute Toxicity (urea) LD50 (oral rat) = 8471 mg/kg	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
EXHAUST FLUID)				Biodegradation / bioaccumulation (urea) Readily biodegradable (soil and water) Low bioaccumulation expected No known carcinogenic, chronic, mutagenic or reproductive effects	
CALCIUM CHLORIDE SOLUTION	All Chemicals	Calcium source	45 to 50%	Acute Toxicity LD50 (oral) = 2282 mg/kg LD50 (dermal) = 6013 mg/kg Ecotoxicity LC50 (bluegill) > 8350 mg/L LC50 (water flea) > 759 mg/L Persistence and Degradability Soluble in water. Persistence unlikely. Mobility probably due to water solubility No known carcinogenic, chronic, mutagenic or reproductive effects	Y
SODIUM CHLORIDE SOLUTION	All Chemicals	Making brine as carrier fluid	15 to 20%	Acute Toxicity LD50 (oral rat) = 3000 mg/kg LD50 (dermal rabbit) = 10000 mg/kg LC50 (inhalation rat) = 42 g/m^3 Ecotoxicity LC50 (fathead minnow) > 10610 mg/L LC50 (water flea) > 4571 mg/L No known carcinogenic, chronic, mutagenic or reproductive effects	Y
YEAST EXTRACT	All Chemicals	Microbial nutrient	4 to 6 %	Acute Toxicity LD50 (Intraperitoneal rat) = 4,500 mg/kg Ecotoxicity None expected	Y
AMMONIUM CHLORIDE	All Chemicals	Microbial nutrient	0.1 to 0.5 %	Acute Toxicity LD50 (oral rat) > 1650 mg/kg LD50 (dermal) > 2000 mg/kg	Y

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Trade Name	Supplier	Purpose	Product content in system (%)	Toxicity & Ecotoxicity Information	SDS
				Ecotoxicity LC50 (freshwater fish) = 209 mg/L EC50 (water flea) = 202 mg/L/24 hr Persistence and Degradability Soluble in water. Persistence unlikely. Mobility likely due to water solubility. No known carcinogenic, chronic, mutagenic or reproductive effects	
Total			**~100**		

1.9.8.2 CHEMICAL LIST: BioSqueeze Plug and Abandonment Remedial Treatment

Chemicals within products in 1.9.8.1	CAS number	Mass fraction (%)
Water	7732-18-5	48 to 52
Calcium chloride	10043-52-4	15 to 20
Sodium chloride	7647-14-5	15 to 20
Urea	57-13-6	8 to 12
Yeast extract	8013-01-2	4 to 6
Sodium carbonate	497-19-8	2 to 6
Ammonium chloride	12125-02-9	< 0.5
Ammonium hydroxide	1336-21-6	< 0.05
Total	-	**~100**

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SAFETY DATA SHEETS

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SAFETY DATA SHEET

72733

Version	Revision Date:	SDS Number:	Date of last issue: 10/11/2018
16.3	04/11/2019	115257-00023	Date of first issue: 05/12/2015

SECTION 1. IDENTIFICATION

Product name : 72733

SDS-Identcode : 463G

Manufacturer or supplier's details

Company name of supplier : Tiger Fluids Australia Pty Ltd
Address : PO Box 1214, Tewantin, QLD, 4565
Telephone : +61 481 949 341
:
Emergency telephone : +61 481 949 341

E-mail address : www.bestolife.com

Recommended use of the chemical and restrictions on use

Recommended use : Industrial use
Thread Compound (Pipe Dope) and Jacking grease for use in Offshore industries
Mining, (without offshore industries)
Restrictions on use : Do not use on oxygen lines or in oxygen enriched atmospheres.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Carcinogenicity : Category 2

Reproductive toxicity : Category 1A

Effects on or via lactation

Specific target organ systemic toxicity - repeated exposure : Category 1 (Kidney, Central nervous system, Blood)

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H351 Suspected of causing cancer.
H360FD May damage fertility. May damage the unborn child.
H362 May cause harm to breast-fed children.
H372 Causes damage to organs (Kidney, Central nervous system, Blood) through prolonged or repeated exposure.

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P263 Avoid contact during pregnancy/ while nursing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	>= 30 - < 50
Lead	7439-92-1	>= 30 - < 50
Graphite	7782-42-5	>= 10 - < 20
Copper metal powder	7440-50-8	>= 1 - < 5
Talc	14807-96-6	>= 1 - < 5
Quartz	14808-60-7	>= 1 - < 5
12-Hydroxy lithium stearate	7620-77-1	>= 1 - < 5
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6	>= 1 - < 5
Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate)	25619-56-1	>= 1 - < 5

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.

		Get medical attention.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
In case of eye contact	:	Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
If swallowed	:	If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	:	Suspected of causing cancer. May damage fertility. May damage the unborn child. May cause harm to breast-fed children. Causes damage to organs through prolonged or repeated exposure.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Lead compounds Metal oxides Silicon oxides Sulfur oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.
Environmental precautions	:	Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water.

Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Sweep up or vacuum up spillage and collect in suitable container for disposal.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Advice on safe handling : Do not get on skin or clothing.
Do not swallow.
Avoid contact with eyes.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labeled containers.
Store locked up.
Keep tightly closed.
Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
Organic peroxides
Explosives
Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	TWA (Mist)	5 mg/m³	OSHA Z-1
		TWA (Inhalable fraction)	5 mg/m³	ACGIH
		TWA (Mist)	5 mg/m³	NIOSH REL
		ST (Mist)	10 mg/m³	NIOSH REL
Lead	7439-92-1	TWA	0.05 mg/m³ (Lead)	NIOSH REL
		TWA	0.05 mg/m³ (Lead)	ACGIH
		PEL	0.05 mg/m³	OSHA CARC

			(Lead)	
Graphite	7782-42-5	TWA (Respirable)	2.5 mg/m³	NIOSH REL
		TWA (Respirable fraction)	2 mg/m³	ACGIH
		TWA (Dust)	15 Million particles per cubic foot	OSHA Z-3
Copper metal powder	7440-50-8	TWA (Dust and mist)	1 mg/m³ (Copper)	ACGIH
		TWA (Fumes)	0.2 mg/m³ (Copper)	ACGIH
		TWA (Dust)	1 mg/m³ (Copper)	NIOSH REL
		TWA (Mist)	1 mg/m³ (Copper)	NIOSH REL
		TWA (dusts and mists)	1 mg/m³ (Copper)	OSHA Z-1
		TWA (Fumes)	0.1 mg/m³ (Copper)	OSHA Z-1
Talc	14807-96-6	TWA (Dust)	20 Million particles per cubic foot	OSHA Z-3
		TWA (Respirable)	2 mg/m³	NIOSH REL
		TWA (Respirable fraction)	2 mg/m³	ACGIH
Quartz	14808-60-7	TWA (Respirable dust)	0.05 mg/m³	OSHA Z-1
		TWA (respirable)	10 mg/m3 / %SiO2+2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO2+5	OSHA Z-3
		TWA (Respirable fraction)	0.025 mg/m³ (Silica)	ACGIH
		TWA (Respirable dust)	0.05 mg/m³ (Silica)	NIOSH REL
12-Hydroxy lithium stearate	7620-77-1	TWA (Inhalable fraction)	10 mg/m³	ACGIH
		TWA (Respirable fraction)	3 mg/m³	ACGIH
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6	TWA (Mist)	5 mg/m³	OSHA Z-1
		TWA (Inhalable fraction)	5 mg/m³	ACGIH
		TWA (Mist)	5 mg/m³	NIOSH REL
		ST (Mist)	10 mg/m³	NIOSH REL
Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate)	25619-56-1	TWA	0.5 mg/m³ (Barium)	OSHA Z-1

		TWA	0.5 mg/m³ (Barium)	ACGIH
		TWA	0.5 mg/m³ (Barium)	NIOSH REL

These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Quartz

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Lead	7439-92-1	Lead (Lead)	In blood	Not critical	200 µg/l	ACGIH BEI

Engineering measures : Minimize workplace exposure concentrations.
Dust formation may be relevant in the processing of this product. In addition to substance-specific OELs, general limitations of concentrations of particulates in the air at workplaces have to be considered in workplace risk assessment. Relevant limits include: OSHA PEL for Particulates Not Otherwise Regulated of 15 mg/m3 - total dust, 5 mg/m3 - respirable fraction; and ACGIH TWA for Particles (insoluble or poorly soluble) Not Otherwise Specified of 3 mg/m3 - respirable particles, 10 mg/m3 - inhalable particles.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Safety glasses

Skin and body protection	:	Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
Hygiene measures	:	Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use. See 29 CFR 1910.1025 for additional requirements relating to lead exposure.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Viscous semi-solid
Color	:	black, copper
Odor	:	Petroleum
Odor Threshold	:	No data available
pH	:	Not applicable (not an aqueous solution)
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	>= 325.0 °F / >= 162.8 °C Method: ASTM D 92, Cleveland open cup Distillates (petroleum), hydrotreated heavy naphthenic
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not classified as a flammability hazard
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	Not applicable
Relative vapor density	:	Not applicable
Relative density	:	1.9
Solubility(ies)		
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available

Viscosity		
Viscosity, kinematic	:	Not applicable
Flow time	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents.
Conditions to avoid	:	None known.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: 148.47 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg Method: OECD Test Guideline 401 Remarks: Based on data from similar materials
Acute inhalation toxicity	:	LC50 (Rat): > 5.53 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhala-

tion toxicity
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

Lead:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

Graphite:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Copper metal powder:

Acute oral toxicity : LD50 (Rat): > 2,500 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.11 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 436
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Talc:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Remarks: Based on data from similar materials

Quartz:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

12-Hydroxy lithium stearate:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Distillates (petroleum), hydrotreated light naphthenic:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 5.53 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Acute oral toxicity : LD50 (Rat): 1,750 mg/kg
Remarks: Based on data from similar materials

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity : LD50 (Rat): > 10,000 mg/kg
Remarks: Based on data from similar materials

Skin corrosion/irritation

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species : Rabbit
Result : No skin irritation
Remarks : Based on data from similar materials

Lead:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
Remarks : Based on data from similar materials

Graphite:

Species : Rabbit
Method : OECD Test Guideline 404

Result : No skin irritation

Copper metal powder:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Talc:

Species : Rabbit
Result : No skin irritation

12-Hydroxy lithium stearate:

Species : Rabbit
Result : No skin irritation
Remarks : Based on data from similar materials

Distillates (petroleum), hydrotreated light naphthenic:

Species : Rabbit
Result : No skin irritation

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Species : Rabbit
Result : Skin irritation
Remarks : Based on data from similar materials

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species : Rabbit
Result : No eye irritation
Remarks : Based on data from similar materials

Lead:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

Graphite:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Copper metal powder:

Species : Rabbit
Result : No eye irritation

Method : OECD Test Guideline 405

Talc:

Species : Rabbit
Result : No eye irritation

12-Hydroxy lithium stearate:

Species : Rabbit
Result : No eye irritation
Remarks : Based on data from similar materials

Distillates (petroleum), hydrotreated light naphthenic:

Species : Rabbit
Result : No eye irritation

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Species : Rabbit
Result : No eye irritation
Remarks : Based on data from similar materials

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Test Type : Buehler Test
Routes of exposure : Skin contact
Species : Guinea pig
Result : negative
Remarks : Based on data from similar materials

Lead:

Test Type : Maximization Test
Routes of exposure : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative
Remarks : Based on data from similar materials

Graphite:

Test Type : Local lymph node assay (LLNA)
Routes of exposure : Skin contact
Species : Mouse
Result : negative

Copper metal powder:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

Talc:

Routes of exposure	:	Skin contact
Species	:	Humans
Result	:	negative

12-Hydroxy lithium stearate:

Test Type	:	Local lymph node assay (LLNA)
Routes of exposure	:	Skin contact
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	negative

Distillates (petroleum), hydrotreated light naphthenic:

Test Type	:	Buehler Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Test Type	:	Buehler Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Result	:	negative
Remarks	:	Based on data from similar materials

Germ cell mutagenicity

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Method: OECD Test Guideline 474 Result: negative Remarks: Based on data from similar materials

Lead:

Genotoxicity in vitro : Test Type: In vitro sister chromatid exchange assay in mammalian cells
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Ingestion
Result: positive
Remarks: Based on data from similar materials

Graphite:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Copper metal powder:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: Directive 67/548/EEC, Annex V, B.12.
Result: negative
Remarks: Based on data from similar materials

Talc:

Genotoxicity in vitro : Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro
Species: Rat
Application Route: Ingestion
Result: negative

Distillates (petroleum), hydrotreated light naphthenic:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 476

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

Carcinogenicity

Suspected of causing cancer.

Product:

Carcinogenicity - Assessment : Petroleum distillates have been classified as not carcinogenic based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species : Mouse
Application Route : Skin contact
Exposure time : 78 weeks
Method : OECD Test Guideline 451
Result : negative

Lead:

Species : Rat
Application Route : Ingestion
Exposure time : 2 Years
Result : positive
Remarks : Based on data from similar materials

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Talc:

Species : Mouse
Application Route : inhalation (dust/mist/fume)
Exposure time : 2 Years
Result : negative

Quartz:

Species : Humans
Application Route : inhalation (dust/mist/fume)
Result : positive

Remarks	:	IARC: (International Agency for Research on Cancer) These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.
Carcinogenicity - Assessment	:	Positive evidence from human epidemiological studies (inhalation)

Distillates (petroleum), hydrotreated light naphthenic:

Species	:	Mouse
Application Route	:	Skin contact
Exposure time	:	78 weeks
Result	:	negative

IARC	Group 1: Carcinogenic to humans	
	Quartz (Silica dust, crystalline)	14808-60-7
	Group 2B: Possibly carcinogenic to humans	
	Lead	7439-92-1
OSHA	OSHA specifically regulated carcinogen	
	Lead (Lead and inorganic lead compounds)	7439-92-1
NTP	Reasonably anticipated to be a human carcinogen	
	Lead	7439-92-1
	Known to be human carcinogen	
	Quartz (Silica, Crystalline (Respirable Size))	14808-60-7

Reproductive toxicity

May damage fertility. May damage the unborn child.
May cause harm to breast-fed children.

Components:

Lead:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Mouse Application Route: Ingestion Result: positive Remarks: Based on data from similar materials
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: Ingestion Result: positive Remarks: Based on data from similar materials
Reproductive toxicity - Assessment	:	Positive evidence of adverse effects on sexual function and fertility from human epidemiological studies., Positive evidence of adverse effects on development from human epidemiological studies., Studies indicating a hazard to babies during the lactation period

Graphite:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

Effects on fetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

Copper metal powder:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Ingestion
Result: negative

Talc:

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative

Distillates (petroleum), hydrotreated light naphthenic:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Skin contact
Result: negative

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion

Method: OECD Test Guideline 422
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative
Remarks: Based on data from similar materials

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Causes damage to organs (Kidney, Central nervous system, Blood) through prolonged or repeated exposure.

Components:

Lead:

Target Organs : Kidney, Central nervous system, Blood
Assessment : Causes damage to organs through prolonged or repeated exposure.

Quartz:

Routes of exposure : inhalation (dust/mist/fume)
Target Organs : Lungs
Assessment : Shown to produce significant health effects in animals at concentrations of 0.02 mg/l/6h/d or less.

12-Hydroxy lithium stearate:

Routes of exposure : Ingestion
Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Repeated dose toxicity

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species : Rat
NOAEL : > 0.98 mg/l
Application Route : inhalation (dust/mist/fume)
Exposure time : 28 Days
Remarks : Based on data from similar materials

Lead:

Species : Rat
NOAEL : 0.0015 mg/kg
LOAEL : 0.005 mg/kg

Application Route	:	Ingestion
Exposure time	:	6 - 12 Months
Remarks	:	Based on data from similar materials

Copper metal powder:

Species	:	Rat
NOAEL	:	>= 2 mg/m³
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	28 Days

Quartz:

Species	:	Humans
LOAEL	:	0.053 mg/m³
Application Route	:	inhalation (dust/mist/fume)
Remarks	:	These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

12-Hydroxy lithium stearate:

Species	:	Rat
NOAEL	:	> 88 mg/kg
Application Route	:	Ingestion
Exposure time	:	90 Days

Distillates (petroleum), hydrotreated light naphthenic:

Species	:	Rabbit
NOAEL	:	1,000 mg/kg
Application Route	:	Skin contact
Exposure time	:	4 Weeks
Method	:	OECD Test Guideline 410

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Species	:	Rat
NOAEL	:	55 mg/kg
LOAEL	:	165 mg/kg
Application Route	:	Ingestion
Exposure time	:	29 Days
Method	:	OECD Test Guideline 422
Remarks	:	Based on data from similar materials

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l

Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 21 d
Remarks: Based on data from similar materials

Toxicity to microorganisms : NOEC: > 1.93 mg/l
Exposure time: 10 min
Remarks: Based on data from similar materials

Lead:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.107 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 0.029 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.025 mg/l
Exposure time: 72 h

EC10 (Pseudokirchneriella subcapitata (green algae)): 6.1 µg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : EC10 (Pimephales promelas (fathead minnow)): 20 µg/l
Exposure time: 30 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10 (Ceriodaphnia dubia (water flea)): 1.7 µg/l
Exposure time: 7 d

Graphite:

Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 100 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201 NOELR (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50: > 1,012.5 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

Copper metal powder:

Toxicity to fish	:	LC50: > 10 - 100 µg/l Exposure time: 96 h
Toxicity to fish (Chronic toxicity)	:	NOEC: > 1 - 10 µg/l

Talc:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): > 100,000 mg/l Exposure time: 24 h

Quartz:

Ecotoxicology Assessment

Acute aquatic toxicity	:	No toxicity at the limit of solubility.
Chronic aquatic toxicity	:	No toxicity at the limit of solubility.

12-Hydroxy lithium stearate:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	NOELR (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

Distillates (petroleum), hydrotreated light naphthenic:

Toxicity to fish	:	LL50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction

Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction
Toxicity to algae/aquatic plants	:	NOELR (Pseudokirchneriella subcapitata (green algae)): >= 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 10 mg/l Exposure time: 21 d
Toxicity to microorganisms	:	NOEC (Photobacterium phosphoreum): > 2.17 mg/l Exposure time: 4 d

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Toxicity to fish	:	LL50 (Cyprinus carpio (Carp)): > 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to microorganisms	:	EC50: > 100 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 Remarks: Based on data from similar materials

Persistence and degradability

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 2 - 4 % Exposure time: 28 d Method: OECD Test Guideline 301B

12-Hydroxy lithium stearate:

Biodegradability	:	Result: Readily biodegradable.

Biodegradation: 78 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

Distillates (petroleum), hydrotreated light naphthenic:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 2 - 8 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 14 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
Remarks: Based on data from similar materials

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous.
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Lead, Copper metal powder)
Class : 9
Packing group : III
Labels : 9

IATA-DGR

UN/ID No.	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (Lead, Copper metal powder)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	956
Packing instruction (passenger aircraft)	:	956
Environmentally hazardous	:	yes

IMDG-Code

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (Lead, Copper metal powder)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(Lead, Copper metal powder)
Remarks	:	THE ABOVE INFORMATION ONLY APPLIES TO PACKAGE SIZES WHERE THE HAZARDOUS SUBSTANCE MEETS THE REPORTABLE QUANTITY.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Lead	7439-92-1	10	32
Zinc	7440-66-6	1000	8201

Cadmium	7440-43-9	10	117647

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Lead	7439-92-1	>= 30 - < 50 %
Zinc	7440-66-6	>= 10 - < 20 %
Copper metal powder	7440-50-8	>= 1 - < 5 %
Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate)	25619-56-1	>= 1 - < 5 %

US State Regulations

Pennsylvania Right To Know

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Lead	7439-92-1
Graphite	7782-42-5
Zinc	7440-66-6
Copper metal powder	7440-50-8
Talc	14807-96-6
Quartz	14808-60-7
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6
Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate)	25619-56-1
Zinc oxide	1314-13-2

California Prop. 65

WARNING: This product can expose you to chemicals including Lead, Quartz, Cadmium, which is/are known to the State of California to cause cancer, and Lead, Cadmium, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Lead	7439-92-1
Graphite	7782-42-5
Zinc	7440-66-6
Copper metal powder	7440-50-8

Talc	14807-96-6
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6
Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate)	25619-56-1

California Permissible Exposure Limits for Chemical Contaminants

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Lead	7439-92-1
Graphite	7782-42-5
Copper metal powder	7440-50-8
Talc	14807-96-6
Quartz	14808-60-7
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6
Barium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate)	25619-56-1

California Regulated Carcinogens

Lead	7439-92-1
Quartz	14808-60-7

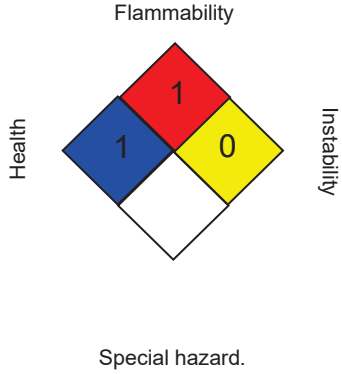
The ingredients of this product are reported in the following inventories:

DSL	:	All components of this product are on the Canadian DSL
TSCA	:	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
AICS	:	All ingredients listed or exempt.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits

OSHA CARC	:	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA CARC / PEL	:	Permissible exposure limit (PEL)
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
Revision Date	:	04/11/2019

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8

SAFETY DATA SHEET

Ammonium Chloride

Version 1

Section 1. Identification

Product identifier : Ammonium Chloride

Product code : 100113EH

ADG : -

Product type : Solid.

Identified uses : Salt.

Supplier's details : Baker Hughes, Australia
108 Poole Street,
Welshpool,
Western Australia 6106,
Australia

Tel: +618 9350 3800
Fax: +618 9350 5453

Emergency telephone number : CHEMTREC Emergency Telephone Numbers (Asia Pacific Region):
- Australia: (02) 9037 2994
- Brunei: +(65)-31581349 (Mandarin/English)
- China: 4001-204937 (Mandarin) *
- Hong Kong: 800-968-793 (Cantonese) *
- Indonesia: 001-803-017-9114 (Bahasa Indonesian) *
- Japan: 0800-300-5842 (Japanese)
- Malaysia: 1-800-815-308 (Bahasa Malay) *
- New Zealand: 9801 0034
- Philippines: 1-800-1-116-1020 (Tagalog) *
- PNG: +(61) 2 9037 2994
- Singapore: 800-101-2201 (Mandarin) *
- South Korea: 00-308-13-2549 (Korean) *
- Taiwan: 00801-14-8954 (Mandarin) *
- Thailand: 001-800-13-203-9987 (Thai) *
- Vietnam: +(84)-838012436 (Vietnamese)

- UK: +(44) 870-820-0418
- USA: +(1) 703-527-3887 (CHEMTREC International 24 hour)

* Number can only be dialled in-country

Section 2. Hazard(s) identification

Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 4
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A

GHS label elements

Hazard pictograms :



GHS07

Signal word : WARNING

Hazard statements : H302 - Harmful if swallowed.
H319 - Causes serious eye irritation.

Section 2. Hazard(s) identification

Precautionary statements

Prevention : Wear eye or face protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Response : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage : Not applicable.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Precautionary statements (Code) : -, P280, P270, P264, P305 + P351 + P338, P337 + P313, -, P501

Supplemental label elements : Not applicable.

Other hazards which do not result in classification : None known.

Section 3. Composition and ingredient information

Substance/mixture : Substance

Ingredient name	% (w/w)	CAS number
ammonium chloride	60 - 100	12125-02-9

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 15 minutes. Check for and remove any contact lenses. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Section 4. First aid measures

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:,pain or irritation,watering,redness

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : nitrogen oxides,halogenated compounds

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazchem code : -

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
ammonium chloride	**Safe Work Australia (Australia, 10/2022).** STEL: 20 mg/m³ 15 minutes. Form: Fume TWA: 10 mg/m³ 8 hours. Form: Fume

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Section 8. Exposure controls and personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. Recommended: > 8 hours (breakthrough time): Nitrile gloves. or Neoprene gloves.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: half-face mask and ammonia (Type K) and particulate filter

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Information on basic physical and chemical properties

Appearance

Physical state : Solid. [Crystals.]

Colour : White.

Odour : Odourless.

Odour threshold : Not available.

pH : 5.5 [Conc. (% w/w): 1% - (H2O)]

Melting point/freezing point : Decomposes

Boiling point, initial boiling point, and boiling range : 520°C (968°F)

Flash point : Not applicable.

Evaporation rate : Not available.

Section 9. Physical and chemical properties and safety characteristics

Flammability (solid, gas) : May be combustible at high temperature.

Lower and upper explosion limit/ flammability limit : Not applicable.

Vapour pressure : Not available.

Relative vapour density : Not applicable.

Relative density : 1.53 (20°C)

Solubility(ies) :

Media	Result
cold water	Easily soluble

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : Not applicable.

Decomposition temperature : 338°C

Viscosity : Not available.

Explosive properties : Explosive in the presence of the following materials or conditions: metals and alkalis.

Oxidising properties : Not available.

Other information

Pour point : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Reactive or incompatible with the following materials: oxidising materials. Nitrate salt. Nitrite salt.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
ammonium chloride	LD50 Oral	Rat	1650 mg/kg	-

Conclusion/Summary : May be harmful if ingested. Can cause target organ damage.

Irritation/Corrosion

Skin : No known significant effects or critical hazards.

Eyes : May cause eye irritation.

Respiratory : No known significant effects or critical hazards.

Sensitisation

Section 11. Toxicological information

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:,pain or irritation,watering,redness

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Section 11. Toxicological information

Section 12. Ecological information

Toxicity : No known significant effects or critical hazards.

Product/ingredient name	Result	Species	Exposure
Ammonium Chloride	Acute EC50 98.5 mg/l	Daphnia	48 hours
	Acute LC50 42.91 mg/l	Fish	96 hours
ammonium chloride	Acute EC50 0.07 mg/l Marine water	Algae - *Hormosira banksii* - Gamete	72 hours
	Acute EC50 0.1 mg/l Fresh water	Crustaceans - *Cypris subglobosa*	48 hours
	Acute LC50 390 µg/l Fresh water	Daphnia - *Daphnia magna* - Young	48 hours
	Acute LC50 80 µg/l Fresh water	Fish - *Oncorhynchus mykiss*	96 hours
	Chronic NOEC 0.6 mg/l Marine water	Algae - *Entomoneis punctulata* - Exponential growth phase	72 hours
	Chronic NOEC 330 µg/l Fresh water	Crustaceans - *Crangonyx sp.* - Juvenile (Fledgling, Hatchling, Weanling)	21 days
	Chronic NOEC 19.66 mg/l Fresh water	Daphnia - *Daphnia magna*	21 days
	Chronic NOEC 0.006 mg/l Fresh water	Fish - *Ictalurus punctatus* - Fry	30 days

Persistence and degradability

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Ammonium Chloride	-	-	Not readily

Product/ingredient name	$LogP_{ow}$	BCF	Potential
ammonium chloride	-3.2	-	Low

Section 13. Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

International transport regulations

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Transport hazard class(es)	PG*	Label
ADR/RID	Not regulated.	-	-	-	
ADG	Not regulated.	-	-	-	
IMDG	Not regulated.	-	-	-	
IATA	Not regulated.	-	-	-	

PG* : Packing group

Regulatory information	Environmental hazards	Additional information
ADR/RID Class	No.	**Hazchem code** -
ADG Class	No.	**Hazchem code** -
IMDG Class	No.	-
IATA Class	No.	-

Additional information**: A • in the Hazchem code indicates that Alcohol Resistant Foam is the preferred extinguishing medium. If not available, use the extinguishing medium indicated by the number in the Hazchem code.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

Australia inventory (AIIC) : All components are listed or exempted.

References : **National Code of Practice for the Control of Workplace Hazardous Substances.**

National Code of Practice for the Labelling of Workplace Substances.
National Code of Practice for the Preparation of Material Safety Data Sheets.
Approved Criteria for Classifying Hazardous Substances.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Section 15. Regulatory information

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Any other relevant information

History

Date of printing : 18 December 2023.

Date of issue/Date of revision : 18 December 2023

Date of previous issue : No previous validation

Version : 1

Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (oral) - Category 4 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A	Calculation method Calculation method

References : Not available.

Indicates information that has changed from previously issued version.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

MATERIAL SAFETY DATA SHEET

PAGE	Page **1** of **7**
REVISION DATE	09/07/2022
PRINT DATE	09/07/2022
PRODUCT NAME	Ammonium Chloride AMC100
VERSION	0

IDENTIFICATION OF THE PRODUCT AND THE COMPANY

ADG Code: NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code). Classified as a hazardous Substance according to Safe work Australia.

Product Name: **AMMONIUM CHLORIDE AMC100**

Company Name:

ALL CHEMICAL
A.B.N: 12631121849

Perth Office	Albany Office
9/69 Truganina Road	1/209 Chester Pass Road
Malaga WA 6090	Albany WA 6330
(08) 92482662	(08) 68186241

Emergency telephone number: +61 432164241

Other names: Ammonium Chloride

Product uses: Electroplating, Flux, Laboratory Chemical (s)
As a flux for coating sheet iron with zinc, tinning; in dry and Leclanche batteries; dyeing; freezing mixtures; electroplating; to clean soldering irons; safety explosives; lustering cotton; tanning. Also used in washing powders; manufacture of dyes; in cement for iron pipes; for snow treatment (slows melting on ski slopes).

HEALTH HAZARD INFORMATION

Hazard Classification Classified as hazardous according to Safe work Australia Criteria.

Physical Hazards Not classified as a physical hazard

Health Hazards Acute Toxicity: Oral: Category 4
Serious Eye Damage / Eye Irritation: Category 2A

Environmental Hazards Not classified as an Environmental Hazard

GHS Label elements

Signal word **WARNING**

Pictograms



Hazard statements

H302 Harmful if swallowed.
H319 Causes serious eye irritation.

Prevention statements

P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P301 + P312 IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 Rinse mouth.
P337 + P313 If eye irritation persists: Get medical advice/attention.

Storage statements

None allocated

Disposal statements

P501 Dispose of contents/container in accordance with relevant regulations

Other Hazards

No information provided**.**

COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	CAS Number	EC Number	Proportion
Ammonium chloride	12125-02-9	235-186-4	>99%

FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Rinse mouth with water provided person is conscious.

First aid facilities Eye wash facilities and safety shower are recommended

Advise to Doctor Treat symptomatically.

FIRE FIGHTING MEASURES

Extinguishing Media Use an extinguishing agent suitable for the surrounding fire.

Special hazards arising from the Substance or mixture Non-flammable. May evolve toxic gases (nitrogen oxides, chlorides, hydrogen chloride) when heated to decomposition.

Advice for firefighter Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire**.**

Hazchem Code None allocated.

ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures Wear Personal Protective Equipment (PPE). Clear area o Clear area of all unprotected personnel. Contact emergency services where appropriate.

Environmental precautions Prevent product from entering drains and waterways

Methods of cleaning up Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

STORAGE AND HANDLING

Handling: Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal

hygiene, including washing hands before eating. Prohibit eating, drinking, and smoking in contaminated areas.

Storage: Store in a cool, dry, well-ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

Specific end uses: No information provided.

EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Ammonium chloride (fume)	SWA [AUS]	--	10	--	20

Biological limits No biological limit values have been entered for this product

Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Maintain dust / fume levels below the recommended exposure standard.

PPE

Eye / Face Wear dust-proof goggles.

Hands Wear PVC or rubber gloves.

Body When using large quantities or where heavy contamination is likely, wear coveralls.

Respiratory At high dust levels, wear a Class P1 (Particulate) respirator.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance Colourless or White granular powder

Odour Odourless

Flammability Non flammable

Flash point Not relevant

Boiling point 520°C

Melting point	340°C (Sublimes)
Evaporation rate	Not available
pH	5.5 (1 % Solution)
Vapour density	Not available
Specific gravity	1.53
Solubility (water)	Soluble
Vapour pressure	0.13 kPa @ 160.4°C
Upper explosion limit	Not relevant
Lower explosion limit	Not relevant
Partition coefficient	Not available
Autoignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not available
Oxidising properties	Not available
Odour threshold	Not available

STABILITY AND REACTIVITY

Chemical stability Stable under recommended conditions of storage.

Possibility of hazardous Reactions Polymerization will not occur.

Conditions to avoid Avoid heat, sparks, open flames, and other ignition sources.

Incompatible materials Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), alkalis (e.g. sodium hydroxide), silver salts, potassium chlorate, interhalogens and metals.

Hazardous decomposition Products May evolve toxic gases (nitrogen oxides, chlorides, hydrogen chloride) when heated to decomposition.

TOXICOLOGICAL INFORMATION

Acute toxicity Harmful if swallowed.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
Ammonium Chloride	1650 mg/kg (rat)	>2000 mg/kg	--

Skin Contact may result in irritation, redness, rash and dermatitis.

Eye Contact may result in irritation, lacrimation, pain and redness.

Sensitisation	Not classified as causing skin or respiratory sensitisation**.**
Mutagenicity	Not classified as a mutagen.
Carcinogenicity	Not classified as a carcinogen.
Reproductive	Not classified as a reproductive toxin.
STOT – single exposure	Over exposure may result in irritation of the nose and throat, with coughing**.** High level exposure may result in breathing difficulties. Ingestion of large quantities may result in metabolic acidosis and excess urine.
STOT – repeated Exposure	Not classified as causing organ damage from repeated exposure.
Aspiration	Not classified as causing aspiration.

ECOLOGICAL INFORMATION

Ecotoxicity	C50 (daphnia magna): 161 mg/L/48 hrs.
Persistence/Degradability	Persistence is unlikely, based on information available.
Mobility	No information available.
Bioaccumulation Potential	Bioaccumulation is unlikely.
Other adverse effects	Ammonium chloride is harmful to aquatic life in very low concentrations. Toxic to plants. There is no evidence to suggest that ammonium chloride bioaccumulates.

DISPOSAL CONSIDERATIONS

Waste disposal	Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).
Legislation	Dispose of in accordance with relevant local legislation.

TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	None allocated
UN Number	None allocated
Transport hazard class	None allocated
Packing group	None allocated

Sea Transport
IMDG Code

Proper Shipping Name	None allocated
UN Number	None allocated
Transport hazard class	None allocated
Packing group	None allocated

Air Transport
IATA DGR

Proper Shipping Name	None allocated
UN Number	None allocated
Transport hazard class	None allocated
Packing group	None allocated

Environmental hazards	No information provided
Hazchem code	None allocated

REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
Classifications	Safe work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.
Inventory listings	AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals) All components are listed on AIIC or are exempt.

REGULATORY INFORMATION

Person to contact:

Abel Hlophe – All Chemical Senior Chemical Engineer +61 432164241

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only about safety requirements. The data do not describe the product's properties. Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in this Safety Data Sheet. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and regulation are observed.

SAFETY DATA SHEET

API MODIFIED

Version	Revision Date:	SDS Number:	Date of last issue: 05/06/2020
16.0	10/20/2020	114829-00022	Date of first issue: 05/12/2015

SECTION 1. IDENTIFICATION

Product name : API MODIFIED

SDS-Identcode : 057G

Manufacturer or supplier's details

Company name of supplier : Bestolife Corporation
Address : 2126 Vanco Drive
Irving TX 75061,
Telephone : 855-243-9164/972-865-8961
Telefax : 214-631-3047
Emergency telephone : CHEMTREC U.S.: 800-424-9300, International 703-527-3887 (24-hours/7 days)
E-mail address : www.bestolife.com

Importer: Tiger Fluids Australia Pty Ltd
3 Industrial Rd, Gatton, 4343, QLD
+61 481949341

Recommended use of the chemical and restrictions on use

Recommended use : Industrial use
Thread Compound (Pipe Dope) and Jacking grease for use in Offshore industries
Mining, (without offshore industries)
Restrictions on use : Do not use on oxygen lines or in oxygen enriched atmospheres.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity : Category 2

Reproductive toxicity : Category 1A

Effects on or via lactation

Specific target organ toxicity - repeated exposure : Category 1 (Kidney, Central nervous system, Blood)

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H351 Suspected of causing cancer.
H360FD May damage fertility. May damage the unborn child.
H362 May cause harm to breast-fed children.
H372 Causes damage to organs (Kidney, Central nervous system, Blood) through prolonged or repeated exposure.

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust, fume, gas, mist, vapors or spray.
P263 Avoid contact during pregnancy and while nursing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P308 + P313 IF exposed or concerned: Get medical attention.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	>= 30 - < 50
Lead	7439-92-1	>= 30 - < 50
Graphite	7782-42-5	>= 10 - < 20
Copper metal powder	7440-50-8	>= 1 - < 5
Talc	14807-96-6	>= 1 - < 5
Quartz	14808-60-7	>= 1 - < 5

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.
Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.

		Thoroughly clean shoes before reuse.
In case of eye contact	:	Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
If swallowed	:	If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	:	Suspected of causing cancer. May damage fertility. May damage the unborn child. May cause harm to breast-fed children. Causes damage to organs through prolonged or repeated exposure.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Lead compounds Metal oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
Environmental precautions	:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Sweep up or vacuum up spillage and collect in suitable container for disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items

employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Advice on safe handling	:	For outdoor use only Avoid contact during pregnancy and while nursing. Do not get on skin or clothing. Do not breathe dust, fume, gas, mist, vapors or spray. Do not swallow. Avoid contact with eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Keep container tightly closed. Do not eat, drink or smoke when using this product. Take care to prevent spills, waste and minimize release to the environment.
Conditions for safe storage	:	Keep in properly labeled containers. Store locked up. Keep tightly closed. Store in accordance with the particular national regulations.
Materials to avoid	:	Do not store with the following product types: Strong oxidizing agents Organic peroxides Explosives Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	TWA (Mist)	5 mg/m³	OSHA Z-1
		TWA (Inhalable particulate matter)	5 mg/m³	ACGIH
		TWA (Mist)	5 mg/m³	NIOSH REL
		ST (Mist)	10 mg/m³	NIOSH REL
Lead	7439-92-1	TWA	0.05 mg/m³ (Lead)	ACGIH
		PEL	0.05 mg/m³ (Lead)	OSHA CARC
		TWA	0.05 mg/m³ (Lead)	NIOSH REL

Graphite	7782-42-5	TWA (Respirable)	2.5 mg/m³	NIOSH REL
		TWA (Respirable particulate matter)	2 mg/m³	ACGIH
		TWA (Dust)	15 Million particles per cubic foot	OSHA Z-3
Copper metal powder	7440-50-8	TWA (Dust and mist)	1 mg/m³ (Copper)	ACGIH
		TWA (Fumes)	0.2 mg/m³ (Copper)	ACGIH
		TWA (Dust)	1 mg/m³ (Copper)	NIOSH REL
		TWA (Mist)	1 mg/m³ (Copper)	NIOSH REL
		TWA (dusts and mists)	1 mg/m³ (Copper)	OSHA Z-1
		TWA (Fumes)	0.1 mg/m³ (Copper)	OSHA Z-1
Talc	14807-96-6	TWA (Dust)	20 Million particles per cubic foot	OSHA Z-3
		TWA (Respirable)	2 mg/m³	NIOSH REL
		TWA (Respirable particulate matter)	2 mg/m³	ACGIH
Quartz	14808-60-7	TWA (Respirable dust)	0.05 mg/m³	OSHA Z-1
		TWA (respirable)	10 mg/m3 / %SiO2+2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO2+5	OSHA Z-3
		TWA (Respirable particulate matter)	0.025 mg/m³ (Silica)	ACGIH
		TWA (Respirable dust)	0.05 mg/m³ (Silica)	NIOSH REL
		PEL (respirable)	0.05 mg/m³	OSHA CARC

These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Quartz

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis

Lead	7439-92-1	Lead (Lead)	In blood	Not critical	200 µg/l	ACGIH BEI

Engineering measures : Minimize workplace exposure concentrations.
Dust formation may be relevant in the processing of this product. In addition to substance-specific OELs, general limitations of concentrations of particulates in the air at workplaces have to be considered in workplace risk assessment. Relevant limits include: OSHA PEL for Particulates Not Otherwise Regulated of 15 mg/m3 - total dust, 5 mg/m3 - respirable fraction; and ACGIH TWA for Particles (insoluble or poorly soluble) Not Otherwise Specified of 3 mg/m3 - respirable particles, 10 mg/m3 - inhalable particles.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Safety glasses

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
See 29 CFR 1910.1025 for additional requirements relating to lead exposure.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Viscous semi-solid
Color	:	black, copper
Odor	:	Petroleum
Odor Threshold	:	No data available
pH	:	Not applicable (not an aqueous solution)
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	>= 392 °F / >= 200 °C Method: ASTM D 92, Cleveland open cup Distillates (petroleum), hydrotreated heavy naphthenic
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not classified as a flammability hazard
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	Not applicable
Relative vapor density	:	Not applicable
Relative density	:	1.9
Solubility(ies)		
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	Not applicable
Flow time	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

Molecular weight	:	No data available
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents.
Conditions to avoid	:	None known.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg Method: OECD Test Guideline 401 Remarks: Based on data from similar materials
Acute inhalation toxicity	:	LC50 (Rat): > 5.53 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity Remarks: Based on data from similar materials
Acute dermal toxicity	:	LD50 (Rabbit): > 5,000 mg/kg Method: OECD Test Guideline 402 Remarks: Based on data from similar materials

Lead:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Remarks: Based on data from similar materials
Acute dermal toxicity	:	LD50 (Rat): > 2,000 mg/kg Remarks: Based on data from similar materials

Graphite:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg

Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Copper metal powder:

Acute oral toxicity : LD50 (Rat): > 2,500 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.11 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 436
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Talc:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Remarks: Based on data from similar materials

Quartz:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species : Rabbit
Result : No skin irritation
Remarks : Based on data from similar materials

Lead:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
Remarks : Based on data from similar materials

Graphite:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Copper metal powder:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Talc:

Species	:	Rabbit
Result	:	No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species	:	Rabbit
Result	:	No eye irritation
Remarks	:	Based on data from similar materials

Lead:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405
Remarks	:	Based on data from similar materials

Graphite:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

Copper metal powder:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

Talc:

Species	:	Rabbit
Result	:	No eye irritation

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Test Type	:	Buehler Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Result	:	negative
Remarks	:	Based on data from similar materials

Lead:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative
Remarks	:	Based on data from similar materials

Graphite:

Test Type	:	Local lymph node assay (LLNA)
Routes of exposure	:	Skin contact
Species	:	Mouse
Result	:	negative

Copper metal powder:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

Talc:

Routes of exposure	:	Skin contact
Species	:	Humans
Result	:	negative

Germ cell mutagenicity

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Method: OECD Test Guideline 474 Result: negative Remarks: Based on data from similar materials

Lead:

Genotoxicity in vitro : Test Type: In vitro sister chromatid exchange assay in mammalian cells
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Ingestion
Result: positive
Remarks: Based on data from similar materials

Graphite:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Copper metal powder:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: Directive 67/548/EEC, Annex V, B.12.
Result: negative
Remarks: Based on data from similar materials

Talc:

Genotoxicity in vitro : Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro
Species: Rat
Application Route: Ingestion
Result: negative

Carcinogenicity

Suspected of causing cancer.

Product:

Carcinogenicity - Assessment	:	Petroleum distillates have been classified as not carcinogenic based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species	:	Mouse
Application Route	:	Skin contact
Exposure time	:	78 weeks
Method	:	OECD Test Guideline 451
Result	:	negative

Lead:

Species	:	Rat
Application Route	:	Ingestion
Exposure time	:	2 Years
Result	:	positive
Remarks	:	Based on data from similar materials

Carcinogenicity - Assessment	:	Limited evidence of carcinogenicity in animal studies

Talc:

Species	:	Mouse
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	2 Years
Result	:	negative

Quartz:

Species	:	Humans
Application Route	:	inhalation (dust/mist/fume)
Result	:	positive
Remarks	:	These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Carcinogenicity - Assessment	:	Positive evidence from human epidemiological studies (inhalation)

IARC	Group 1: Carcinogenic to humans Quartz (Silica dust, crystalline)	 14808-60-7
	Group 2B: Possibly carcinogenic to humans Lead	 7439-92-1
OSHA	OSHA specifically regulated carcinogen Lead (Lead and inorganic lead compounds)	 7439-92-1
	OSHA specifically regulated carcinogen	

	Quartz (crystalline silica)	14808-60-7
NTP	Reasonably anticipated to be a human carcinogen Lead Known to be human carcinogen Quartz (Silica, Crystalline (Respirable Size))	 7439-92-1 14808-60-7

Reproductive toxicity

May damage fertility. May damage the unborn child.
May cause harm to breast-fed children.

Components:

Lead:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Mouse Application Route: Ingestion Result: positive Remarks: Based on data from similar materials
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: Ingestion Result: positive Remarks: Based on data from similar materials
Reproductive toxicity - Assessment	:	Positive evidence of adverse effects on sexual function and fertility from human epidemiological studies., Positive evidence of adverse effects on development from human epidemiological studies., Studies indicating a hazard to babies during the lactation period

Graphite:

Effects on fertility	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative
Effects on fetal development	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative

Copper metal powder:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion

		Result: negative Remarks: Based on data from similar materials
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rabbit Application Route: Ingestion Result: negative

Talc:

Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: Ingestion Result: negative

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Causes damage to organs (Kidney, Central nervous system, Blood) through prolonged or repeated exposure.

Components:

Lead:

Target Organs	:	Kidney, Central nervous system, Blood
Assessment	:	Causes damage to organs through prolonged or repeated exposure.

Quartz:

Routes of exposure	:	inhalation (dust/mist/fume)
Target Organs	:	Lungs
Assessment	:	Shown to produce significant health effects in animals at concentrations of 0.02 mg/l/6h/d or less.

Repeated dose toxicity

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species	:	Rat
NOAEL	:	> 0.98 mg/l
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	28 Days
Remarks	:	Based on data from similar materials

Lead:

Species	:	Rat
NOAEL	:	0.0015 mg/kg
LOAEL	:	0.005 mg/kg
Application Route	:	Ingestion
Exposure time	:	6 - 12 Months
Remarks	:	Based on data from similar materials

Copper metal powder:

Species	:	Rat
NOAEL	:	>= 2 mg/m³
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	28 Days

Quartz:

Species	:	Humans
LOAEL	:	0.053 mg/m³
Application Route	:	inhalation (dust/mist/fume)
Remarks	:	These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 10 mg/l Exposure time: 21 d Remarks: Based on data from similar materials
Toxicity to microorganisms	:	NOEC: > 1.93 mg/l Exposure time: 10 min Remarks: Based on data from similar materials

Lead:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.107 mg/l Exposure time: 96 h
Toxicity to daphnia and other	:	EC50 (Ceriodaphnia dubia (water flea)): 0.029 mg/l

aquatic invertebrates		Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.025 mg/l Exposure time: 72 h EC10 (Pseudokirchneriella subcapitata (green algae)): 6.1 µg/l Exposure time: 72 h
Toxicity to fish (Chronic toxicity)	:	EC10 (Pimephales promelas (fathead minnow)): 20 µg/l Exposure time: 30 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EC10 (Ceriodaphnia dubia (water flea)): 1.7 µg/l Exposure time: 7 d
Graphite:		
Toxicity to fish	:	LL50 (Danio rerio (zebra fish)): > 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201 NOELR (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50: > 1,012.5 mg/l Exposure time: 3 h Method: OECD Test Guideline 209
Copper metal powder:		
Toxicity to fish	:	LC50: > 10 - 100 µg/l Exposure time: 96 h
Toxicity to fish (Chronic toxicity)	:	NOEC: > 1 - 10 µg/l
Talc:		
Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): > 100,000 mg/l Exposure time: 24 h

Quartz:

Ecotoxicology Assessment

Acute aquatic toxicity	:	No toxicity at the limit of solubility.
Chronic aquatic toxicity	:	No toxicity at the limit of solubility.

Persistence and degradability

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 2 - 4 % Exposure time: 28 d Method: OECD Test Guideline 301B

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with local regulations.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)
Class	:	9
Packing group	:	III
Labels	:	9

IATA-DGR

UN/ID No.	:	UN 3077

Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (Lead, Copper metal powder)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	956
Packing instruction (passenger aircraft)	:	956
Environmentally hazardous	:	yes

IMDG-Code

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (Lead, Copper metal powder)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	yes(Lead, Copper metal powder)
Remarks	:	THE ABOVE INFORMATION ONLY APPLIES TO PACKAGE SIZES WHERE THE HAZARDOUS SUBSTANCE MEETS THE REPORTABLE QUANTITY.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Lead	7439-92-1	10	32
Zinc	7440-66-6	1000	8184
Copper metal powder	7440-50-8	5000	150181

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Lead	7439-92-1	>= 30 - < 50 %
Zinc	7440-66-6	>= 10 - < 20 %
Copper metal powder	7440-50-8	>= 1 - < 5 %

US State Regulations

Pennsylvania Right To Know

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Lead	7439-92-1
Graphite	7782-42-5
Zinc	7440-66-6
Copper metal powder	7440-50-8
Talc	14807-96-6
Quartz	14808-60-7
Zinc oxide	1314-13-2

California Prop. 65

WARNING: This product can expose you to chemicals including Lead, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Lead	7439-92-1
Graphite	7782-42-5
Zinc	7440-66-6
Copper metal powder	7440-50-8
Talc	14807-96-6

California Permissible Exposure Limits for Chemical Contaminants

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Lead	7439-92-1
Graphite	7782-42-5
Copper metal powder	7440-50-8
Talc	14807-96-6
Quartz	14808-60-7

California Regulated Carcinogens

Lead	7439-92-1

Quartz		14808-60-7

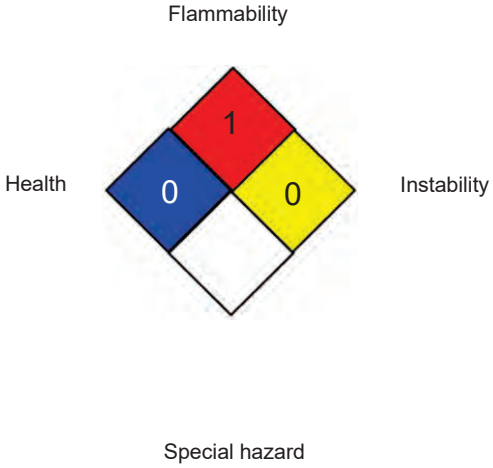
The ingredients of this product are reported in the following inventories:

DSL	:	All components of this product are on the Canadian DSL
TSCA	:	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
AICS	:	All ingredients listed or exempt.

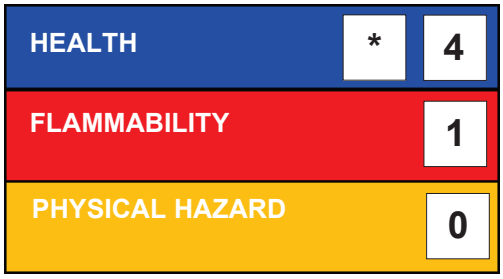
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA CARC	:	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA CARC / PEL	:	Permissible exposure limit (PEL)
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
Revision Date	:	10/20/2020

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8

HALLIBURTON

SAFETY DATA SHEET

AQUAGEL®

Revision Date: 22-Oct-2018 **Revision Number:** 31

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name AQUAGEL®

Other means of Identification

Synonyms None

Hazardous Material Number: HM003469

Recommended use of the chemical and restrictions on use

Recommended Use Viscosifier

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton/Baroid Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Carcinogenicity	Category 1A - H350
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H350 - May cause cancer by inhalation
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

Precautionary Statements

Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P281 - Use personal protective equipment as required

Response
P314 - Get medical attention/advice if you feel unwell
P308 + P313 - IF exposed or concerned: Get medical advice/attention

Storage
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains Substances	**CAS Number**
Crystalline silica, quartz	14808-60-7

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Crystalline silica, quartz	14808-60-7	1 - 5%	Carc. 1A (H350) STOT RE 1 (H372)

The exact percentage (concentration) of the composition has been withheld as proprietary.

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Rinse mouth with water many times. Get medical attention, if symptoms occur

Symptoms caused by exposure
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Avoid creating and breathing dust.

6.2. Environmental precautions
None known.

6.3. Methods and material for containment and cleaning up
Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Use appropriate protective equipment. Ensure adequate ventilation. Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container. Product has a shelf life of 24 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Crystalline silica, quartz	14808-60-7	TWA: 0.1 mg/m^3	TWA: 0.025 mg/m^3

Appropriate engineering controls

Engineering Controls	A well ventilated area to control dust levels.

Personal protective equipment (PPE)

Personal Protective Equipment	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection	Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	None known.
Other Precautions	None known.
Environmental Exposure Controls	Do not allow material to contaminate ground water system

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Powder	**Color**	Tan to Gray
Odor:	Mild earthy	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	8-10
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.65
Water Solubility	Dispersible
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Hydrofluoric acid.

10.6. Hazardous decomposition products
Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Crystalline silica, quartz	14808-60-7	> 15000 mg/kg (human)	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).
Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion None known.

Chronic Effects/Carcinogenicity Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

Exposure Levels
No data available

Interactive effects
Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be

exposed to quartz dust.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin

Substances	CAS Number	Serious eye damage/irritation
Crystalline silica, quartz	14808-60-7	Non-irritating to the eye No information available

Substances	CAS Number	Skin Sensitization
Crystalline silica, quartz	14808-60-7	No information available.

Substances	CAS Number	Respiratory Sensitization
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	Mutagenic Effects
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

Substances	CAS Number	Reproductive toxicity
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	STOT - single exposure
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Substances	CAS Number	Aspiration hazard
Crystalline silica, quartz	14808-60-7	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Crystalline silica, quartz	14808-60-7	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	No information available	LL50(24 h)>10000 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Crystalline silica, quartz	14808-60-7	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Crystalline silica, quartz	14808-60-7	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List	All components listed on inventory or are exempt.

(DSL)

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 22-Oct-2018

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H351 - Suspected of causing cancer if inhaled
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained

from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

BARAZAN® D PLUS

Revision Date: 30-Apr-2020 **Revision Number:** 33

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name BARAZAN® D PLUS

Other means of Identification

Synonyms None

Hazardous Material Number: HM003535

Recommended use of the chemical and restrictions on use

Recommended Use Viscosifier

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Slippery when wet. Avoid creating or inhaling dust. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 24 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Powder	**Color**	White to off white
Odor:	Slight	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	7 (1%)
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.6
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	204 °C / 400 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	1000000
VOC Content (%)	No data available
Bulk Density	52.4 lbs/ft3

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above	NA	No data available	No data available	No data available

cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation May impede respiration.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.

Canadian Domestic Substances List (DSL) All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Apr-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID
WHO/FAO

Disclaimer Statement

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End of Safety Data Sheet

9.1. Information on basic physical and chemical properties

Physical State:	Powder	**Color**	White to off white
Odor:	Slight	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	7 (1%)
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.6
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	204 °C / 400 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	1000000
VOC Content (%)	No data available
Bulk Density	52.4 lbs/ft3

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above	NA	No data available	No data available	No data available

cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation May impede respiration.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.

Canadian Domestic Substances List (DSL) All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Apr-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

Product Trade Name: **BARITE**

Revision Date: 27-Jun-2022 **Revision Number:** 72

1. Identification

1.1. Product Identifier

Product Trade Name: BARITE
Synonyms None
Chemical Family: Mineral
Internal ID Code HM000105

1.2 Recommended use and restrictions on use

Application: Weight Additive
Uses advised against No information available

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier
Baroid Fluid Services
Product Service Line of Halliburton Energy Services, Inc.
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000

Halliburton Group Canada
645 - 7th Ave SW Suite 1800
Calgary, AB, T2P 4G8, Canada
Telephone: 1-403-231-9300

Prepared By Chemical Stewardship
e-mail: fdunexchem@halliburton.com

1.4. Emergency telephone number:

Emergency Telephone Number 1-866-519-4752 or 1-760-476-3962 (accessible 24 hours a day / 7 days a week)
Global Incident Response Access Code: 334305
Contract Number: 14012

2. Hazards Identification

2.1 Classification in accordance with paragraph (d) of §1910.1200

Carcinogenicity	Category 1A - H350
Specific Target Organ Toxicity - (Repeated Exposure)	Category 1 - H372

2.2. Label Elements

Hazard Pictograms



Signal Word: Danger

Hazard Statements
H350 - May cause cancer by inhalation
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled

Precautionary Statements

Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P314 - Get medical attention/advice if you feel unwell

Storage
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

2.3 Hazards not otherwise classified
None known

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Crystalline silica, quartz	14808-60-7	1 - 5%	Carc. 1A (H350) STOT RE 1 (H372)

The exact percentage (concentration) of the composition has been withheld as proprietary.

4. First Aid Measures

4.1. Description of first aid measures

Inhalation
If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin
Wash with soap and water. Get medical attention if irritation persists.

Ingestion
Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

4.2 Most important symptoms/effects, acute and delayed
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

All standard fire fighting media Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

5.2 Specific hazards arising from the substance or mixture

Special exposure hazards in a fire

None anticipated

5.3 Special protective equipment and precautions for fire-fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust.
See Section 8 for additional information.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a well ventilated area. Keep container closed when not in use. Store locked up. Store in a cool, dry location. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

8. Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Crystalline silica, quartz	14808-60-7	TWA: 50 µg/m³	TWA: 0.025 mg/m³

8.2 Appropriate engineering controls

Engineering Controls	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

8.3 Individual protection measures, such as personal protective equipment

Personal Protective Equipment	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection	Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.
Hand Protection	Normal work gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	Wear safety glasses or goggles to protect against exposure. (EN-166)
Other Precautions	Eyewash fountains and safety showers must be easily accessible.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	Pink to tan to gray
Odor:	Odorless	**Odor Threshold:**	No information available

Property	Values	Remarks/ - Method
pH:	No data available	
Freezing Point / Range	No data available	
Melting Point / Range	No data available	
Pour Point / Range	No data available	
Boiling Point / Range	No data available	
Flash Point	No data available	
Flammability (solid, gas)	No data available	
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Evaporation rate	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Specific Gravity	4.23	
Water Solubility	Insoluble in water	
Solubility in other solvents	No data available	
Partition coefficient: n-octanol/water	No data available	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	

9.2. Other information

Molecular Weight	233.4
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.

10.2. Chemical stability
Stable

10.3. Possibility of hazardous reactions
Will Not Occur

10.4. Conditions to avoid
None anticipated

10.5. Incompatible materials
None known.

10.6. Hazardous decomposition products
Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

11. Toxicological Information

11.1 Information on likely routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

11.2 Symptoms related to the physical, chemical and toxicological characteristics
Acute Toxicity

Inhalation Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).

Eye Contact May cause mechanical irritation to eye.

Skin Contact None known.

Ingestion None known.

Chronic Effects/Carcinogenicity Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline

silica, quartz, as a suspected human carcinogen (A2).

May cause damage to organs through prolonged or repeated exposure.

11.3 Toxicity data

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Crystalline silica, quartz	14808-60-7	> 15000 mg/kg (human)	No data available	No data available

Substances	CAS Number	Skin corrosion/irritation
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin

Substances	CAS Number	Serious eye damage/irritation
Crystalline silica, quartz	14808-60-7	Non-irritating to the eye No information available

Substances	CAS Number	Skin Sensitization
Crystalline silica, quartz	14808-60-7	No information available.

Substances	CAS Number	Respiratory Sensitization
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	Mutagenic Effects
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

Substances	CAS Number	Reproductive toxicity
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	STOT - single exposure
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Substances	CAS Number	Aspiration hazard
Crystalline silica, quartz	14808-60-7	No information available

12. Ecological Information

12.1. Toxicity

Ecotoxicity effects

Contains no substances known to be hazardous to the environment.

Acute Fish Toxicity TLM96: 7500 ppm (Oncorhynchus mykiss)

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Crystalline silica, quartz	14808-60-7	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	No information available	LL50(24 h)>10000 mg/L (Daphnia magna)

12.2. Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

Substances	CAS Number	Persistence and Degradability
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Does not bioaccumulate.

Substances	CAS Number	Bioaccumulation
Crystalline silica, quartz	14808-60-7	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Crystalline silica, quartz	14808-60-7	No information available

12.5 Other adverse effects

No information available

13. Disposal Considerations

13.1. Waste treatment methods

Disposal methods Follow all applicable community, national or regional regulations regarding waste management methods.

Contaminated Packaging Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

14. Transport Information

US DOT

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

Canadian TDG

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable
Special Precautions for User None

15. Regulatory Information

US Regulations

US TSCA Inventory All components listed on inventory or are exempt.

TSCA Significant New Use Rules - S5A2

Substances	CAS Number	TSCA Significant New Use Rules - S5A2	TSCA Section 5(E) Consent Orders
Crystalline silica, quartz	14808-60-7	Not applicable	Not applicable

EPA SARA Title III Extremely Hazardous Substances

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Crystalline silica, quartz	14808-60-7	Not applicable

EPA SARA (311,312) Hazard Class

Specific target organ toxicity (single or repeated exposure)
Carcinogenicity

EPA SARA (313) Chemicals:

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Crystalline silica, quartz	14808-60-7	Not applicable	Not applicable

EPA CERCLA/Superfund Reportable Spill Quantity

Substances	CAS Number	CERCLA RQ
Crystalline silica, quartz	14808-60-7	Not applicable

EPA RCRA Hazardous Waste Classification

If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

California Proposition 65

Substances	CAS Number	California Proposition 65
Crystalline silica, quartz	14808-60-7	carcinogen

U.S. State Right-to-Know Regulations

Substances	CAS Number	MA Right-to-Know Law	NJ Right-to-Know Law	PA Right-to-Know Law
Crystalline silica, quartz	14808-60-7	Carcinogen Extraordinarily hazardous	Present	Present

Canadian Regulations

Canadian Domestic Substances List (DSL) All components listed on inventory or are exempt.

16. Other information

Preparation Information

Prepared By Chemical Stewardship
e-mail: fdunexchem@halliburton.com

Revision Date: 27-Jun-2022

Reason for Revision SDS sections updated:
2
11

Additional information:
For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

NFPA Ratings: Health 1, Flammability 0, Reactivity 0
HMIS Ratings: Health 1*, Flammability 0, Physical Hazard 0 , PPE: E

Key or legend to abbreviations and acronyms used in the safety data sheet
bw – body weight
CAS – Chemical Abstracts Service
d - day
EC50 – Effective Concentration 50%
ErC50 – Effective Concentration growth rate 50%
h - hour
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
mg/m^3 - milligram/cubic meter
mm - millimeter

mmHg - millimeter mercury
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
UN – United Nations
w/w - weight/weight

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

BE-6™ Bactericide

Revision date: 12-Sep-2024 **Revision Number:** 13

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name BE-6™ Bactericide

Product Code(s) HB000124

Other means of identification

Pure substance/mixture Substance

Recommended use of the chemical and restrictions on use

Recommended use Microbiocide
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

GHS Classification

Flammable solids	Category 2
Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity — single exposure	Category 3
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 2

Label elements



Signal word
DANGER

Hazard statements
Flammable solid.
Harmful if swallowed.
Harmful in contact with skin.
Causes severe skin burns and eye damage.
May cause respiratory irritation.
Very toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/clothing and eye/face protection.
Do not breathe dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Ground and bond container and receiving equipment.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautionary Statements - Response
Immediately call a POISON CENTRE or doctor.
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
Rinse mouth.
IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
IF ON SKIN: Wash with plenty of water and soap.
Call a POISON CENTRE or doctor if you feel unwell.
Take off all contaminated clothing and wash it before reuse.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
Wash contaminated clothing before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTRE or doctor.
Call a POISON CENTRE or doctor if you feel unwell.
Immediately call a POISON CENTRE or doctor.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Collect spillage.
Precautionary Statements - Storage
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification
Toxic to aquatic life.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
2-Bromo-2-nitro-1,3-propanediol	52-51-7	60 - 100%

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret

Section 4: First aid measures

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical attention.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to doctors Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media Water fog, carbon dioxide, foam, dry chemical. Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours.
Oxides of nitrogen. Bromine. Hydrogen bromide. Carbon monoxide and carbon dioxide. Formaldehyde.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.
Hazchem code	1Y

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Attention! Corrosive material.
Other information	Ventilate the area. Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions	Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Should not be released into the environment. Do not allow to enter into soil/subsoil.

Methods and material for containment and cleaning up

Methods for containment	Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapour suppressing foam may be used to reduce vapours. Keep out of drains, sewers, ditches and waterways.
Methods for cleaning up	Take precautionary measures against static discharges. Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling	Use personal protection equipment. Avoid breathing vapours or mists. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.
General hygiene considerations	Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Store away from oxidizers. Store in a cool, dry location. Store in a well ventilated area. Store locked up. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Store at temperatures below 104 F (40 C) and 140 F (60 C) for short periods. Product has a shelf life of 48 months. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labelled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Keep out of the reach of children. Store locked up. Protect from moisture. Store away from other materials.
Incompatible materials	Strong oxidizers. Contact with alkalis. Contact with metals. Amines. Acids. Bases. Oxidising agent.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Biological occupational exposure limits	This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls	Use in a well ventilated area.

Individual protection measures, such as personal protective equipment

Eye/face protection	Dust proof goggles. (EN-166). Tight sealing safety goggles. Face protection shield.
Skin and body protection	Wear protective clothing impervious to the chemical substance, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact. Rubber apron. Rubber boots. Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots.
Hand protection	Chemical-resistant protective gloves (EN 374). Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):. Nitrile gloves. (>= 8 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types. Wear suitable gloves. Impervious gloves.
Respiratory protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Organic vapor respirator with a dust/mist filter. (A2P2/P3).
Environmental exposure controls	No information available.
Other protective equipment	Eyewash fountains and safety showers must be easily accessible.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Colour	White
Odour	Characteristic.
Odour threshold	No information available

Property	**Values**	**Remarks • Method**
pH	5 - 7	None known
Melting point / freezing point	130 °C / 266.0 °F	
Initial boiling point and boiling range	> 130 °C / 266.0 °F	
Flash point	> 93.1 °C / 199.58 °F	(PMCC)
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	0.0005 @ 20 C (mmHg)	
Relative vapour density	> 1 (air = 1)	
Relative density	1.1	
Water solubility	Soluble in water	
Solubility(ies)	No data available	
Partition coefficient	0.18	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
Pour Point	No data available	
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Yes.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Heat, flames and sparks. Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible materials Strong oxidizers. Contact with alkalis. Contact with metals. Amines. Acids. Bases. Oxidising agent.

Hazardous decomposition products

Hazardous decomposition products Oxides of nitrogen. Bromine. Hydrogen bromide. Carbon monoxide and carbon dioxide. Formaldehyde.

Section 11: Toxicological information

Information on likely routes of exposure

Principle Routes of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.

Skin contact Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. May be absorbed through the skin in harmful amounts. Harmful in contact with skin.

Ingestion Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Acute toxicity Harmful if swallowed. Harmful by skin contact.

Numerical measures of toxicity - Product Information

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
2-Bromo-2-nitro-1,3-propanediol	305 mg/kg (Rat) 307 mg/kg (Rat)	1600 mg/kg (Rat)	> 0.588 mg/L (Rat) 4h > 5 mg/L (Rat) 4h

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes severe skin burns and eye damage.

Chemical name	Skin corrosion/irritation
2-Bromo-2-nitro-1,3-propanediol	Causes severe skin irritation with tissue destruction. (Rabbit)

52-51-7	

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye damage. Causes burns.

Chemical name	Serious eye damage/eye irritation
2-Bromo-2-nitro-1,3-propanediol 52-51-7	Causes severe eye irritation which may damage tissue. (Rabbit)

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Chemical name	Respiratory sensitisation
2-Bromo-2-nitro-1,3-propanediol 52-51-7	No information available
Chemical name	**Skin sensitisation**
2-Bromo-2-nitro-1,3-propanediol 52-51-7	Patch test on human volunteers did not demonstrate sensitisation properties Did not cause sensitisation on laboratory animals (guinea pig)

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Chemical name	Germ cell mutagenicity
2-Bromo-2-nitro-1,3-propanediol 52-51-7	Some in vitro tests have shown mutagenic effects. In vivo tests did not show mutagenic effects.

Carcinogenicity Based on available data, the classification criteria are not met.

Chemical name	Carcinogenicity
2-Bromo-2-nitro-1,3-propanediol 52-51-7	Did not show carcinogenic effects in animal experiments

Reproductive toxicity Based on available data, the classification criteria are not met.

Chemical name	Reproductive toxicity
2-Bromo-2-nitro-1,3-propanediol 52-51-7	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

STOT - single exposure May cause respiratory irritation.

Chemical name	STOT - single exposure
2-Bromo-2-nitro-1,3-propanediol 52-51-7	May cause respiratory irritation.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Chemical name	STOT - repeated exposure
2-Bromo-2-nitro-1,3-propanediol 52-51-7	No significant toxicity observed in animal studies at concentration requiring classification.

Aspiration hazard Based on available data, the classification criteria are not met.

Chemical name	Aspiration hazard
2-Bromo-2-nitro-1,3-propanediol 52-51-7	Not applicable

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
2-Bromo-2-nitro-1,3-propanediol	EC50 (72h) 0.25 mg/L (Skeletonema costatum) EC50 (72h) 0.37 mg/L (Pseudokirchnerella subcapitata) EC50 (72h) 0.89 mg/L (Chlorella vulgaris)	LC50 (96h) 58 mg/l (Pimephales promelas) LC50 (96h) 35.7 mg/L (Lepomis macrochirus) LC50 (96h) 41.2 mg/L (Oncorhynchus mykiss) LC50 (96h) 57.6 mg/L (Cyprinodon variegatus) NOEC (49d) 21.5 mg/L (Oncorhynchus mykiss) LC50 (49d) 39.1 mg/L (Oncorhynchus mykiss)	EC20 (150m) 2 mg/L (Activated Sludge, Respiration Inhibition) EC50 (150m) 43 mg/L (Activated sludge)	EC50 (48h) 1.4 mg/L (Daphnia magna) EC50 (48h) 3.5 mg/L (Acartia tonsa) NOEC (21d) 0.27 mg/L (Daphnia magna) EC50 (21d) 0.27-0.88 mg/L (Daphnia magna)

Terrestrial ecotoxicity There is no data for this product.

Persistence and degradability Based on available data, the classification criteria are not met

Chemical name	Persistence and degradability
2-Bromo-2-nitro-1,3-propanediol 52-51-7	Readily biodegradable (70% @ 28d)

Bioaccumulation

Chemical name	Partition coefficient
2-Bromo-2-nitro-1,3-propanediol	0.22

Mobility Based on available data, the classification criteria are not met

Chemical name	Mobility
2-Bromo-2-nitro-1,3-propanediol 52-51-7	KOC = > 4

Other adverse effects No data available

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

See section 8 for more information

Section 14: Transport information

ADG

UN number or ID number UN3241
UN proper shipping name 2-Bromo-2-nitropropane-1,3-diol
Transport hazard class(es) 4.1
Packing group III
Environmental hazard Yes

Special Provisions	246
Description	UN3241, 2-Bromo-2-nitropropane-1,3-diol, 4.1, III
Limited quantity (LQ)	5 kg
Hazchem code	1Y

IATA

UN number or ID number	UN3241
UN proper shipping name	2-Bromo-2-nitropropane-1,3-diol
Transport hazard class(es)	4.1
Packing group	III
ERG Code	3L
Special Provisions	A20, A803
Description	UN3241, 2-Bromo-2-nitropropane-1,3-diol, 4.1, III

IMDG Not regulated

UN number or ID number	UN3241
UN proper shipping name	2-Bromo-2-nitropropane-1,3-diol
Transport hazard class(es)	4.1
Packing group	III
EmS-No.	F-J, S-G
Description	UN3241, 2-Bromo-2-nitropropane-1,3-diol, 4.1, III, Marine pollutant

Transport in bulk according to Annex II of MARPOL and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	2-Bromo-2-nitro-1,3-propanediol - 52-51-7
Present	-		

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

TSCA	All components listed on inventory or are exempt
AIIC	All components listed on inventory or are exempt
NZIoC	All components listed on inventory or are exempt

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal Not applicable

Section 16: Any other relevant information

Revision date 12-Sep-2024

Reason for revision Update to Format

Key or legend to abbreviations and acronyms used in the safety data sheet

ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon

TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

BENTONITE

Revision date: 07-Aug-2024 **Revision Number:** 52

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name BENTONITE

Product Code(s) HM000126

Other means of identification

Pure substance/mixture Substance

Recommended use of the chemical and restrictions on use

Recommended use Viscosifier
Weight Additive

Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

GHS Classification

Carcinogenicity	Category 1A
Specific target organ toxicity — repeated exposure	Category 2

Label elements



Signal word
DANGER

Hazard statements
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements - Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/clothing and eye/face protection.
Do not breathe dust/fume/gas/mist/vapours/spray.
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention.
Precautionary Statements - Storage
Store locked up.
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification
No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Crystalline silica, quartz	14808-60-7	1 - 5%
Non-hazardous ingredients	Proprietary	Balance

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret

Section 4: First aid measures

Description of first aid measures

General advice IF exposed or concerned: Get medical advice/attention.

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

Skin contact Wash skin with soap and water.

Ingestion Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Effects of Exposure May cause cancer. May cause damage to organs through prolonged or repeated exposure.

Indication of any immediate medical attention and special treatment needed

Note to doctors Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media All standard fire fighting media. Water fog, carbon dioxide, foam, dry chemical.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical No information available.

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing.

General hygiene considerations If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product. Do not eat, drink or smoke when using this product. Wash hands before breaks

and immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

Incompatible materials Hydrofluoric acid.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Australia	New Zealand	ACGIH TLV
Crystalline silica, quartz 14808-60-7	TWA: 0.05 mg/m³	TWA: 0.025 mg/m³	-

Chemical name	OSHA PEL	NIOSH
Crystalline silica, quartz 14808-60-7	TWA: 50 µg/m³ (vacated) TWA: 0.1 mg/m³ respirable dust : (250)/(%SiO2 + 5) mppcf TWA respirable fraction : (10)/(%SiO2 + 2) mg/m³ TWA respirable fraction	IDLH: 50 mg/m³ respirable dust TWA: 0.05 mg/m³ respirable dust

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses or goggles to protect against exposure. (EN-166).

Skin and body protection Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing. Wear suitable protective clothing.

Hand protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace. Wear suitable gloves.

Respiratory protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3).

Environmental exposure controls No information available.

Other protective equipment Eyewash fountains and safety showers must be easily accessible.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Colour	Various
Odour	Odourless.
Odour threshold	No information available

Property	**Values**	**Remarks • Method**
pH	9.9	None known
Melting point / freezing point	.	Solid
Initial boiling point and boiling range		Solid
Flash point	.	Solid
Evaporation rate	No data available	
Flammability	No data available	Solid
Flammability Limit in Air		Solid
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	Solid
Relative vapour density	No data available	
Relative density	2.65 (g/cm3)	
Water solubility	Insoluble in water	
Solubility(ies)	Insoluble in water	
Partition coefficient	No data available	
Autoignition temperature	.	Solid
Decomposition temperature		
Kinematic viscosity	Not applicable	Solid
Dynamic viscosity	Not applicable	Solid
Other information		
Pour Point	No data available	
VOC content	No information available	
Bulk density	< 1300 (kg/m^3)	
Particle characteristics	No information available	
Particle Size	>= 95% < 125 µm	
Particle Size Distribution	>= 95% < 125 µm	

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Hydrofluoric acid.

Hazardous decomposition products

Hazardous decomposition products Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Section 11: Toxicological information

Information on likely routes of exposure

Principle Routes of Exposure Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms No information available.

Acute toxicity .

Numerical measures of toxicity - Product Information

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Crystalline silica, quartz	> 15000 mg/kg (human)	-	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation

Chemical name	Skin corrosion/irritation
Crystalline silica, quartz 14808-60-7	Non-irritating to the skin

Serious eye damage/eye irritation

Chemical name	Serious eye damage/eye irritation
Crystalline silica, quartz 14808-60-7	Non-irritating to the eye

Respiratory or skin sensitisation

Chemical name	Respiratory sensitisation
Crystalline silica, quartz 14808-60-7	Not classified
Chemical name	Skin sensitisation
Crystalline silica, quartz 14808-60-7	Not classified

Germ cell mutagenicity

Chemical name	Germ cell mutagenicity
Crystalline silica, quartz 14808-60-7	Not regarded as mutagenic.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

Chemical name	Carcinogenicity
Crystalline silica, quartz 14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	Australia	European Union	IARC
Crystalline silica, quartz - 14808-60-7	Carc. 1A	-	Group 1

Legend

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

Reproductive toxicity

Chemical name	Reproductive toxicity
Crystalline silica, quartz 14808-60-7	This product does not contain any known or suspected reproductive hazards

STOT - single exposure

Chemical name	STOT - single exposure
Crystalline silica, quartz 14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Chemical name	STOT - repeated exposure
Crystalline silica, quartz 14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Aspiration hazard

Chemical name	Aspiration hazard
Crystalline silica, quartz 14808-60-7	Based on available data, the classification criteria are not met

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Crystalline silica, quartz	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	-	LL50(24 h)>10000 mg/L (Daphnia magna)

Terrestrial ecotoxicity There is no data for this product.

Persistence and degradability

Chemical name	Persistence and degradability
Crystalline silica, quartz 14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation

Mobility

Chemical name	Mobility
Crystalline silica, quartz 14808-60-7	No information available

Other adverse effects

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	Crystalline silica, quartz - 14808-60-7
Contact supplier for inventory compliance status	-		

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

TSCA	All components listed on inventory or are exempt
AIIC	All components listed on inventory or are exempt
NZIoC	All components listed on inventory or are exempt

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal Not applicable

Section 16: Any other relevant information

Revision date 07-Aug-2024

Reason for revision Update to Format SDS sections updated: 2

Key or legend to abbreviations and acronyms used in the safety data sheet
ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%

EC50 – Effective Concentration 50%
EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

Key literature references and sources for data used to compile the SDS

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European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

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End of Safety Data Sheet

BiSN 185

Safety Data Sheet

according to the Work Health and Safety (WHS) Regulations
Issue date: 14/03/2023 Revision date: 14/03/2023 Version: 1.0

SECTION 1: Product identifier

1.1. GHS Product identifier

Product form : Mixture
Product name : BiSN 185

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Formation of plugs in oil and gas wells

1.4. Details of manufacturer or importer

Manufacturer
BiSN Australia Pyt LTD
18 Bellows Street
Welshpool WA 6106
T +61 423 571 842

1.5. Emergency phone number

Emergency number : +61 423 571 842

SECTION 2: Hazard identification

Metallic product which poses little or no immediate hazard in solid form. Exposure to the elements by inhalation, ingestion, and skin contact can occur when melting, casting, dross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulates.

2.1. Classification of the hazardous chemical

Classification according to the model Work Health and Safety Regulations (WHS Regulations)

Acute toxicity (oral), Category 4 H302

2.2. GHS Label elements, including precautionary statements

Hazard pictograms (GHS AU) :



Exclamation mark

Signal word (GHS AU) : Warning
Contains : Tin (1 – 50 %) and Bismuth (50 – 99 %)
Hazard statements (GHS AU) : H302 - Harmful if swallowed
Precautionary statements (GHS AU) : P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P330 - Rinse mouth.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

SECTION 3: Composition and information on ingredients

Name	CAS-No.	%
Bismuth	7440-69-9	50 - 99
Tin	7440-31-5	1 – 50

SECTION 4: First aid measures

4.1. Description of necessary first-aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists. In case of contact with hot or molten product, get immediate medical advice/attention.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.In case of contact with hot or molten product, get immediate medical advice/attention.

First-aid measures after ingestion : IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

4.2. Symptoms caused by exposure

Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Inhalation of fumes may cause metal fume fever.

Symptoms/effects after skin contact : May cause skin irritation. Repeated exposure may cause skin dryness or cracking.Risk of thermal burns on contact with molten product.

Symptoms/effects after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/effects after ingestion : Harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Medical attention and special treatment

Other medical advice or treatment : Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO2). Dry chemical. Foam. Water spray.

Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Products of combustion may include, and are not limited to: Metal oxides, Toxic fumes.

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and materials for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Avoid generating dust. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Pick up large pieces, then place in a suitable container. With molten spills, allow the material to solidify and cool.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Good housekeeping is important to prevent accumulation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Use only in well ventilated areas.

Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Store tightly closed in a dry, cool and well-ventilated place. Store locked up. Store in dust-tight, dry, labelled containers. Avoid any dust buildup by frequent cleaning and suitable construction of the storage area.

Incompatible materials : Refer to Section 10 on Incompatible Materials.

SECTION 8: Exposure controls and personal protection

8.1. Control parameters - exposure standards

Tin (7440-31-5)	
Australia - Occupational Exposure Limits	
OES TWA [1]	2 mg/m³
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	2 mg/m³ (inhalable particulate matter)

8.2. Biological Monitoring

No additional information available

8.3. Engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

8.4. Individual protection measures, such as personal protective equipment (PPE)

Hand protection	:	Wear suitable gloves. Consult glove manufacturer´s product information on material suitability and material thickness.
Eye protection	:	Safety glasses or goggles are recommended when using product.
Skin and body protection	:	Wear appropriate heat resistant protective clothing when working with molten product.
Respiratory protection	:	In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.
Environmental exposure controls	:	Avoid release to the environment.
Other information	:	Handle in accordance with good industrial hygiene and safety procedures.

SECTION 9: Physical and chemical properties

Physical state	:	Solid
Appearance	:	Metal.
Colour	:	Silvery grey
Odour	:	Practically odorless
Odour threshold	:	No data available
pH	:	Not applicable
pH solution	:	Not applicable
Relative evaporation rate (butylacetate=1)	:	Not applicable
Melting point / Freezing point	:	Melting point: 138 °C (alloy); 185 °C (liquid)
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Flammability	:	Not flammable
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	No data available
Solubility	:	Water: Insoluble
Partition coefficient n-octanol/water	:	No data available
Explosive properties	:	No data available
Explosive limits	:	No data available
Minimum ignition energy	:	No data available
Fat solubility	:	No data available

SECTION 10: Stability and reactivity

Reactivity	:	No dangerous reactions known under normal conditions of use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reactions known under normal conditions of use.
Conditions to avoid	:	Heat. Incompatible materials.
Incompatible materials	:	Mineral acids.
Hazardous decomposition products	:	Tin oxides. Oxides of bismuth.

SECTION 11: Toxicological information

Acute toxicity (oral)	:	Harmful if swallowed.
Acute toxicity (dermal)	:	Not classified.
Acute toxicity (inhalation)	:	Not classified.

ATE AU (oral)	1096.148 mg/kg bodyweight

Bismuth (7440-69-9)	
LD50 oral rat	5 g/kg

Tin (7440-31-5)	
LD50 oral rat	700 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat	> 4.75 mg/l/4h

Skin corrosion/irritation : Not classified.
Serious eye damage/irritation : Not classified.
Respiratory or skin sensitisation : Not classified.
Germ cell mutagenicity : Not classified.
Carcinogenicity : Not classified.
Reproductive toxicity : Not classified.
STOT-single exposure : Not classified.
STOT-repeated exposure : Not classified.

Bismuth (7440-69-9)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)

Aspiration hazard : Not classified.

Tin (7440-31-5)	
Animal studies and expert judgment for classification	False

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye

SECTION 12: Ecological information

According to the National Code of Practice for the Preparation of Material Safety Data Sheets, Environmental classification information is not mandatory. Information relevant for GHS classification is available on request.

12.1. Ecotoxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.
Hazardous to the aquatic environment, short–term (acute) : Not classified.
Hazardous to the aquatic environment, long–term (chronic) : Not classified.
Other information : No other effects known.

Bismuth (7440-69-9)	
LC50 - Fish [1]	> 100 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna

Tin (7440-31-5)	
LC50 - Fish [1]	> 12.4 µg/l Test organisms (species): Pimephales promelas

12.2. Persistence and degradability

BiSN 185	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

BiSN 185	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified.
Other adverse effects : No additional information available

BiSN 185	
Fluorinated greenhouse gases	False

Bismuth (7440-69-9)	
Fluorinated greenhouse gases	False

Tin (7440-31-5)	
Fluorinated greenhouse gases	False

SECTION 13: Disposal considerations

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. The generation of waste should be avoided or minimized wherever possible. Recover and recycle product if possible.

SECTION 14: Transport information

14.1. UN number

UN-No. (ADG) : Not regulated
UN-No. (IMDG) : Not regulated
UN-No. (IATA) : Not regulated

14.2. UN Proper Shipping Name

Proper Shipping Name (ADG) : Not regulated
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

ADG
Transport hazard class(es) (ADG) : Not regulated

IMDG
Transport hazard class(es) (IMDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (ADG) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Marine pollutant : No
Dangerous for the environment : No
Other information : No supplementary information available.

14.6. Special precautions for user

Specific storage requirement : No data available
Shock sensitivity : No data available

14.7. Additional information

Other information : No supplementary information available.
Special transport precautions : Do not handle until all safety precautions have been read and understood.

Transport by road and rail
Not regulated

Transport by sea
Not regulated

Air transport
Not regulated

14.8. Hazchem or Emergency Action Code

Hazchem Code : Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

No additional information available

15.2. International agreements

No additional information available

SECTION 16: Other information

Revision date : 14/03/2023
Expiry date : 14/03/2028
Other information : None.
Prepared by : Nexreg Compliance Inc.
www.Nexreg.com

Classification	
Acute Tox. 4 (Oral)	H302

Full text of H-statements	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
H302	Harmful if swallowed

Safety Data Sheet (SDS), Australia - Nexreg 2022

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

BiSN 263

Safety Data Sheet

according to the Work Health and Safety (WHS) Regulations
Issue date: 21/03/2023 Revision date: 21/03/2023 Version: 1.0

SECTION 1: Product identifier

1.1. GHS Product identifier

Product form : Mixture
Product name : BiSN 263

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Sealing applications in oil field wells

1.4. Details of manufacturer or importer

Manufacturer
BiSN Australia Pyt LTD
18 Bellows Street
Welshpool WA 6106
T +61 423 571 842

1.5. Emergency phone number

Emergency number : +61 423 571 842

SECTION 2: Hazard identification

Metallic product which poses little or no immediate hazard in solid form. Exposure to the elements by inhalation, ingestion, and skin contact can occur when melting, casting, dross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulates.

2.1. Classification of the hazardous chemical

Classification according to the model Work Health and Safety Regulations (WHS Regulations)

Not classified.

2.2. GHS Label elements, including precautionary statements

No labelling applicable

2.3. Other hazards which do not result in classification

No additional information available

SECTION 3: Composition and information on ingredients

Name	CAS-No.	%
Bismuth	7440-69-9	50 - 99
Silver	7440-22-4	1 – 10

SECTION 4: First aid measures

4.1. Description of necessary first-aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists. In case of contact with hot or molten product, get immediate medical advice/attention.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of contact with hot or molten product, get immediate medical advice/attention.

First-aid measures after ingestion : IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

4.2. Symptoms caused by exposure

Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Inhalation of fumes may cause metal fume fever.

Symptoms/effects after skin contact : May cause skin irritation. Repeated exposure may cause skin dryness or cracking. Risk of thermal burns on contact with molten product.

Symptoms/effects after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/effects after ingestion : May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Medical attention and special treatment

Other medical advice or treatment : Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO_2). Dry chemical. Foam. Water spray.

Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Metal oxides. Toxic fumes.

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and materials for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE). Avoid generating dust.

Methods for cleaning up : Pick up large pieces, then place in a suitable container. With molten spills, allow the material to solidify and cool.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Good housekeeping is important to prevent accumulation of dust. Use only outdoors or in a well-ventilated area. The use of compressed air for cleaning clothing, equipment, etc, is not recommended.

Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Store tightly closed in a dry, cool and well-ventilated place. Store locked up. Store in dust-tight, dry, labelled containers. Avoid any dust buildup by frequent cleaning and suitable construction of the storage area.

Incompatible materials : Refer to Section 10 on Incompatible Materials.

SECTION 8: Exposure controls and personal protection

8.1. Control parameters - exposure standards

Silver (7440-22-4)	
Australia - Occupational Exposure Limits	
OES TWA [1]	0.1 mg/m³
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	0.1 mg/m³ (dust and fume)

8.2. Biological Monitoring

No additional information available

8.3. Engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

8.4. Individual protection measures, such as personal protective equipment (PPE)

Hand protection : Wear suitable gloves. Consult glove manufacturer's product information on material suitability and material thickness.

Eye protection : Safety glasses or goggles are recommended when using product.

Skin and body protection : Wear appropriate heat resistant protective clothing when working with molten product

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.

Environmental exposure controls : Avoid release to the environment.

Other information : Handle in accordance with good industrial hygiene and safety procedures.

SECTION 9: Physical and chemical properties

Physical state : Solid

Appearance	:	Metal.
Colour	:	Silvery grey
Odour	:	Practically odorless
Odour threshold	:	No data available
pH	:	Not applicable
pH solution	:	Not applicable
Relative evaporation rate (butylacetate=1)	:	Not applicable
Melting point / Freezing point	:	Melting point: > 505.4 °F (263 °C)
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Flammability	:	Not flammable
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	No data available
Solubility	:	Water: Insoluble
Partition coefficient n-octanol/water	:	No data available
Explosive properties	:	No data available
Explosive limits	:	No data available
Minimum ignition energy	:	No data available
Fat solubility	:	No data available

SECTION 10: Stability and reactivity

Reactivity	:	No dangerous reactions known under normal conditions of use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reactions known under normal conditions of use.
Conditions to avoid	:	Heat. Incompatible materials.
Incompatible materials	:	Strong Acids, Strong Oxidizers, Halogens, Interhalogens.
Hazardous decomposition products	:	Oxides of bismuth. Silver fumes.

SECTION 11: Toxicological information

Acute toxicity (oral)	:	Not classified.
Acute toxicity (dermal)	:	Not classified.
Acute toxicity (inhalation)	:	Not classified.

Bismuth (7440-69-9)	
LD50 oral rat	5 g/kg

Silver (7440-22-4)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat	> 5.16 mg/l/4h

Skin corrosion/irritation	:	Not classified. pH: Not applicable
Serious eye damage/irritation	:	Not classified. pH: Not applicable
Respiratory or skin sensitisation	:	Not classified.
Germ cell mutagenicity	:	Not classified.
Carcinogenicity	:	Not classified.
Reproductive toxicity	:	Not classified.
STOT-single exposure	:	Not classified.
STOT-repeated exposure	:	Not classified.

Bismuth (7440-69-9)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)

Silver (7440-22-4)	
LOAEL (oral, rat, 90 days)	125 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)

Aspiration hazard : Not classified.

Bismuth (7440-69-9)	
Animal studies and expert judgment for classification	False

Silver (7440-22-4)	
Animal studies and expert judgment for classification	False

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye

SECTION 12: Ecological information

According to the National Code of Practice for the Preparation of Material Safety Data Sheets, Environmental classification information is not mandatory. Information relevant for GHS classification is available on request

12.1. Ecotoxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.
Hazardous to the aquatic environment, short–term (acute) : Not classified.
Hazardous to the aquatic environment, long–term (chronic) : Not classified.
Other information : No other effects known.

Bismuth (7440-69-9)	
LC50 - Fish [1]	> 100 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna

Silver (7440-22-4)	
LC50 - Fish [1]	0.00155 – 0.00293 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
LC50 - Fish [2]	0.0062 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 - Crustacea [1]	0.00024 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

12.2. Persistence and degradability

BiSN 263	
Persistence and degradability	Not established.

Silver (7440-22-4)	
Not rapidly degradable	

12.3. Bioaccumulative potential

BiSN 263	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified.
Other adverse effects : No additional information available

BiSN 263	
Fluorinated greenhouse gases	False

Bismuth (7440-69-9)	
Fluorinated greenhouse gases	False

Silver (7440-22-4)	
Fluorinated greenhouse gases	False

SECTION 13: Disposal considerations

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. The generation of waste should be avoided or minimized wherever possible. Recover and recycle product if possible.

SECTION 14: Transport information

14.1. UN number

UN-No. (ADG) : Not regulated
UN-No. (IMDG) : Not regulated
UN-No. (IATA) : Not regulated

14.2. UN Proper Shipping Name

Proper Shipping Name (ADG) : Not regulated
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

ADG
Transport hazard class(es) (ADG) : Not regulated

IMDG
Transport hazard class(es) (IMDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (ADG) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Marine pollutant : No
Dangerous for the environment : No
Other information : No supplementary information available.

14.6. Special precautions for user

Specific storage requirement : No data available
Shock sensitivity : No data available

14.7. Additional information

Other information : No supplementary information available.
Special transport precautions : Do not handle until all safety precautions have been read and understood.

Transport by road and rail
Not applicable

Transport by sea
Not applicable

Air transport
Not applicable

14.8. Hazchem or Emergency Action Code

Hazchem Code : Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

No additional information available

15.2. International agreements

No additional information available

SECTION 16: Other information

Revision date : 21/03/2023
Expiry date : 21/03/2028
Other information : None.
Prepared by : Nexreg Compliance Inc.
www.Nexreg.com

Classification	
Not classified.	

Safety Data Sheet (SDS), Australia - Nexreg 2022

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

BiSN 265

Safety Data Sheet

according to the Work Health and Safety (WHS) Regulations
Issue date: 21/03/2023 Revision date: 21/03/2023 Version: 1.0

SECTION 1: Product identifier

1.1. GHS Product identifier

Product form : Mixture
Product name : BiSN 265

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Formation of plugs in oil and gas wells

1.4. Details of manufacturer or importer

Manufacturer
BiSN Australia Pyt LTD
18 Bellows Street
Welshpool WA 6106
T +61 423 571 842

1.5. Emergency phone number

Emergency number : +61 423 571 842

SECTION 2: Hazard identification

Metallic product which poses little or no immediate hazard in solid form. Exposure to the elements by inhalation, ingestion, and skin contact can occur when melting, casting, dross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulates.

2.1. Classification of the hazardous chemical

Classification according to the model Work Health and Safety Regulations (WHS Regulations)

Acute toxicity (oral), Category 4 H302

2.2. GHS Label elements, including precautionary statements

Hazard pictograms (GHS AU) :



Exclamation mark

Signal word (GHS AU) : Warning
Contains : Tin (1 – 50 %), Bismuth (50 – 99 %), Silver (0.1 – 10 %)
Hazard statements (GHS AU) : H302 - Harmful if swallowed
Precautionary statements (GHS AU) : P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P330 - Rinse mouth.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

SECTION 3: Composition and information on ingredients

Name	CAS-No.	%
Bismuth	7440-69-9	50 - 99
Tin	7440-31-5	1 – 50
Silver	7440-22-4	0.1 – 10

SECTION 4: First aid measures

4.1. Description of necessary first-aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists. In case of contact with hot or molten product, get immediate medical advice/attention.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of contact with hot or molten product, get immediate medical advice/attention.

First-aid measures after ingestion : IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

4.2. Symptoms caused by exposure

Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Inhalation of fumes may cause metal fume fever.

Symptoms/effects after skin contact : May cause skin irritation. Repeated exposure may cause skin dryness or cracking. Risk of thermal burns on contact with molten product.

Symptoms/effects after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/effects after ingestion : Harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Medical attention and special treatment

Other medical advice or treatment : Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO2). Dry chemical. Foam. Water spray.

Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Metal oxides. Toxic fumes.

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and materials for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE). Avoid generating dust.

Methods for cleaning up : Pick up large pieces, then place in a suitable container. With molten spills, allow the material to solidify and cool.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Good housekeeping is important to prevent accumulation of dust. Use only outdoors or in a well-ventilated area. The use of compressed air for cleaning clothing, equipment, etc, is not recommended.

Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Store tightly closed in a dry, cool and well-ventilated place. Store locked up. Store in dust-tight, dry, labelled containers. Avoid any dust buildup by frequent cleaning and suitable construction of the storage area.

Incompatible materials : Refer to Section 10 on Incompatible Materials.

SECTION 8: Exposure controls and personal protection

8.1. Control parameters - exposure standards

Silver (7440-22-4)	
Australia - Occupational Exposure Limits	
OES TWA [1]	0.1 mg/m³
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	0.1 mg/m³ (dust and fume)

Tin (7440-31-5)	
Australia - Occupational Exposure Limits	
OES TWA [1]	2 mg/m³
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	2 mg/m³ (inhalable particulate matter)

8.2. Biological Monitoring

No additional information available

8.3. Engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

8.4. Individual protection measures, such as personal protective equipment (PPE)

Hand protection : Wear suitable gloves. Consult glove manufacturer's product information on material suitability and material thickness.

Eye protection : Safety glasses or goggles are recommended when using product.

Skin and body protection : Wear appropriate heat resistant protective clothing when working with molten product

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.

Environmental exposure controls : Avoid release to the environment.

Other information : Handle in accordance with good industrial hygiene and safety procedures.

SECTION 9: Physical and chemical properties

Physical state	: Solid
Appearance	: Metal.
Colour	: Silvery grey
Odour	: Practically odorless
Odour threshold	: No data available
pH	: Not applicable
pH solution	: Not applicable
Relative evaporation rate (butylacetate=1)	: Not applicable
Melting point / Freezing point	: Melting point: > 509 °F (265 °C)
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Flammability	: Not flammable
Vapour pressure	: No data available
Relative density	: No data available
Density	: No data available
Solubility	: Water: Insoluble
Partition coefficient n-octanol/water	: No data available
Explosive properties	: No data available
Explosive limits	: No data available
Minimum ignition energy	: No data available
Fat solubility	: No data available

SECTION 10: Stability and reactivity

Reactivity	: No dangerous reactions known under normal conditions of use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Conditions to avoid	: Heat. Incompatible materials.
Incompatible materials	: Mineral acids.
Hazardous decomposition products	: Tin oxides. Oxides of bismuth. Silver fumes.

SECTION 11: Toxicological information

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified.
Acute toxicity (inhalation)	: Not classified.

ATE AU (oral)	1096.148 mg/kg bodyweight

Bismuth (7440-69-9)	
LD50 oral rat	5 g/kg

Silver (7440-22-4)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat	> 5.16 mg/l/4h

Tin (7440-31-5)	
LD50 oral rat	700 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat	> 4.75 mg/l/4h

Skin corrosion/irritation : Not classified.
pH: Not applicable

Serious eye damage/irritation : Not classified.
pH: Not applicable

Respiratory or skin sensitisation : Not classified.

Germ cell mutagenicity : Not classified.

Carcinogenicity : Not classified.

Reproductive toxicity : Not classified.

STOT-single exposure : Not classified.

STOT-repeated exposure : Not classified.

Bismuth (7440-69-9)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)

Silver (7440-22-4)	
LOAEL (oral, rat, 90 days)	125 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)

Aspiration hazard : Not classified.

Bismuth (7440-69-9)	
Animal studies and expert judgment for classification	False

Silver (7440-22-4)	
Animal studies and expert judgment for classification	False

Tin (7440-31-5)	
Animal studies and expert judgment for classification	False

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye

SECTION 12: Ecological information

According to the National Code of Practice for the Preparation of Material Safety Data Sheets, Environmental classification information is not mandatory. Information relevant for GHS classification is available on request

12.1. Ecotoxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.

Hazardous to the aquatic environment, short–term (acute) : Not classified.

Hazardous to the aquatic environment, long–term (chronic) : Not classified.

Other information : No other effects known.

Bismuth (7440-69-9)	
LC50 - Fish [1]	> 100 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
Silver (7440-22-4)	
LC50 - Fish [1]	0.00155 – 0.00293 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
LC50 - Fish [2]	0.0062 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 - Crustacea [1]	0.00024 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
Tin (7440-31-5)	
LC50 - Fish [1]	> 12.4 µg/l Test organisms (species): Pimephales promelas

12.2. Persistence and degradability

BiSN 265	
Persistence and degradability	Not established.
Silver (7440-22-4)	
Not rapidly degradable	

12.3. Bioaccumulative potential

BiSN 265	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified.
Other adverse effects : No additional information available

BiSN 265	
Fluorinated greenhouse gases	False
Bismuth (7440-69-9)	
Fluorinated greenhouse gases	False
Silver (7440-22-4)	
Fluorinated greenhouse gases	False
Tin (7440-31-5)	
Fluorinated greenhouse gases	False

SECTION 13: Disposal considerations

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. The generation of waste should be avoided or minimized wherever possible. Recover and recycle product if possible.

SECTION 14: Transport information

14.1. UN number

UN-No. (ADG) : Not regulated

UN-No. (IMDG) : Not regulated
UN-No. (IATA) : Not regulated

14.2. UN Proper Shipping Name

Proper Shipping Name (ADG) : Not regulated
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

ADG
Transport hazard class(es) (ADG) : Not regulated

IMDG
Transport hazard class(es) (IMDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (ADG) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Marine pollutant : No
Dangerous for the environment : No
Other information : No supplementary information available.

14.6. Special precautions for user

Specific storage requirement : No data available
Shock sensitivity : No data available

14.7. Additional information

Other information : No supplementary information available.
Special transport precautions : Do not handle until all safety precautions have been read and understood.

Transport by road and rail
Not applicable

Transport by sea
Not applicable

Air transport
Not applicable

14.8. Hazchem or Emergency Action Code

Hazchem Code : Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

No additional information available

15.2. International agreements

No additional information available

SECTION 16: Other information

Revision date : 21/03/2023
Expiry date : 21/03/2028
Other information : None.
Prepared by : Nexreg Compliance Inc.
www.Nexreg.com

Classification	
Acute Tox. 4 (Oral)	H302

Full text of H-statements	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
H302	Harmful if swallowed

Safety Data Sheet (SDS), Australia - Nexreg 2022

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

ETC-1

Safety Data Sheet

according to the Work Health and Safety (WHS) Regulations
Issue date: 2/22/2024 Revision date: 2/22/2024 Version: 1.0

SECTION 1: Product identifier

1.1. GHS Product identifier

Product form : Mixture
Product name : ETC-1

1.2. Other means of identification

Synonyms : Thermite reaction, Thermite powder, Alumino-thermic reaction

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Sealing applications in oil field wells

1.4. Details of manufacturer or importer

Manufacturer
BiSN Oil Tools Ltd.
713 Cavendish Ave.
Birchwood Warrington WA3 6DE
UK
T +44 (0) 1928597807

Distributor
BiSN Australia Pyt LTD
18 Bellows Street
Welshpool, WA 6106
Australia
T +61 423 571 842

1.5. Emergency phone number

Emergency number : +61 423 571 842

SECTION 2: Hazard identification

2.1. Classification of the hazardous chemical

Classification according to the model Work Health and Safety Regulations (WHS Regulations)

Flammable solids, Category 1	H228
Substances and Mixtures which, in contact with water, emit flammable gases, Category 2	H261
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H318
Carcinogenicity, Category 1A	H350
Specific target organ toxicity – Repeated exposure, Category 1	H372

2.2. GHS Label elements, including precautionary statements

Hazard pictograms (GHS AU) :



Flame Corrosion Health hazard

Signal word (GHS AU) : Danger
Contains : Sodium silicate (1 - 5 %); Quartz (7 - 30 %)
Hazard statements (GHS AU) : H228 - Flammable solid
H261 - In contact with water releases flammable gases
H315 - Causes skin irritation
H318 - Causes serious eye damage
H350 - May cause cancer
H372 - Causes damage to organs through prolonged or repeated exposure
Precautionary statements (GHS AU) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P223 - Do not allow contact with water.

P231+P232 - Handle and store contents under inert gas. Protect from moisture.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof equipment.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P335+P334 - IF ON SKIN: Brush off loose particles from skin. Immerse in cool water or wrap in wet bandages.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER or doctor.
P314 - Get medical advice/attention if you feel unwell.
P402+P404 - Store in a dry place. Store in a closed container.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

Other hazards which do not result in classification : May form combustible dust concentrations in air.

SECTION 3: Composition and information on ingredients

Name	CAS-No.	%
Quartz	14808-60-7	7 - 30
Aluminum	7429-90-5	10 - 30
Sodium silicate	1344-09-8	1 - 5
Iron Oxide	1317-61-9	47-64
Non hazardous or chemicals not contributing to final classification	Proprietary	To 100%

*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

SECTION 4: First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
First-aid measures after skin contact : IF ON SKIN: Wash with plenty of water. Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
First-aid measures after ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Symptoms caused by exposure

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : Causes skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/effects after eye contact : Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. May cause burns.
Symptoms/effects after ingestion : May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic symptoms : May cause cancer. Causes damage to organs through prolonged or repeated exposure.

4.3. Medical attention and special treatment

Other medical advice or treatment : Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Flammable solid. Combustible dust. Products of combustion may include, and are not limited to: oxides of carbon. irritating vapours.
Explosion hazard : May form flammable/explosive vapour-air mixture. Airborne dust in sufficient concentrations when confined and exposed to a sufficient ignition source can explode.
General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (ie, clearing dust surfaces with compressed air). Use only non-sparking tools.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).
Hazchem Code : 4W

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (ie, clearing dust surfaces with compressed air). Use only non-sparking tools.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and materials for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Minimize dust generation. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
Methods for cleaning up : Sweep or shovel spills into appropriate container for disposal. Provide ventilation.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable. Do not allow contact with water.

Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Do not swallow. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid generating dust. Handle and open container with care. Avoid contact with skin and eyes. When using do not eat, drink or smoke. No open flames. No smoking. Handle under inert gas. Good housekeeping is important to prevent accumulation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Use only in well ventilated areas. Handling this product may result in electrostatic accumulation. Use proper grounding procedures.

Hygiene measures : Take off contaminated clothing and wash it before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment.

Storage conditions : Keep away from sources of ignition. Keep out of the reach of children. Keep container tightly closed. Store in a dry, cool and well-ventilated place. Store locked up. Protect from sunlight. Keep in fireproof place. Store in a dry place. Protect from moisture. Store in dust-tight, dry, labelled containers. Avoid any dust buildup by frequent cleaning and suitable construction of the storage area.

Incompatible materials : Do not allow contact with water.

Special rules on packaging : Store in a closed container.

SECTION 8: Exposure controls and personal protection

8.1. Control parameters - exposure standards

Aluminum (7429-90-5)	
Australia - Occupational Exposure Limits	
OES TWA	10 mg/m³ (dust) 5 mg/m³ (welding fume)
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	1 mg/m³ (respirable particulate matter)
ACGIH chemical category	Not Classifiable as a Human Carcinogen

Quartz (14808-60-7)	
Australia - Occupational Exposure Limits	
Local name	Quartz [Silica – Crystalline]
OES TWA	0.05 mg/m³ (respirable dust)
Remark (AU)	Carcinogenicity Category 1A – Known to have carcinogenic potential for humans. The classification of a chemical into this category is based largely on human evidence from studies that have established a causal relationship between human exposure and the development of cancer.
Regulatory reference	Workplace exposure standards for airborne contaminants (2022)
USA - ACGIH - Occupational Exposure Limits	
Local name	Silica crystaline - quartz
ACGIH OEL TWA	0.025 mg/m³ (respirable particulate matter)

Quartz (14808-60-7)	
Remark (ACGIH)	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
ACGIH chemical category	Suspected Human Carcinogen
Regulatory reference	ACGIH 2023

8.2. Biological Monitoring

No additional information available

8.3. Engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Provide readily accessible eye wash stations and safety showers. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e, there is not leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

8.4. Individual protection measures, such as personal protective equipment (PPE)

Hand protection : Wear suitable gloves resistant to chemical penetration. Consult glove manufacturer's product information on material suitability and material thickness.

Eye protection : Wear eye/face protection

Skin and body protection : Wear suitable protective clothing

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.

Environmental exposure controls : Avoid release to the environment.

Other information : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

Physical state : Solid

Appearance : Granular powder.

Colour : Gray

Odour : Odourless

Odour threshold : No data available

pH : No data available

pH solution : No data available

Relative evaporation rate (butylacetate=1) : No data available

Melting point / Freezing point : Melting point: > 660 °C / 1220 °F

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : > 999 °C / 1830 °F

Flammability : No data available

Vapour pressure : No data available

Relative density : No data available

Density : Density: 1 g/ml @ 20 °C / 68 °F

Solubility : Water: Insoluble

Partition coefficient n-octanol/water : No data available

Explosive properties : May form combustible dust concentrations in air.

Explosive limits : No data available

Minimum ignition energy : No data available

Fat solubility : No data available

Percent Solids : 100 %

SECTION 10: Stability and reactivity

Reactivity : No dangerous reactions known under normal conditions of use.
Chemical stability : Stable under normal conditions. Flammable solid. May form flammable/explosive vapour-air mixture. May form combustible dust concentrations in air.
Possibility of hazardous reactions : No dangerous reactions known under normal conditions of use. In contact with water releases flammable gases.
Conditions to avoid : Heat. Incompatible materials. Open flame. Overheating. Direct sunlight. Sparks. Avoid dust formation. Moisture.
Incompatible materials : Strong oxidizers. Water. Acids. Bases.
Hazardous decomposition products : May include, and are not limited to: oxides of carbon. May release flammable gases. irritating vapours.

SECTION 11: Toxicological information

Acute toxicity (oral) : Not classified.
Acute toxicity (dermal) : Not classified.
Acute toxicity (inhalation) : Not classified.

Aluminum (7429-90-5)	
LD50 oral rat	> 15900 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LC50 inhalation rat	> 0.888 mg/l air Animal: rat, Animal sex: male, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Remarks on results: other:

Sodium silicate (1344-09-8)	
LD50 oral rat	1960 mg/kg
LD50 dermal rat	> 5000 mg/kg bodyweight Animal: rat, Guideline: EPA OPPTS 870.1200 (Acute Dermal Toxicity)
LC50 inhalation rat	> 2.06 mg/l air Animal: rat, Guideline: EPA OPPTS 870.1300 (Acute inhalation toxicity)

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitisation : Not classified.
Germ cell mutagenicity : Not classified.
Carcinogenicity : May cause cancer.
Reproductive toxicity : Not classified.

Sodium silicate (1344-09-8)	
NOAEL (animal/female, F0/P)	> 159 mg/kg bodyweight Animal: rat, Animal sex: female

Aluminum (7429-90-5)	
NOAEL (animal/male, F0/P)	1000 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

STOT-single exposure : Not classified.

Sodium silicate (1344-09-8)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Aluminum (7429-90-5)	
LOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.05 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
NOAEL (subchronic, oral, animal/male, 90 days)	1034 mg/kg bodyweight Animal: dog, Animal sex: male, Guideline: OECD Guideline 409 (Repeated Dose 90-Day Oral Toxicity Study in Non-Rodents)

Aluminum (7429-90-5)	
NOAEL (subchronic, oral, animal/female, 90 days)	1087 mg/kg bodyweight Animal: dog, Animal sex: female, Guideline: OECD Guideline 409 (Repeated Dose 90-Day Oral Toxicity Study in Non-Rodents)

Quartz (14808-60-7)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified.

Aluminum (7429-90-5)	
Animal studies and expert judgment for classification	False

Sodium silicate (1344-09-8)	
Animal studies and expert judgment for classification	False

Quartz (14808-60-7)	
Animal studies and expert judgment for classification	False

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye

SECTION 12: Ecological information

According to the National Code of Practice for the Preparation of Material Safety Data Sheets, Environmental classification information is not mandatory. Information relevant for GHS classification is available on request

12.1. Ecotoxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.
Unknown hazards to the aquatic environment (GHS AU) : Contains 24 % of components with unknown hazards to the aquatic environment
Hazardous to the aquatic environment, short–term (acute) : Not classified.
Hazardous to the aquatic environment, long–term (chronic) : Not classified.
Other information : No other effects known.

Sodium silicate (1344-09-8)	
LC50 - Fish [1]	301 – 478 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus)
LC50 - Fish [2]	3185 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [semi-static])
EC50 - Crustacea [1]	1700 mg/l Test organisms (species): Daphnia magna
BCF - Fish [1]	(no bioaccumulation expected)

12.2. Persistence and degradability

ETC-1	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

ETC-1	
Bioaccumulative potential	Not established.

Sodium silicate (1344-09-8)	
BCF - Fish [1]	(no bioaccumulation expected)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified.
Other adverse effects : No additional information available

ETC-1	
Fluorinated greenhouse gases	False

Aluminum (7429-90-5)	
Fluorinated greenhouse gases	False

Sodium silicate (1344-09-8)	
Fluorinated greenhouse gases	False

Quartz (14808-60-7)	
Fluorinated greenhouse gases	False

SECTION 13: Disposal considerations

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
Additional information : Handle empty containers with care because residual vapours are flammable.

SECTION 14: Transport information

14.1. UN number

UN-No. (ADG) : 3132
UN-No. (IMDG) : 3132
UN-No. (IATA) : 3132

14.2. UN Proper Shipping Name

Proper Shipping Name (ADG) : WATER-REACTIVE SOLID, FLAMMABLE, N.O.S. (Aluminum)
Proper Shipping Name (IMDG) : WATER-REACTIVE SOLID, FLAMMABLE, N.O.S. (Aluminum)
Proper Shipping Name (IATA) : Water-reactive solid, flammable, n.o.s. (Aluminum)

14.3. Transport hazard class(es)

ADG
Transport hazard class(es) (ADG) : 4.3 (4.1)
Danger labels (ADG) : 4.3, 4.1
:



IMDG
Transport hazard class(es) (IMDG) : 4.3 (4.1)
Danger labels (IMDG) : 4.3, 4.1
:



IATA
Transport hazard class(es) (IATA) : 4.3 (4.1)
Danger labels (IATA) : 4.3, 4.1

:



14.4. Packing group

Packing group (ADG) : II - Substances presenting medium danger
Packing group (IMDG) : II
Packing group (IATA) : II

14.5. Environmental hazards

Marine pollutant : No
Dangerous for the environment : No
Other information : No supplementary information available.

14.6. Special precautions for user

Specific storage requirement : No data available
Shock sensitivity : No data available

14.7. Additional information

Other information : No supplementary information available.
Special transport precautions : Do not handle until all safety precautions have been read and understood.

Transport by road and rail

UN-No. (ADG) : 3132
Special provision (ADG) : 274
Limited quantities (ADG) : 500g
Excepted quantities (ADG) : E2
Packing instructions (ADG) : P410, IBC04
Portable tank and bulk container instructions (ADG) : T3
Portable tank and bulk container special provisions (ADG) : TP33

Transport by sea

UN-No. (IMDG) : 3132

Air transport

UN-No. (IATA) : 3132

14.8. Hazchem or Emergency Action Code

Hazchem Code : 4W

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

No additional information available

15.2. International agreements

No additional information available

SECTION 16: Other information

Revision date : 22/02/2024
Expiry date : 22/02/2029
Other information : Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

Prepared by : Nexreg Compliance Inc.
www.Nexreg.com

Classification	
Flam. Sol. 1	H228
Water-react. 2	H261
Skin Irrit. 2	H315
Eye Dam. 1	H318
Carc. 1A	H350
STOT RE 1	H372

Full text of H-statements	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Carc. 1A	Carcinogenicity, Category 1A
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Sol. 1	Flammable solids, Category 1
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
Water-react. 2	Substances and Mixtures which, in contact with water, emit flammable gases, Category 2
H228	Flammable solid
H261	In contact with water releases flammable gases
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

BiSN 138

Safety Data Sheet

according to the Work Health and Safety (WHS) Regulations
Issue date: 21/03/2023 Revision date: 21/03/2023 Version: 1.0

SECTION 1: Product identifier

1.1. GHS Product identifier

Product form : Mixture
Product name : BiSN 138

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Formation of plugs in oil and gas wells

1.4. Details of manufacturer or importer

Manufacturer
BiSN Australia Pyt LTD
18 Bellows Street
Welshpool WA 6106
T +61 423 571 842

1.5. Emergency phone number

Emergency number : +61 423 571 842

SECTION 2: Hazard identification

Metallic product which poses little or no immediate hazard in solid form. Exposure to the elements by inhalation, ingestion, and skin contact can occur when melting, casting, dross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulates.

2.1. Classification of the hazardous chemical

Classification according to the model Work Health and Safety Regulations (WHS Regulations)

Acute toxicity (oral), Category 4 H302

2.2. GHS Label elements, including precautionary statements

Hazard pictograms (GHS AU) :



Exclamation mark

Signal word (GHS AU) : Warning
Contains : Tin (1 – 50 %) and Bismuth (50 – 99 %)
Hazard statements (GHS AU) : H302 - Harmful if swallowed
Precautionary statements (GHS AU) : P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P330 - Rinse mouth.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

SECTION 3: Composition and information on ingredients

Name	CAS-No.	%
Bismuth	7440-69-9	50 - 99
Tin	7440-31-5	1 – 50

SECTION 4: First aid measures

4.1. Description of necessary first-aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists. In case of contact with hot or molten product, get immediate medical advice/attention.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.In case of contact with hot or molten product, get immediate medical advice/attention.

First-aid measures after ingestion : IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

4.2. Symptoms caused by exposure

Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Inhalation of fumes may cause metal fume fever.

Symptoms/effects after skin contact : May cause skin irritation. Repeated exposure may cause skin dryness or cracking.Risk of thermal burns on contact with molten product.

Symptoms/effects after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/effects after ingestion : Harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Medical attention and special treatment

Other medical advice or treatment : Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO2). Dry chemical. Foam. Water spray.

Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Products of combustion may include, and are not limited to: Metal oxides, Toxic fumes.

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and materials for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Avoid generating dust. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Pick up large pieces, then place in a suitable container. With molten spills, allow the material to solidify and cool.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Good housekeeping is important to prevent accumulation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Use only in well ventilated areas.

Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Store tightly closed in a dry, cool and well-ventilated place. Store locked up. Store in dust-tight, dry, labelled containers. Avoid any dust buildup by frequent cleaning and suitable construction of the storage area.

Incompatible materials : Refer to Section 10 on Incompatible Materials.

SECTION 8: Exposure controls and personal protection

8.1. Control parameters - exposure standards

Tin (7440-31-5)	
Australia - Occupational Exposure Limits	
OES TWA [1]	2 mg/m³
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	2 mg/m³ (inhalable particulate matter)

8.2. Biological Monitoring

No additional information available

8.3. Engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

8.4. Individual protection measures, such as personal protective equipment (PPE)

Hand protection	:	Wear suitable gloves. Consult glove manufacturer´s product information on material suitability and material thickness.
Eye protection	:	Safety glasses or goggles are recommended when using product.
Skin and body protection	:	Wear appropriate heat resistant protective clothing when working with molten product.
Respiratory protection	:	In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.
Environmental exposure controls	:	Avoid release to the environment.
Other information	:	Handle in accordance with good industrial hygiene and safety procedures.

SECTION 9: Physical and chemical properties

Physical state	:	Solid
Appearance	:	Metal.
Colour	:	Silvery grey
Odour	:	Practically odorless
Odour threshold	:	No data available
pH	:	Not applicable
pH solution	:	Not applicable
Relative evaporation rate (butylacetate=1)	:	Not applicable
Melting point / Freezing point	:	Melting point: 138 °C (alloy); 138 °C (liquid)
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Flammability	:	Not flammable
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	No data available
Solubility	:	Water: Insoluble
Partition coefficient n-octanol/water	:	No data available
Explosive properties	:	No data available
Explosive limits	:	No data available
Minimum ignition energy	:	No data available
Fat solubility	:	No data available

SECTION 10: Stability and reactivity

Reactivity	:	No dangerous reactions known under normal conditions of use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reactions known under normal conditions of use.
Conditions to avoid	:	Heat. Incompatible materials.
Incompatible materials	:	Mineral acids.
Hazardous decomposition products	:	Tin oxides. Oxides of bismuth.

SECTION 11: Toxicological information

Acute toxicity (oral)	:	Harmful if swallowed.
Acute toxicity (dermal)	:	Not classified.
Acute toxicity (inhalation)	:	Not classified.

ATE AU (oral)	1096.148 mg/kg bodyweight

Bismuth (7440-69-9)	
LD50 oral rat	5 g/kg

Tin (7440-31-5)	
LD50 oral rat	700 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat	> 4.75 mg/l/4h

Skin corrosion/irritation : Not classified.
Serious eye damage/irritation : Not classified.
Respiratory or skin sensitisation : Not classified.
Germ cell mutagenicity : Not classified.
Carcinogenicity : Not classified.
Reproductive toxicity : Not classified.
STOT-single exposure : Not classified.
STOT-repeated exposure : Not classified.

Bismuth (7440-69-9)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)

Aspiration hazard : Not classified.

Tin (7440-31-5)	
Animal studies and expert judgment for classification	False

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye

SECTION 12: Ecological information

According to the National Code of Practice for the Preparation of Material Safety Data Sheets, Environmental classification information is not mandatory. Information relevant for GHS classification is available on request.

12.1. Ecotoxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.
Hazardous to the aquatic environment, short–term (acute) : Not classified.
Hazardous to the aquatic environment, long–term (chronic) : Not classified.
Other information : No other effects known.

Bismuth (7440-69-9)	
LC50 - Fish [1]	> 100 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna

Tin (7440-31-5)	
LC50 - Fish [1]	> 12.4 µg/l Test organisms (species): Pimephales promelas

12.2. Persistence and degradability

BiSN 138	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

BiSN 138	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified.
Other adverse effects : No additional information available

BiSN 138	
Fluorinated greenhouse gases	False

Bismuth (7440-69-9)	
Fluorinated greenhouse gases	False

Tin (7440-31-5)	
Fluorinated greenhouse gases	False

SECTION 13: Disposal considerations

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. The generation of waste should be avoided or minimized wherever possible. Recover and recycle product if possible.

SECTION 14: Transport information

14.1. UN number

UN-No. (ADG) : Not regulated
UN-No. (IMDG) : Not regulated
UN-No. (IATA) : Not regulated

14.2. UN Proper Shipping Name

Proper Shipping Name (ADG) : Not regulated
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

ADG
Transport hazard class(es) (ADG) : Not regulated

IMDG
Transport hazard class(es) (IMDG) : Not regulated

IATA
Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (ADG) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Marine pollutant : No
Dangerous for the environment : No
Other information : No supplementary information available.

14.6. Special precautions for user

Specific storage requirement : No data available
Shock sensitivity : No data available

14.7. Additional information

Other information : No supplementary information available.
Special transport precautions : Do not handle until all safety precautions have been read and understood.

Transport by road and rail
Not regulated

Transport by sea
Not regulated

Air transport
Not regulated

14.8. Hazchem or Emergency Action Code

Hazchem Code : Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

No additional information available

15.2. International agreements

No additional information available

SECTION 16: Other information

Revision date : 21/03/2023
Expiry date : 21/03/2028
Other information : None.
Prepared by : Nexreg Compliance Inc.
www.Nexreg.com

Classification	
Acute Tox. 4 (Oral)	H302

Full text of H-statements	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
H302	Harmful if swallowed

Safety Data Sheet (SDS), Australia - Nexreg 2022

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

HALLIBURTON

SAFETY DATA SHEET

BridgeMaker II LCM

Revision date: 10-Jan-2024 **Revision Number:** 20

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name BridgeMaker II LCM

Product Code(s) HM008048

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended use Lost Circulation Material
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

GHS Classification

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS). Not classified.

Label elements

Hazard statements

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS). Not classified.

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients

The product contains no substances which at their given concentration, are considered to be hazardous to health

Chemical name	CAS No	Weight-%
Non-hazardous ingredients	Proprietary	Balance

Section 4: First aid measures

Description of first aid measures

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water.

Ingestion Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media Water fog, carbon dioxide, foam, dry chemical.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical No information available.

Carbon monoxide and carbon dioxide.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

General hygiene considerations If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store away from oxidizers. Store in a dry location. Keep from heat, sparks, and open flames. Store away from alkalis. Product has a shelf life of 60 months.

Incompatible materials Strong acids. Strong alkalis.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls A well ventilated area to control dust levels.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses or goggles to protect against exposure. (EN-166).

Skin and body protection Normal work coveralls.

Hand protection	Normal work gloves.
Respiratory protection	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Dust/mist respirator. (N95, P2/P3).
Environmental exposure controls	No information available.
Other protective equipment	Eyewash fountains and safety showers must be easily accessible.
Thermal hazards	No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Color	Variable Beige Black White Gray
Odor	Odorless.
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH		None known
Melting point / freezing point	No data available	
Initial boiling point and boiling range	4200 °C / 7592 °F	
Flash point	No data available	None known
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	
Relative vapor density	No data available	
Relative density	1.85	
Water solubility	Insoluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity	No information available.

Chemical stability

Stability	Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong acids. Strong alkalis.

Hazardous decomposition products

Hazardous decomposition products Carbon monoxide and carbon dioxide.

Section 11: Toxicological information

Information on likely routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms No information available.

Acute toxicity .

Numerical measures of toxicity - Product Information
No information available

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	99,999.00	mg/kg
ATEmix (dermal)	99,999.00	mg/kg
ATEmix (inhalation-gas)	99,999.00	ppm
ATEmix (inhalation-vapor)	99,999.00	mg/l
ATEmix (inhalation-dust/mist)	99,999.00	mg/l

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Unknown aquatic toxicity	0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.
Terrestrial ecotoxicty	There is no data for this product.
Persistence and degradability	No information available
Bioaccumulation	No information available.
Mobility	No information available

Other adverse effects

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG	Not regulated
IATA	Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

Australian Industrial Chemicals Introduction Scheme (AICIS)
Contact supplier for inventory compliance status

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

AIIC	Contact supplier for inventory compliance status.
NZIoC	Contact supplier for inventory compliance status.
TSCA	Contact supplier for inventory compliance status.
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.

Legend:
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Section 16: Any other relevant information

Revision date 10-Jan-2024

Reason for revision Update to Format

Key or legend to abbreviations and acronyms used in the safety data sheet

ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be

validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

CALCIUM CHLORIDE - POWDER

Revision Date: 15-Mar-2022 **Revision Number:** 44

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name CALCIUM CHLORIDE - POWDER

Other means of Identification

Synonyms None

Hazardous Material Number: HM001502

Recommended use of the chemical and restrictions on use

Recommended Use Accelerator

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Serious Eye Damage/Irritation	Category 2 - H319

Label elements, including precautionary statements

Hazard Pictograms



Signal Word WARNING

Hazard Statements: H319 - Causes serious eye irritation

Precautionary Statements

Prevention P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear eye protection/face protection

Response P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

Storage None

Disposal None

Contains

Substances	**CAS Number**
Calcium chloride, dihydrate	10035-04-8

Other hazards which do not result in classification

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Calcium chloride, dihydrate	10035-04-8	60 - 100%	Eye Irrit. 2A (H319)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes eye irritation. Causes mild skin irritation. May be harmful if swallowed.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

All standard fire fighting media Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

None anticipated

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool, dry location.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Calcium chloride, dihydrate	10035-04-8	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational

	exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Dust proof goggles.
Other Precautions	None known.
Environmental Exposure Controls	Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	White
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	10
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	-
Vapor Density	No data available
Specific Gravity	2.1
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	147.02 (g/mole)
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
None known.
10.6. Hazardous decomposition products
None known.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

Causes eye irritation. Causes mild skin irritation. May be harmful if swallowed.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium chloride, dihydrate	10035-04-8	2301 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.

Eye Contact Causes eye irritation.

Skin Contact Causes mild skin irritation.

Ingestion May be harmful if swallowed. Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels

No data available

Interactive effects

Skin disorders.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Calcium chloride, dihydrate	10035-04-8	Causes mild skin irritation (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
Calcium chloride, dihydrate	10035-04-8	May cause moderate to severe eye irritation. (Rabbit)

Substances	CAS Number	Skin Sensitization
Calcium chloride, dihydrate	10035-04-8	No data of sufficient quality are available.

Substances	CAS Number	Respiratory Sensitization
Calcium chloride, dihydrate	10035-04-8	No information available

Substances	CAS Number	Mutagenic Effects
Calcium chloride, dihydrate	10035-04-8	In vitro tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Calcium chloride, dihydrate	10035-04-8	No information available

Substances	CAS Number	Reproductive toxicity
Calcium chloride, dihydrate	10035-04-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Calcium chloride, dihydrate	10035-04-8	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Calcium chloride, dihydrate	10035-04-8	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Calcium chloride, dihydrate	10035-04-8	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Calcium chloride, dihydrate	10035-04-8	EC50 (72h) 2900 mg/L (Pseudokirchnerella subcapitata) EC50 (72h) >4000 mg/L (Pseudokirchnerella subcapitata)	LC50 (96h) 4630 mg/L (Pimephales promelas)	NOEC 2000 mg/L (Activated sludge, industrial)	EC50 (48h) 1285 mg/L (Daphnia magna) EC16 (21d) 320 mg/L (Daphnia magna) ErC50 (21d) 610 mg/L (Daphnia magna) LC50 (48h) 1285 mg/L (Daphnia magna) LC50 (48h) 2400 mg/L (Daphia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Calcium chloride, dihydrate	10035-04-8	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Calcium chloride, dihydrate	10035-04-8	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Calcium chloride, dihydrate	10035-04-8	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 15-Mar-2022

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H319 - Causes serious eye irritation

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data

www.ChemADVISOR.com/
OSHA
ECHA C&L
NZ CCID

Disclaimer Statement

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End of Safety Data Sheet

Safety Data Sheet

CALCIUM CHLORIDE (All Grades)

Revision date 27-Oct-2023 **Supersedes Date:** 01-Jun-2023 **Version** 10

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name CALCIUM CHLORIDE (All Grades)
Product code PID204

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Commercial chemical

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

Contains
Calcium chloride

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Calcium chloride	233-140-8	10043-52-4	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Drink 1 or 2 glasses of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation persists.
Eye Contact	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Chlorine, May release hydrogen gas (explosive) on contact with metals.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture Avoid contact with: Metals Strong oxidizing agents Strong acids
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Component Information

Chemical Name	Arabic	Australia	Egypt
Calcium chloride	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Calcium chloride	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Calcium chloride	2 mg/m³ MAC	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Calcium chloride	Not determined	Not determined	2 mg/m³ MAC (aerosol)
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Calcium chloride	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against powders and dusts
Tightly fitting safety goggles Safety glasses with side-shields

Hand protection
Wear gloves according to EN 374 to protect against skin effects from powders
Use protective gloves made of: Neoprene Nitrile Rubber
Break through time >480 minutes
Glove thickness 0.5 mm
Frequent change is advisable

Respiratory protection
No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure
Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Color	Off-white
Odor	Odorless

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution	7 - 10	5% sol
Melting / freezing point	772 °C / 1421.6 °F	
Boiling point/range	> 1600 °C / >2912 °F	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	2.1 g/cm³	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

May release hydrogen gas (explosive) on contact with metals.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid contact with water and moist air - product is hygroscopic.

10.5 Incompatible materials

Metals. Strong oxidizing agents. Strong acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium chloride	= 1000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact. Inhalation.

Routes of entry Eye contact. Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Calcium chloride	= 10650 mg/L LC50 Lepomis macrochirus 96 h	No information available	2,400 mg/L EC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
Calcium chloride	Inorganic compound

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
Calcium chloride	Inorganic compound

12.4 Mobility

Mobility
See component information below.

Chemical Name	Mobility
Calcium chloride	Soluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Calcium chloride	After release, disperses through ground water

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	01-Jun-2023
Revision date	27-Oct-2023
Version	10
This SDS has been revised in the following section(s)	1, 16 No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2
Flammability	0
Physical hazard	0
PPE	E

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SAFETY DATA SHEET

PAGE	Page **1** of **5**
REVISION DATE	24/05/2022
PRINT DATE	09/11/2022
PRODUCT NAME	Calcium Chloride solution
VERSION	1

IDENTIFICATION OF THE PRODUCT AND THE COMPANY

ADG Code: Classified as a non-dangerous good, according to the criteria of the Australian Dangerous Goods Code (ADG Code).

Classified as a hazardous Substance according to Safe work Australia.

Product Name: **Calcium Chloride 30% Solution CAC300**

Company Name:

ALL CHEMICAL
MANUFACTURING & CONSULTANCY PTY LTD
A.B.N: 12631121849

Perth Office
9/69 Truganina Road
Malaga WA 6090
(08) 92482662

Albany Office
1/209 Chester Pass Road
Albany WA 6330
(08) 68186241

Emergency telephone number: +61 432164241

Identification name: Calcium Chloride solution

HAZARDS IDENTIFICATION

Signal word **WARNING**

Hazard Categories Serious Eye Damage/Irritation – Category 2A

Pictograms



Hazard Statements H319 Causes serious eye irritation.

Precautionary Statements

Prevention

P264 Wash exposed skin thoroughly after handling.

P280 Wear eye protection/face protection.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/attention.

PHYSICAL DESCRIPTION AND PROPERTIES

Appearance: Liquid solution

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Odour:	Odourless
Colour:	Colourless solution
pH:	9
Vapour Pressure:	Not available
Specific Gravity:	1.3 g/cm3
Solubility:	Soluble

Chemical Name	CAS No.	Proportion
Calcium Chloride	10043-52-4	30%
Water	7732-18-5	70%

FIRST AID

Skin: If skin contact occurs, remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice.

Eye: If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes

Ingestion: Rinse mouth with water. If swallowed, give a glass of water to drink. If vomiting occurs give further water. Seek immediate medical assistance.

Inhalation: Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Advice to doctor: Treat symptomatically based on judgement of doctor and individual reactions of patient.

PRECAUTIONS FOR USE

Engineering controls: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing

dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded.

Occupational exposure limit: No exposure standard has been established for this product by The Safe Work Australia (SWA).

Personal protection measures:

Eyes: Chemical goggles

Hands: Impervious gloves

Respirator: If determined by a risk assessment an inhalation risk exists, wear a mist/dust mask/respirator meeting the requirements

Clothing: Long-sleeved protective clothing and safety footwear

Good hygiene conditions: Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

STORAGE AND HANDLING

Handling: Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes.

Storage: Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods by Road and Rail.

Container Store in original packaging as approved by manufacturer.

TRANSPORT INFORMATION

Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG); by the IATA Air Transport Dangerous Goods Regulations; or by the IMDG (International Maritime Dangerous Goods) Code.

SPILLS AND DISPOSAL

General Response Procedure: Avoid accidents, clean up immediately. May be slippery when spilt. Eliminate all sources of ignition. Increase ventilation. Stop leak if safe to do so. Isolate the danger area. Use clean, non-sparking tools and equipment. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.

Clean Up Procedures:
Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for reuse.

Disposal: Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.

FIRE AND/OR EXPLOSION HAZARD

General Measures Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Instructions. Do NOT allow firefighting water to reach waterways, drains or sewers. Store firefighting water for treatment.

Fire and Explosion Hazard Non-combustible material.

Extinguishing media Not combustible, however, if material is involved in a fire use: Extinguishing media appropriate to surrounding fire conditions.

Flammability Conditions Product is a non-flammable solution.

Personal Protective Equipment Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots and gloves).

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STABILITY AND REACTIVITY

General information: Hygroscopic. Absorbs moisture from the surrounding air. Reacts exothermically on dilution with water.

Chemical stability: Product is stable under normal conditions of use, storage and temperature.

Polymerization: Will not occur

Conditions to avoid: Avoid mist/dust generation. Avoid solution exposure to humidity.

Materials to avoid: Reacts with acids. Reacts with strong bases.

Hazardous decomposition: None Known

Person to contact:

Abel Hlophe – All Chemical Senior Chemical Engineer
+61 432164241

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only regarding safety requirements. The data do not describe the product's properties. Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in this Safety Data Sheet. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and regulation are observed.

SAFETY DATA SHEET

CARBOECONOPROP

Section 1. Identification

GHS product identifier : CARBOECONOPROP
Product category(ies) : Oil and gas.
Other means of identification : Ceramic Proppant; Semi-Crystalline Alumina Silicate; Sintered Kaolinite.
Product type : Solid.

Relevant identified uses of the substance or mixture and uses advised against
Proppant for oil and natural gas well hydraulic fracturing.

Supplier's details : CARBO Ceramics Inc.
575 N. Dairy Ashford Road, Suite 300
Houston, Texas 77079, USA
1-800-551-3247

Emergency telephone number (with hours of operation) : For Chemical Emergency
Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.
Hazard statements : No known significant effects or critical hazards.
Precautionary statements
Prevention : Not applicable.
Response : Not applicable.
Storage : Not applicable.
Disposal : Not applicable.
Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Article.

CAS number/other identifiers

Ingredient name	%	CAS number
Ceramic materials and wares, chemicals	95 - 100	66402-68-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Ceramic materials and wares, chemicals	None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid. [Solid spheres.]

Color : Light gray to light tan.

Odor : Odorless.

Odor threshold : Not applicable.

pH : Not applicable.

Melting point : 2204.5°C (4000.1°F)

Boiling point : Not available.

Flash point : Not available.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : 2.6

Solubility : Not available.

Solubility in water : Not applicable.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not available.

Flow time (ISO 2431) : Not available.

Section 10. Stability and reactivity

Reactivity : Not considered to be reactive.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Strong oxidizer

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Section 11. Toxicological information

Classification

Product/ingredient name	OSHA	IARC	NTP
Ceramic materials and wares, chemicals	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

N/A

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	Not available.	Not available.	Not available.	Not available.	Not available.
UN proper shipping name	Not available.	Not available.	Not available.	Not available.	Not available.
Transport hazard class(es)	Not available.	Not available.	Not available.	Not available.	Not available.
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Europe : All components are listed or exempted.

Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): All components are listed or exempted.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : All components are listed or exempted.

United States : All components are listed or exempted.

Viet Nam : Not determined.

Section 16. Other information

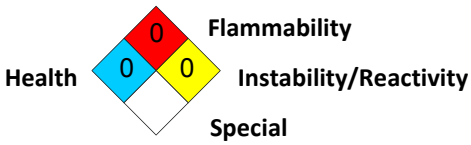
Hazardous Material Information System (U.S.A.)

Health	/	0
Flammability		0
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Not classified.	

History

Date of printing : 10/22/2019

Date of issue/Date of revision : 10/22/2019

Date of previous issue : 10/14/2019

Version : 2

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

HALLIBURTON

SAFETY DATA SHEET

CAUSTIC SODA

Revision Date: 15-Mar-2022 **Revision Number:** 44

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name CAUSTIC SODA

Other means of Identification

Synonyms None

Hazardous Material Number: HM003599

Recommended use of the chemical and restrictions on use

Recommended Use pH Control

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton/Baroid Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 1 - H314
Serious Eye Damage/Irritation	Category 1 - H318
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335
Substances/mixtures corrosive to metal	Category 1 - H290

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary Statements

Prevention
P234 - Keep only in original packaging.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/eye protection/face protection

Response
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P390 - Absorb spillage to prevent material damage

Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P406 - Store in corrosive resistant container with a resistant inner liner.

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Sodium hydroxide	1310-73-2

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Sodium hydroxide	1310-73-2	60 - 100%	Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Met. Corr. 1 (H290)

4. First aid measures

Description of necessary first aid measures

Inhalation	If inhaled, move victim to fresh air and seek medical attention.
Eyes	Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes severe skin burns and eye damage. May cause respiratory irritation.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

All standard fire fighting media Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

May form explosive mixtures with strong acids. Reaction with steel and certain other metals generates flammable hydrogen gas.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid creating and breathing dust. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas. Consult local authorities.

6.3. Methods and material for containment and cleaning up

Neutralize to pH of 6-8. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from acids. Store in a cool, dry location. Store locked up.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Sodium hydroxide	1310-73-2	Not applicable	Ceiling: 2 mg/m³

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Localized ventilation should be used to control dust levels.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. Butyl rubber gloves. (>= 8 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection Full protective chemical resistant clothing. Rubber boots.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid
Color White to off white
Odor: Odorless
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	14
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	1390 °C / 2535 °F
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.13
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available

Oxidizing Properties No information available

9.2. Other information

Molecular Weight 40

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Contact with acids. Peroxides. Halogenated compounds. Prolonged contact with aluminum, lead, or zinc may liberate flammable hydrogen.

10.6. Hazardous decomposition products

None known.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

Causes severe skin burns and eye damage. May cause respiratory irritation.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hydroxide	1310-73-2	325 mg/kg (Rat)	1350 mg/kg (Rabbit)	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation Causes severe respiratory irritation.

Eye Contact Causes severe eye burns.

Skin Contact Causes severe burns.

Ingestion Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels

No data available

Interactive effects

Skin disorders.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Sodium hydroxide	1310-73-2	Causes severe burns

Substances	CAS Number	Serious eye damage/irritation
Sodium hydroxide	1310-73-2	Causes severe eye burns. (Rabbit)

Substances	CAS Number	Skin Sensitization
Sodium hydroxide	1310-73-2	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Sodium hydroxide	1310-73-2	No information available

Substances	CAS Number	Mutagenic Effects
Sodium hydroxide	1310-73-2	Did not show mutagenic effects in animal experiments In vitro tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Sodium hydroxide	1310-73-2	No data of sufficient quality are available.

Substances	CAS Number	Reproductive toxicity
Sodium hydroxide	1310-73-2	No information available

Substances	CAS Number	STOT - single exposure
Sodium hydroxide	1310-73-2	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Sodium hydroxide	1310-73-2	No significant toxicity observed in animal studies at concentration requiring classification. Not applicable due to corrosivity of the substance.

Substances	CAS Number	Aspiration hazard
Sodium hydroxide	1310-73-2	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Sodium hydroxide	1310-73-2	No information available	LC50(48h) 189 mg/L (Leuciscus idus melanotus) LLC50(48h) 189 mg/L (Leuciscus melanotus) LC50(24h) 145 mg/L (Poecilia reticulate) LC50(96h) 125 mg/L (Gambusia affinis) LOEL(150 d) = 25 mg/L (Lebistes reticulatus)	No information available	EC50 (48h) 40.4 mg/L (Ceriodaphnia sp.)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Sodium hydroxide	1310-73-2	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Sodium hydroxide	1310-73-2	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Sodium hydroxide	1310-73-2	No information available

12.6. Other adverse effects

Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods
Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging
Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations
Not applicable

14. Transport Information

Transportation Information
Australia ADG

UN Number	UN1823
UN proper shipping name:	Sodium Hydroxide, Solid
Transport Hazard Class(es):	8
Packing Group:	II
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	UN1823
UN proper shipping name:	Sodium Hydroxide, Solid
Transport Hazard Class(es):	8
Packing Group:	II
Environmental Hazards:	Not applicable
EMS:	EmS F-A, S-B

IATA/ICAO

UN Number	UN1823
UN proper shipping name:	Sodium Hydroxide, Solid
Transport Hazard Class(es):	8
Packing Group:	II
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
2W

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.

US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 15-Mar-2022

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

Safety Data Sheet

SDS no. M002

CAUSTIC SODA M2

Revision date 11-Dec-2023 **Supersedes Date:** 08-Oct-2018 **Version** 6

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name CAUSTIC SODA M2
Product code M002

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
Level 5, 10 Telethon Avenue
Perth WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518, Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Skin corrosion/irritation	Category 1 Subcategory 1A
Serious eye damage/eye irritation	Category 1

Environmental hazards Not classified

Physical Hazards

Substances/mixtures corrosive to metal	Category 1

2.2 Label elements



Signal word
DANGER

Hazard Statements
H314 - Causes severe skin burns and eye damage
H290 - May be corrosive to metals

Precautionary statements
P260 - Do not breathe dust
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Supplementary precautionary statements
P234 - Keep only in original container
P264 - Wash face, hands and any exposed skin thoroughly after handling
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P363 - Wash contaminated clothing before reuse
P390 - Absorb spillage to prevent material damage
P406 - Store in corrosion resistant container with a resistant inner liner

Contains
Sodium hydroxide

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Contact with metals may evolve flammable hydrogen gas
The product reacts with water and will generate heat.

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Sodium hydroxide	215-185-5	1310-73-2	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. If not breathing, give artificial respiration. Seek medical attention at once.

Ingestion Do NOT induce vomiting. Get immediate medical attention. Rinse mouth. Risk of product entering the lungs on vomiting after ingestion. Never give anything by mouth to an unconscious person.

Skin contact Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns must be treated by a physician.

Eye Contact Remove contact lenses, if worn. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed

General advice Seek medical attention for all burns, regardless how minor they may seem. The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Contact with metals may evolve flammable hydrogen gas. The product reacts with water and will generate heat. React vigorously and/or explosively with water.

Hazardous combustion products
Thermal decomposition can lead to release of toxic and corrosive gases/vapors Sodium oxides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Do not get on skin or clothing. Wash thoroughly after handling. Avoid dust formation. Do not breathe dust. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Avoid dust formation. Sweep up and shovel into suitable containers for disposal. Flush area with flooding quantities of water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Do not get in eyes, on skin or on clothing. Avoid dust formation. Do not breathe dust. Never add water directly to this product - may cause vigorous reaction/boiling. Always dilute by carefully pouring the product into the water. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture Reacts violently with water Store in original container. Avoid contact with: Metals Acids

Storage class Corrosive storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

Chemical Name	Arabic	Australia	Egypt
Sodium hydroxide	Not determined	2 mg/m³ Peak	2 mg/m³ Ceiling
Chemical Name	**India**	**Indonesian**	**Japan**
Sodium hydroxide	2 mg/m³ Ceiling	2 mg/m³ STEL	2 mg/m³ Ceiling
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Sodium hydroxide	Not determined	2 mg/m³ TWA	2 mg/m³ Ceiling
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Sodium hydroxide	2 mg/m³ Ceiling	2 mg/m³ TWA	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Sodium hydroxide	2 mg/m³ TWA	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required. Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection Use eye protection according to EN 166, designed to protect against powders and dusts
Wear chemical splash goggles and face shield

Hand protection Wear gloves according to EN 374 to protect against skin effects from powders
Impervious gloves made of: Nitrile Rubber PVC
Break through time >480 minutes
Glove thickness 0.5 mm
Frequent change is advisable

Respiratory protection In case of insufficient ventilation wear suitable respiratory equipment Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust) Suitable mask with particle filter P3 (European Norm 143) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before breaks and immediately after handling the product Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Flakes
Color	White
Odor	Odorless

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution	>14	10 g/ 100ml
Melting / freezing point	323 °C / 613.4 °F	
Boiling point/range	1388 °C / 2530.4 °F	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	0.1 kPa	@ 739 °C
Relative Vapor Density	>1 (air = 1)	
Specific gravity	No information available	@ 20 °C
Bulk density	1.1 - 2.13 g/cm³	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	. 2.1 @ 20 °C	
Explosive properties	Not applicable	
Oxidizing properties	Not applicable	

9.2 Other information

Pour point	No information available
Molecular weight	No information available

VOC content(%) None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Corrosive. Corrosive to Metals. Contact with metals may evolve flammable hydrogen gas. Reacts violently with water.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from moisture. Do not add water directly to the product. It may cause a violent reaction. Avoid dust formation.

10.5 Incompatible materials

Acids. Metals. Water.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Contact with moist mucous membranes of the respiratory system can cause caustic condition resulting in burns. Inhaled corrosive substances can lead to a toxic edema of the lungs.

Eye contact Causes serious eye damage.

Skin contact Causes severe skin burns.

Ingestion Causes burns. Ingestion causes burns of the upper digestive and respiratory tracts.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hydroxide	= 325 mg/kg (Rat)	1350 mg/kg (Rabbit)	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	Skin contact. Eye contact. Inhalation. Ingestion.
Routes of entry	Inhalation. Skin contact. Eye contact.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Large amounts will affect pH and harm aquatic organisms

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Sodium hydroxide	= 45.4 mg/L LC50 Oncorhynchus mykiss 96 h	No information available	No information available

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
Sodium hydroxide	Inorganic compound

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
Sodium hydroxide	Product/Substance is inorganic

12.4 Mobility

Mobility
Soluble in water. See component information below.

Chemical Name	Mobility
Sodium hydroxide	Soluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Sodium hydroxide	Not expected to adsorb on soil

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

UN/ID No. (ADR/RID/ADN/ADG) UN1823
UN No. (IMDG/ANTAQ) UN1823
UN No. (ICAO/ANAC) UN1823

14.2. UN proper shipping name
SODIUM HYDROXIDE, SOLID,

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class 8
IMDG/ANTAQ Hazard class 8
ICAO/ANAC Hazard class/division 8

14.4 Packing group
ADR/RID/ADN/ADG Packing group II
IMDG/ANTAQ Packing group II
ICAO/ANAC Packing group II



14.5 Environmental hazard
No

14.6 Special precautions

Hazard identification no (ADR)	80
EmS (IMDG)	F-A, S-B
Emergency Action Code (EAC)	2W
Tunnel restriction code	(E)

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Sodium hydroxide
Schedule 6
Schedule 5

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

ADG Code – Australian Dangerous Goods Code

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies

Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	08-Oct-2018
Revision date	11-Dec-2023
Version	6
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3
Flammability	0
Physical hazard	1
PPE	X

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HALLIBURTON

SAFETY DATA SHEET

CEMENT - CLASS G

Revision Date: 03-Aug-2023 **Revision Number:** 59

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name CEMENT - CLASS G

Other means of Identification

Synonyms None

Hazardous Material Number: HM001839

Recommended use of the chemical and restrictions on use

Recommended Use Cement

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 1 - H318
Skin Sensitization	Category 1 - H317
Carcinogenicity	Category 1A - H350
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H350 - May cause cancer by inhalation
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

Precautionary Statements

Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves/eye protection/face protection
P281 - Use personal protective equipment as required

Response
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash before reuse
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P314 - Get medical attention/advice if you feel unwell

Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Portland cement	65997-15-1
Crystalline silica, quartz	14808-60-7

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification -

			Australia
Portland cement	65997-15-1	60 - 100%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Skin Sens. 1 (H317) STOT SE 3 (H335)
Crystalline silica, quartz	14808-60-7	1 - 5%	Carc. 1A (H350) STOT RE 1 (H372)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure

Causes skin irritation. May cause allergic skin reaction. Causes severe eye irritation which may damage tissue. May cause respiratory irritation. Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

None - does not burn.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Not applicable

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Evacuate all persons from the area.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool well ventilated area. Keep container closed when not in use. Store locked up. Store in a cool, dry location. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Product has a shelf life of 24 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Portland cement	65997-15-1	TWA: 10 mg/m^3	TWA: 1 mg/m^3
Crystalline silica, quartz	14808-60-7	TWA: 0.05 mg/m^3	TWA: 0.025 mg/m^3

Appropriate engineering controls

Engineering Controls

Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits. A well ventilated area to control dust levels. Personal protective equipment must be CE marked and should be selected in collaboration with the supplier of such equipment.
The recommended protective equipment and the specified standards are indicative. Standards should be of the latest version.
Risk assessment of the actual workplace / operation (actual risk) may result in other protective measures.
The suitability and durability of the protective equipment will depend on the application.

Personal protective equipment (PPE)

Personal Protective Equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection

Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.
Dust/mist respirator. (N95, P2/P3)

Hand Protection

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Impervious rubber gloves. Nitrile gloves.

Skin Protection

Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.

Eye Protection

Wear safety glasses or goggles to protect against exposure. Dust proof goggles. (EN-166)

Other Precautions

Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls

Do not allow material to contaminate ground water system. Avoid dust formation Prevent product from entering drains. Avoid subsoil penetration

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	Gray
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	12.4
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	3.14
Water Solubility	No data available
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

Keep away from any contact with water.

10.5. Incompatible materials

Hydrofluoric acid.

10.6. Hazardous decomposition products

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

Causes skin irritation. May cause allergic skin reaction. Causes severe eye irritation which may damage tissue. May cause respiratory irritation. Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Portland cement	65997-15-1	No data available	No data available	No data available
Crystalline silica, quartz	14808-60-7	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation

Causes moderate respiratory irritation. Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).

Eye Contact

Causes severe eye irritation which may damage tissue.

Skin Contact

Causes skin irritation. May cause alkali burns with confined contact. May cause an allergic skin reaction. Can dry skin.

Ingestion

Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Exposure Levels

No data available

Interactive effects

Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Portland cement	65997-15-1	Irritating to skin. (Rabbit)
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin

Substances	CAS Number	Serious eye damage/irritation
Portland cement	65997-15-1	Corrosive to eyes
Crystalline silica, quartz	14808-60-7	Non-irritating to the eye No information available

Substances	CAS Number	Skin Sensitization
Portland cement	65997-15-1	May cause sensitization by skin contact
Crystalline silica, quartz	14808-60-7	No information available.

Substances	CAS Number	Respiratory Sensitization

Portland cement	65997-15-1	No information available
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	Mutagenic Effects
Portland cement	65997-15-1	No data of sufficient quality are available.
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Portland cement	65997-15-1	No data of sufficient quality are available.
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

Substances	CAS Number	Reproductive toxicity
Portland cement	65997-15-1	No data of sufficient quality are available.
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	STOT - single exposure
Portland cement	65997-15-1	May cause respiratory irritation.
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Portland cement	65997-15-1	No data of sufficient quality are available.
Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Substances	CAS Number	Aspiration hazard
Portland cement	65997-15-1	Not applicable
Crystalline silica, quartz	14808-60-7	No information available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Portland cement	65997-15-1	No information available	No information available	No information available	No information available
Crystalline silica, quartz	14808-60-7	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	No information available	LL50(24 h)>10000 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Portland cement	65997-15-1	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Portland cement	65997-15-1	No information available
Crystalline silica, quartz	14808-60-7	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Portland cement	65997-15-1	No information available
Crystalline silica, quartz	14808-60-7	No information available

Other adverse effects

Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods
Bury in a licensed landfill according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging
Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations
Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.

US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 03-Aug-2023

Revision Note
Update to Format
SDS sections updated:
16

Full text of H-Statements referred to under sections 2 and 3
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H351 - Suspected of causing cancer
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

CFR-3L

Revision Date: 09-Sep-2020 **Revision Number:** 26

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name CFR-3L

Other means of Identification

Synonyms None

Hazardous Material Number: HM000211

Recommended use of the chemical and restrictions on use

Recommended Use Friction Reducer

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Safety glasses with side-shields. If splashes are likely to occur, wear: Goggles, Face-shield.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color Red
Odor: Musty
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	7
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	> 98 °C / > 210 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.17
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
Liquid Density	9.75 lbs/gal

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Oxides of sulfur. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous	NA	No data available	No data available	No data available

substances in concentrations above cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation None known.
Eye Contact Non-irritating to rabbit's eye
Skin Contact Not irritating to skin in rabbits.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill or burn in an approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number

None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 09-Sep-2020

Revision Note

SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3

None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

CFR-8L

Revision Date: 29-Jun-2023 **Revision Number:** 29

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name CFR-8L

Other means of Identification

Synonyms None

Hazardous Material Number: HM005627

Recommended use of the chemical and restrictions on use

Recommended Use Cement Dispersant

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Keep container closed when not in use.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls

Use in a well ventilated area. Personal protective equipment must be CE marked and should be selected in collaboration with the supplier of such equipment.
The recommended protective equipment and the specified standards are indicative. Standards should be of the latest version.
Risk assessment of the actual workplace / operation (actual risk) may result in other protective measures.
The suitability and durability of the protective equipment will depend on the application.

Personal protective equipment (PPE)

Personal Protective Equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection

Not normally necessary.

Hand Protection

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves.

Skin Protection

Normal work coveralls.

Eye Protection

Wear safety glasses or goggles to protect against exposure. (EN-166)

Other Precautions Eyewash fountains and safety showers must be easily accessible.
Environmental Exposure Controls Do not allow material to contaminate ground water system. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color Brown-black
Odor: Characteristic
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	9 - 11.3
Freezing Point / Range	-7 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	100 °C / 212 °F
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	< 18 mmHg
Vapor Density	No data available
Specific Gravity	1.17 - 1.2
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Oxides of sulfur.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation

Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

Other adverse effects
No information available
Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods
Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging
Follow all applicable national or local regulations.

Environmental regulations
Not applicable

14. Transport Information

Transportation Information
Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 29-Jun-2023

Revision Note
Update to Format

Full text of H-Statements referred to under sections 2 and 3
None

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight

d - day

Key literature references and sources for data
www.ChemADVISOR.com/

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

SAFETY DATA SHEET

0276800 CIRCAL Y-MV

Version	Revision Date:	SDS Number:	Date of last issue: 28.03.2019
1.1 (GHS_AU)	30.11.2020	PR02768-00	Date of first issue: 28.03.2019

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : CIRCAL Y-MV

Manufacturer or supplier's details

Company : Omya Australia Pty Ltd.

Address : Pacific Highway
Lindfield NSW 2070

Telephone : +611800251306

Emergency telephone number : Chemtrec +(61)-290372994

Recommended use of the chemical and restrictions on use

Recommended use : Industrial use

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Other hazards which do not result in classification

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Substance name : Calciumcarbonate GCC c powder

CAS-No. : 1317-65-3

Components

Chemical name	CAS-No.	Concentration (% w/w)
Ground calcium carbonate (GCC)	1317-65-3	>= 98 -< 99
magnesium carbonate	546-93-0	>= 2 -< 3

SECTION 4. FIRST AID MEASURES

If inhaled : Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.
If symptoms persist, call a physician.

In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.

In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.

		Protect unharmed eye. Keep eye wide open while rinsing.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	:	None known.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific extinguishing methods	:	Standard procedure for chemical fires.
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Avoid dust formation.
Environmental precautions	:	No special environmental precautions required.
Methods and materials for containment and cleaning up	:	Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
Advice on safe handling	:	For personal protection see section 8. No special handling advice required.
Hygiene measures	:	General industrial hygiene practice.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place.
Materials to avoid	:	Do not store near acids.
Further information on storage stability	:	Keep in a dry place. No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ground calcium carbonate	1317-65-3	TWA	10 mg/m3	AU OEL

(GCC)			(Calcium carbonate)	
	Further information: This value is for inhalable dust containing no asbestos and < 1% crystalline silica			
magnesium carbonate	546-93-0	TWA	10 mg/m3	AU OEL

Personal protective equipment

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Half mask with a particle filter P2 (EN 143)

Hand protection

Remarks : For prolonged or repeated contact use protective gloves.

Eye protection : Safety glasses

Skin and body protection : Protective suit

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder

Colour : white

Odour : characteristic

Odour Threshold : Not relevant

pH : 8.5 - 9.5 (20 °C)
Concentration: 100 g/l
Method: DIN-ISO 787/9

Melting point/range : > 800 °C
(1,013 hPa)
Decomposition: Decomposes below the melting point.

Boiling point/boiling range : Decomposition: Decomposes below the boiling point.

Flash point : does not flash

Flammability (solid, gas) : The product is not flammable.

Burning number : 1

Upper explosion limit / Upper flammability limit : Upper flammability limit
Not applicable

Lower explosion limit / Lower flammability limit : Lower flammability limit
Not applicable

Vapour pressure : Not applicable

Density : 2.3 - 2.8 g/cm3 (20 °C, 1,013 hPa)
Method: DIN-ISO 787/10

Solubility(ies)

Water solubility	:	0.014 g/l (20 °C, 1,013 hPa)
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	> 600 °C
Explosive properties	:	Not explosive Not explosive
Minimum ignition energy	:	> 1,000 mJ (20 °C, 1,013 hPa)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under recommended storage conditions.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. No decomposition if used as directed. Reacts with acids. It forms carbon dioxide (CO_2). This displaces the oxygen in the air in closed spaces. (danger of suffocation).
Conditions to avoid	:	No data available
Hazardous decomposition products	:	Carbon dioxide (CO_2)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity : LD50 Oral (Rat): > 5,000 mg/kg

Components:

Ground calcium carbonate (GCC):

Acute oral toxicity : LD50 Oral (Rat): > 5,000 mg/kg

magnesium carbonate:

Acute oral toxicity : Acute toxicity estimate (Rat): > 5,000 mg/kg

Respiratory or skin sensitisation

Product:

No data available

Chronic toxicity

STOT - single exposure

Components:

magnesium carbonate:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

Components:

magnesium carbonate:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Further information

Product:

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 10,000 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	NOEC (Desmodesmus subspicatus (green algae)): 75 mg/l Exposure time: 72 h EC50 (Desmodesmus subspicatus (green algae)): 289 mg/l Exposure time: 72 h

Components:

Ground calcium carbonate (GCC):

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 10,000 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): > 200 mg/l Exposure time: 72 h

Persistence and degradability

Product:

Biodegradability : Not applicable

Bioaccumulative potential

Components:

Ground calcium carbonate (GCC):

Partition coefficient: n-octanol/water : Not applicable

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : In solid state these minerals are a major part of the rocks of the earth's surface.
They are dissolved in a natural state and indispensable part of the natural waters.
These minerals are not biodegradable.
Negative effects on the environment should therefore be excluded.
Restrictions may indicate that concentrated suspensions with these minerals in natural waters may have an unfavorable effect on water organisms (disturbance of the micro flora and -fauna in the sediment and subsequent detriment to the existence of higher water organisms).

Components:

Ground calcium carbonate (GCC):

Results of PBT and vPvB assessment : Non-classified PBT substance Non-classified vPvB substance

magnesium carbonate:

Results of PBT and vPvB assessment : Non-classified PBT substance Non-classified vPvB substance

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging : Empty remaining contents.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations
Not applicable for product as supplied.

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Standard for the Uniform Scheduling of Medicines and Poisons	:	No poison schedule number allocated

SECTION 16. OTHER INFORMATION

Revision Date	:	30.11.2020
Date format	:	dd.mm.yyyy

Full text of other abbreviations

AU OEL	:	Australia. Workplace Exposure Standards for Airborne Contaminants.
AU OEL / TWA	:	Exposure standard - time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test

population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SDS no. MI11350
Version 7
Revision date 27/Jul/2015
Supersedes date 28/Feb/2013

Safety Data Sheet
CITRIC ACID

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name CITRIC ACID
Product code MI11350
Norway Pr. no. 76247
Denmark Pr. no.: 701692

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use pH modifier

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to (EC) No. 1272/2008

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard statements
H319 - Causes serious eye irritation

Precautionary Statements - EU (§28, 1272/2008)
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/ attention
P501 - Dispose of contents/container in accordance with local regulations.

-

-

Contains
Citric acid, monohydrate

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature

Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Citric acid, monohydrate		5949-29-1	100	Xi; R36	Eye Irrit. 2 (H319)	No data available

3.2 Mixtures

Not Applicable

4. First aid measures

4.1 First-Aid Measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact — Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation persists.

Eye contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses. Continue to rinse for at least 15 minutes. Get medical attention immediately if symptoms occur.

4.2 Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact — Please see Section 11. Toxicological Information for further information.

Eye contact — Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician — Treat symptomatically.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Fire or high temperatures create:, Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8. If spilled, take caution, as material can cause surfaces to become very slippery.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Remove all sources of ignition. If spilled, take caution, as material can cause surfaces to become very slippery.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Keep away from heat, sparks, and flame.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid contact with: Strong oxidizing agents Strong alkalies. Protect from moisture
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only

7.3 Specific end uses

See Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits

NUI = Nuisance dust, TWA 4mg/m³ Respirable Dust, 10mg/m³ Total Dust.
No biological limit allocated

Component	EU OEL	Austria	Australia	Denmark
Citric acid, monohydrate	Not determined	Not determined	Not determined	Not determined

Component	Malaysia	France	Germany	Hungary
Citric acid, monohydrate	Not determined	Not determined	Not determined	Not determined

Component	New Zealand	Italy	Netherlands	Norway
Citric acid, monohydrate	Not Determined	Not determined	Not determined	Not determined

Component	Poland	Portugal	Romania	Russia
Citric acid, monohydrate	Not determined	Not determined	Not determined	Not determined

Component	Spain	Switzerland	Turkey	UK
Citric acid, monohydrate	Not determined	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection — It is good practice to wear Safety Glasses with Side-shields when handling any chemical.

Hand protection — Repeated or prolonged contact:, Use protective gloves made of:, Butyl, PVC, Frequent change is advisable.

Respiratory protection — Respirator must be worn if exposed to dust, Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection — Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.



9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Crystalline Dust
Odor	Odorless
Color	White
Odor threshold	Not applicable

Property	Values	Remarks
pH	No information available	
pH @ dilution	1.6	@ 100 g/l
Melting/freezing point	153 °C / 307.4 °F	
Boiling point/range	No information available	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	900 kg/m³	
Relative density	1.542 g/cm³	@ 20°C.
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	1010 °C / 1850 °F	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Log Pow	No information available	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density	No information available

10. Stability and reactivity

10.1 Reactivity

Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition. Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Strong oxidizing agents. Strong alkalies.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation May cause irritation of respiratory tract.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not Applicable.

LD50 Oral 3000 mg/kg (rat)

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Citric acid, monohydrate	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of exposure None known.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified.
Aspiration hazard	No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Citric acid, monohydrate	1516 mg/L LC50 (Lepomis macrochirus) = 96 h	No information available	120 mg/L EC50 (Daphnia magna) = 72 h

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility in soil

Mobility
Soluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.
EWC Waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 07 01 99. Waste Code: 7134 organic acids.

14. Transport information

14.1 UN Number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Please contact MISDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Germany, Water Endangering Classes (VwVwS)	Water endangering class = 1

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No Poisons Schedule number allocated

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail.

Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)

The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)
International inventories

USA (TSCA)	Complies
European Union (EINECS and ELINCS)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

Contact REACH@miswaco.slb.com for REACH information.

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse

Supersedes date	28/Feb/2013
Revision date	27/Jul/2015
Version	7
The following sections have been revised:	This SDS have been made in a new database and therefore a new layout. No changes with regard to classification have been made, Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3
R36 - Irritating to eyes

Full text of H-Statements referred to under sections 2 and 3

H319 - Causes serious eye irritation

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

Safety Data Sheet

CITRIC ACID

Revision date 01-Nov-2023 **Supersedes Date:** 19-Dec-2022 **Version** 11

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name CITRIC ACID
Product code PID360

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use pH modifier

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2
Specific target organ toxicity - Single exposure	Category 3

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

Precautionary statements
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Supplementary precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P337 + P313 - If eye irritation persists: Get medical advice/attention
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Contains
Citric acid monohydrate

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Combustible dust

Australian statement of hazardous/dangerous nature

Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Citric acid monohydrate	611-842-9	5949-29-1	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if symptoms occur.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention immediately if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8. Material becomes slippery when wet. Use caution if wet.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust. Avoid dust formation. Take precautionary measures against static discharges. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Material becomes slippery when wet. Use caution if wet.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Provide appropriate exhaust ventilation at places where dust is formed. Take precautionary measures against static discharges.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture Avoid heat, flames and other sources of ignition. Avoid contact with: Strong oxidizing agents

Strong alkalies.

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Component Information

Chemical Name	Arabic	Australia	Egypt
Citric acid monohydrate	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Citric acid monohydrate	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Citric acid monohydrate	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Citric acid monohydrate	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Citric acid monohydrate	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection Use eye protection according to EN 166, designed to protect against powders and dusts
Tightly fitting safety goggles Safety glasses with side-shields

Hand protection Wear gloves according to EN 374 to protect against skin effects from powders
Repeated or prolonged contact Use protective gloves made of: Nitrile rubber
Break through time >480 minutes
Glove thickness 0.11 mm
Frequent change is advisable

Respiratory protection No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Crystalline Dust
Color	White
Odor	Odorless

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution	< 3.5	@ 10% solution
Melting / freezing point	153 °C / 307.4 °F	
Boiling point/range	No information available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	No information available	
Bulk density	900 kg/m³	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	1010 °C / 1850 °F	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	1.542 g/cm³	

Explosive properties	Suspended dust may present a dust explosion hazard
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid dust formation. Protect from moisture. Avoid heat, flames and other sources of ignition. Take precautionary measures against static charges.

10.5 Incompatible materials

Strong oxidizing agents. Strong alkalies.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation May cause respiratory irritation. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort. May cause additional affects as listed under "Inhalation".

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Citric acid monohydrate	= 3 g/kg (Rat)	> 2000 mg/kg (Rat)	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	Eye contact. Inhalation.
Routes of entry	Inhalation. Eye contact.
Specific target organ toxicity - Single exposure	Category 3
Specific target organ toxicity - Repeated exposure	Not classified.
Target organ effects	Respiratory system.
Aspiration hazard	Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Citric acid monohydrate	= 1516 mg/L LC50 Lepomis macrochirus 96 h	No information available	No information available

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
Citric acid monohydrate	Readily biodegradable

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
Citric acid monohydrate	No bioaccumulation potential

12.4 Mobility

Mobility
Soluble in water. See component information below.

Chemical Name	Mobility
Citric acid monohydrate	Soluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Citric acid monohydrate	No information available

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated
IMDG/ANTAQ Hazard class Not regulated
ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group
ADR/RID/ADN/ADG Packing group Not regulated
IMDG/ANTAQ Packing group Not regulated
ICAO/ANAC Packing group Not regulated

14.5 Environmental hazard

No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	19-Dec-2022
Revision date	01-Nov-2023
Version	11
This SDS has been revised in the	All sections No changes with regard to classification have been made.

following section(s)

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2
Flammability	1
Physical hazard	0
PPE	B

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.
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SAFETY DATA SHEET

ClayMaster 10

Version 1

Section 1. Identification

Product identifier : ClayMaster 10

Product code : 488678

ADG : -

Product type : Liquid.

Identified uses : Clay control

Supplier's details : Baker Hughes, Australia
108 Poole Street,
Welshpool,
Western Australia 6106,
Australia

Tel: +618 9350 3800
Fax: +618 9350 5453

Emergency telephone number : CHEMTREC Emergency Telephone Numbers (Asia Pacific Region):
- Australia: (02) 9037 2994
- Brunei: +(65)-31581349 (Mandarin/English)
- China: 4001-204937 (Mandarin) *
- Hong Kong: 800-968-793 (Cantonese) *
- Indonesia: 001-803-017-9114 (Bahasa Indonesian) *
- Japan: 0800-300-5842 (Japanese)
- Malaysia: 1-800-815-308 (Bahasa Malay) *
- New Zealand: 9801 0034
- Philippines: 1-800-1-116-1020 (Tagalog) *
- PNG: +(61) 2 9037 2994
- Singapore: 800-101-2201 (Mandarin) *
- South Korea: 00-308-13-2549 (Korean) *
- Taiwan: 00801-14-8954 (Mandarin) *
- Thailand: 001-800-13-203-9987 (Thai) *
- Vietnam: +(84)-838012436 (Vietnamese)

- UK: +(44) 870-820-0418
- USA: +(1) 703-527-3887 (CHEMTREC International 24 hour)

* Number can only be dialled in-country

Section 2. Hazard(s) identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Section 2. Hazard(s) identification

Precautionary statements (Code) : -, -, -, -, -

Supplemental label elements : Not applicable.

Other hazards which do not result in classification : None known.

Section 3. Composition and ingredient information

Substance/mixture : Mixture

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide,nitrogen oxides,halogenated compounds

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazchem code : -

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Section 7. Handling and storage

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

Control parameters

Occupational exposure limits

None.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: > 8 hours (breakthrough time): nitrile Gloves

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Information on basic physical and chemical properties

Appearance

Physical state : Liquid.

Colour : Colourless to light yellow.

Odour : Not available.

Odour threshold : Not available.

pH : 5 to 8

Melting point/freezing point : Not available.

Boiling point, initial boiling point, and boiling range : Not available.

Flash point : Not available.

Evaporation rate : Not available.

Flammability (solid, gas) : May be combustible at high temperature.

Lower and upper explosion limit/ flammability limit : Not available.

Vapour pressure : Not available.

Relative vapour density : Not available.

Relative density : 1.11

Solubility(ies) :

Media	Result
cold water	Easily soluble

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not available.

Explosive properties : Not available.

Oxidising properties : Not available.

Other information

Pour point : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Reactive or incompatible with the following materials: oxidising materials and alkalis.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Irritation/Corrosion

Skin : No known significant effects or critical hazards.

Eyes : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Sensitisation

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Section 11. Toxicological information

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity : No known significant effects or critical hazards.

Persistence and degradability

Not available.

Section 13. Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Transport hazard class(es)	PG*	Label
ADR/RID	Not regulated.	-	-	-	
ADG	Not regulated.	-	-	-	
IMDG	Not regulated.	-	-	-	
IATA	Not regulated.	-	-	-	

PG* : Packing group

Section 14. Transport information

Regulatory information	Environmental hazards	Additional information
ADR/RID Class	No.	Hazchem code -
ADG Class	No.	Hazchem code -
IMDG Class	No.	-
IATA Class	No.	-

Additional information**: A • in the Hazchem code indicates that Alcohol Resistant Foam is the preferred extinguishing medium. If not available, use the extinguishing medium indicated by the number in the Hazchem code.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

Australia inventory (AIIC) : Not determined.

References : **National Code of Practice for the Control of Workplace Hazardous Substances.**

National Code of Practice for the Labelling of Workplace Substances.
National Code of Practice for the Preparation of Material Safety Data Sheets.
Approved Criteria for Classifying Hazardous Substances.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Any other relevant information

History

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Version : 1

Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
Not classified.	

References : Not available.

Indicates information that has changed from previously issued version.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	COPPER SUPREME SPECIAL BLEND®
Product code	:	000000000000635066
SDS-Identcode	:	343G

Manufacturer or supplier's details

Company	:	Bestolife Corporation	Bestolife Corporation
Address	:	2126 Vanco Drive Irving TX 75061	3 Industrial Road Gatton, QLD,AU 4343
Telephone	:	855-243-9164/972-865-8961	
Emergency telephone number	:	CHEMTREC:(61)-290372994, International: 1-703-527-3887,	
E-mail address	:	www.bestolife.com	
Telefax	:	214-631-3047	

Recommended use of the chemical and restrictions on use

Recommended use	:	Industrial use Thread Compound (Pipe Dope) and Jacking grease for use in Offshore industries Mining, (without offshore industries)
Restrictions on use	:	Do not use on oxygen lines or in oxygen enriched atmospheres.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Serious eye damage/eye irritation	:	Category 2A
Skin sensitisation	:	Category 1

GHS label elements

Hazard pictograms :



Signal word	:	Warning
Hazard statements	:	H317 May cause an allergic skin reaction. H319 Causes serious eye irritation.
Precautionary statements	:	**Prevention:** P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	>= 30 -< 60
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	>= 30 -< 60
Graphite	7782-42-5	>= 10 -< 30
Copper metal powder	7440-50-8	>= 10 -< 30
Talc	14807-96-6	< 10
Dilithium azelate	38900-29-7	< 10
Tris[bis(2-ethylhexyl)dithiocarbamato-S,S'] antimony	15991-76-1	< 10
Calcium oxide	1305-78-8	>= 1 -< 3
Antimony, dialkyl dithiocarbamate	15890-25-2	< 10
Quartz	14808-60-7	>= 1 -< 10
2,5-Bis(octyldithio)-1,3,4-thiadiazole	13539-13-4	>= 0.1 -< 10
Benzenesulphonic acid, propenated, calcium salts, overbased	68610-84-4	< 1

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
In case of eye contact	:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention.
If swallowed	:	If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	:	May cause an allergic skin reaction. Causes serious eye irritation.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire-fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Metal oxides Nitrogen oxides (NOx) Sulphur oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
Hazchem Code	:	2Z

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
Environmental precautions	:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so.

		Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Sweep up or vacuum up spillage and collect in suitable container for disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Advice on safe handling	:	For outdoor use only Do not get on skin or clothing. Avoid breathing dust, fume, gas, mist, vapours or spray. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Take care to prevent spills, waste and minimize release to the environment.
Hygiene measures	:	If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before re-use.
Conditions for safe storage	:	Keep in properly labelled containers. Store in accordance with the particular national regulations.
Materials to avoid	:	Do not store with the following product types: Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	TWA (Mist)	5 mg/m3	AU OEL
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	TWA (Mist)	5 mg/m3	AU OEL
		TWA (Inhalable particu-	5 mg/m3	ACGIH

		late matter)		
Graphite	7782-42-5	TWA (Respirable dust)	3 mg/m3	AU OEL
	Further information: Containing no asbestos and < 1% crystalline silica			
		TWA (Respirable particulate matter)	2 mg/m3	ACGIH
Copper metal powder	7440-50-8	TWA (Fumes)	0.2 mg/m3	AU OEL
		TWA (Dusts and mist)	1 mg/m3	AU OEL
		TWA (Dust and mist)	1 mg/m3 (Copper)	ACGIH
		TWA (Fumes)	0.2 mg/m3 (Copper)	ACGIH
Talc	14807-96-6	TWA	2.5 mg/m3	AU OEL
		TWA (Respirable particulate matter)	2 mg/m3	ACGIH
Tris[bis(2-ethylhexyl)dithiocarbamato-S,S'] antimony	15991-76-1	TWA	0.5 mg/m3 (antimony)	AU OEL
		TWA	0.5 mg/m3 (antimony)	ACGIH
Calcium oxide	1305-78-8	TWA	2 mg/m3	AU OEL
		TWA	2 mg/m3	ACGIH
Antimony, dialkyl dithiocarbamate	15890-25-2	TWA	0.5 mg/m3 (antimony)	AU OEL
		TWA	0.5 mg/m3 (antimony)	ACGIH
Quartz	14808-60-7	TWA (Respirable dust)	0.05 mg/m3	AU OEL
	Further information: Category 1A (Carc. 1A) Known to have carcinogenic potential for humans			
		TWA (Respirable particulate matter)	0.025 mg/m3 (Silica)	ACGIH

These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Quartz

Engineering measures : Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Combined particulates and organic vapour type

Hand protection

Material	:	Chemical-resistant gloves
Remarks	:	Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
Eye protection	:	Wear the following personal protective equipment: Safety goggles
Skin and body protection	:	Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Viscous semi-solid
Colour	:	dark, copper
Odour	:	Petroleum
Odour Threshold	:	No data available
pH	:	Not applicable (not an aqueous solution)
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	>= 200 °C Method: ASTM D 92, Cleveland open cup Distillates (petroleum), hydrotreated heavy naphthenic
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not classified as a flammability hazard
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable

Relative density	:	1.2
Solubility(ies)		
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	Not applicable
Flow time	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents.
Conditions to avoid	:	None known.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Exposure routes : Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method
Remarks: Based on data from similar materials

Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 5.53 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

Distillates (petroleum), hydrotreated heavy naphthenic:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 5.53 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

Graphite:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Copper metal powder:

Acute oral toxicity : LD50 (Rat): > 2,500 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity	:	LC50 (Rat): > 5.11 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 436 Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity

Talc:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg Remarks: Based on data from similar materials

Dilithium azelate:

Acute oral toxicity	:	LD50 (Rat): > 300 - 2,000 mg/kg Method: OECD Test Guideline 420 Remarks: Based on data from similar materials
Acute dermal toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 402 Remarks: Based on data from similar materials

Tris[bis(2-ethylhexyl)dithiocarbamato-S,S'] antimony:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg Remarks: Based on data from similar materials
Acute dermal toxicity	:	LD50 (Rabbit): > 5,000 mg/kg Remarks: Based on data from similar materials

Calcium oxide:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 425
Acute inhalation toxicity	:	(Rat): > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 436 Remarks: Based on data from similar materials
Acute dermal toxicity	:	LD50 (Rabbit): > 2,500 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity Remarks: Based on data from similar materials

Antimony, dialkyl dithiocarbamate:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Quartz:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 3.08 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Benzenesulphonic acid, propenated, calcium salts, overbased:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 1.9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

Skin corrosion/irritation

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Species : Rabbit
Result : No skin irritation
Remarks : Based on data from similar materials

Distillates (petroleum), hydrotreated heavy naphthenic:

Species : Rabbit
Result : No skin irritation
Remarks : Based on data from similar materials

Graphite:

Species : Rabbit

Method : OECD Test Guideline 404
Result : No skin irritation

Copper metal powder:
Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Talc:
Species : Rabbit
Result : No skin irritation

Dilithium azelate:
Species : reconstructed human epidermis (RhE)
Method : OECD Test Guideline 439
Remarks : Based on data from similar materials

Result : No skin irritation

Calcium oxide:
Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation
Remarks : Based on data from similar materials

2,5-Bis(octyldithio)-1,3,4-thiadiazole:
Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

Benzenesulphonic acid, propenated, calcium salts, overbased:
Species : Rabbit
Result : No skin irritation
Remarks : Based on data from similar materials

Serious eye damage/eye irritation
Causes serious eye irritation.

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:
Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

Distillates (petroleum), hydrotreated heavy naphthenic:
Species : Rabbit
Result : No eye irritation

Remarks : Based on data from similar materials

Graphite:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Copper metal powder:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Talc:

Species : Rabbit
Result : No eye irritation

Dilithium azelate:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Calcium oxide:

Species : Rabbit
Result : Irreversible effects on the eye
Method : OECD Test Guideline 405

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Benzenesulphonic acid, propenated, calcium salts, overbased:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Test Type : Buehler Test
Exposure routes : Skin contact

Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative
Remarks	:	Based on data from similar materials

Distillates (petroleum), hydrotreated heavy naphthenic:

Test Type	:	Buehler Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Result	:	negative
Remarks	:	Based on data from similar materials

Graphite:

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin contact
Species	:	Mouse
Result	:	negative

Copper metal powder:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

Talc:

Exposure routes	:	Skin contact
Species	:	Humans
Result	:	negative

Dilithium azelate:

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin contact
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	negative
Remarks	:	Based on data from similar materials

Calcium oxide:

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin contact
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	negative
Remarks	:	Based on data from similar materials

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Test Type	:	Buehler Test
Exposure routes	:	Skin contact
Species	:	Guinea pig

Method	:	OECD Test Guideline 406
Result	:	positive
Assessment	:	Probability or evidence of high skin sensitisation rate in humans

Benzenesulphonic acid, propenated, calcium salts, overbased:

Test Type	:	Human repeat insult patch test (HRIPT)
Exposure routes	:	Skin contact
Result	:	positive
Remarks	:	Based on data from similar materials
Assessment	:	Probability or evidence of skin sensitisation in humans

Chronic toxicity

Germ cell mutagenicity

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Method: OECD Test Guideline 474 Result: negative Remarks: Based on data from similar materials

Distillates (petroleum), hydrotreated heavy naphthenic:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Method: OECD Test Guideline 474 Result: negative Remarks: Based on data from similar materials

Graphite:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative Test Type: In vitro mammalian cell gene mutation test

Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Copper metal powder:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: Directive 67/548/EEC, Annex V, B.12.
Result: negative
Remarks: Based on data from similar materials

Talc:

Genotoxicity in vitro : Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro
Species: Rat
Application Route: Ingestion
Result: negative

Dilithium azelate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

Calcium oxide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473

Result: negative
Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Antimony, dialkyl dithiocarbamate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: equivocal

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

Benzenesulphonic acid, propenated, calcium salts, overbased:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse

Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative
Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Product:

Carcinogenicity - Assessment	:	Petroleum distillates have been classified as not carcinogenic based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Species	:	Mouse
Application Route	:	Skin contact
Exposure time	:	78 weeks
Method	:	OECD Test Guideline 451
Result	:	negative
Remarks	:	Based on data from similar materials

Distillates (petroleum), hydrotreated heavy naphthenic:

Species	:	Mouse
Application Route	:	Skin contact
Exposure time	:	78 weeks
Method	:	OECD Test Guideline 451
Result	:	negative

Talc:

Species	:	Mouse
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	2 Years
Result	:	negative

Calcium oxide:

Species	:	Rat
Application Route	:	Ingestion
Exposure time	:	104 weeks
Result	:	negative
Remarks	:	Based on data from similar materials

Quartz:

Species	:	Humans
Application Route	:	inhalation (dust/mist/fume)
Result	:	positive
Remarks	:	These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.
Carcinogenicity - Assess-	:	Positive evidence from human epidemiological studies (inhala-

ment tion)

Reproductive toxicity

Not classified based on available information.

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Effects on fertility	:	Test Type: Reproduction/Developmental toxicity screening test Species: Rat Application Route: Ingestion Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Skin contact Method: OECD Test Guideline 414 Result: negative Remarks: Based on data from similar materials

Graphite:

Effects on fertility	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative
Effects on foetal development	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative

Copper metal powder:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rabbit Application Route: Ingestion Result: negative

Talc:

Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat

Application Route: Ingestion
Result: negative

Dilithium azelate:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Skin contact
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Skin contact
Result: negative
Remarks: Based on data from similar materials

Calcium oxide:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

Antimony, dialkyl dithiocarbamate:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Result: negative

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Result: negative

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422

Result: negative

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

Benzenesulphonic acid, propenated, calcium salts, overbased:

Effects on fertility : Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 415
Result: negative
Remarks: Based on data from similar materials

STOT - single exposure

Not classified based on available information.

Components:

Calcium oxide:

Assessment : May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Components:

Quartz:

Exposure routes : inhalation (dust/mist/fume)
Target Organs : Lungs
Assessment : Shown to produce significant health effects in animals at concentrations of 0.02 mg/l/6h/d or less.

Repeated dose toxicity

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Species : Rabbit
NOAEL : 1,000 mg/kg
Application Route : Skin contact
Exposure time : 4 Weeks
Method : OECD Test Guideline 410
Remarks : Based on data from similar materials

Species : Rat
NOAEL : > 980 mg/m3
Application Route : inhalation (dust/mist/fume)
Exposure time : 4 Weeks

Distillates (petroleum), hydrotreated heavy naphthenic:

Species	:	Rat
NOAEL	:	> 0.98 mg/l
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	28 Days
Remarks	:	Based on data from similar materials

Copper metal powder:

Species	:	Rat
NOAEL	:	>= 2 mg/m3
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	28 Days

Dilithium azelate:

Species	:	Rat
NOAEL	:	1,089.75 mg/kg
Application Route	:	Skin contact
Exposure time	:	28 Days
Remarks	:	Based on data from similar materials

Calcium oxide:

Species	:	Rat
NOAEL	:	>= 0.399 mg/l
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	90 Days
Method	:	OECD Test Guideline 413

Antimony, dialkyl dithiocarbamate:

Species	:	Rat
NOAEL	:	>= 1,000 mg/kg
Application Route	:	Ingestion
Exposure time	:	54 Days

Quartz:

Species	:	Humans
LOAEL	:	0.053 mg/m3
Application Route	:	inhalation (dust/mist/fume)
Remarks	:	These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Species	:	Rat
NOAEL	:	330 mg/kg
Application Route	:	Ingestion
Exposure time	:	54 Days
Method	:	OECD Test Guideline 422

Benzenesulphonic acid, propenated, calcium salts, overbased:

Species	:	Rat
NOAEL	:	> 300 mg/kg
Application Route	:	Ingestion
Exposure time	:	29 Days
Method	:	OECD Test Guideline 407
Remarks	:	Based on data from similar materials

Species	:	Rat
NOAEL	:	> 600 mg/kg
Application Route	:	Skin contact
Exposure time	:	28 Days
Method	:	OECD Test Guideline 410
Remarks	:	Based on data from similar materials

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 10,250 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 15,470 mg/l Exposure time: 96 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials EC50 (Daphnia magna (Water flea)): 30,940 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 70,100 mg/l Exposure time: 96 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials NOEC (Selenastrum capricornutum (green algae)): 60,000 mg/l Exposure time: 96 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l

		Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 10 mg/l Exposure time: 21 d Method: OECD Test Guideline 211 Remarks: Based on data from similar materials
Toxicity to microorganisms	:	NOEC: > 1.93 mg/l Exposure time: 10 min Method: DIN 38 412 Part 8 Remarks: Based on data from similar materials

Distillates (petroleum), hydrotreated heavy naphthenic:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 10 mg/l Exposure time: 21 d Remarks: Based on data from similar materials
Toxicity to microorganisms	:	NOEC: > 1.93 mg/l Exposure time: 10 min Remarks: Based on data from similar materials

Graphite:

Toxicity to fish	:	LL50 (Danio rerio (zebra fish)): > 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
		NOELR (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50: > 1,012.5 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

Copper metal powder:

Toxicity to fish	:	LC50: > 10 - 100 µg/l Exposure time: 96 h
Toxicity to fish (Chronic toxicity)	:	NOEC: > 1 - 10 µg/l

Talc:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): > 100,000 mg/l Exposure time: 24 h

Dilithium azelate:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 10 - 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 10 - 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	NOEC (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l Exposure time: 72 h Remarks: Based on data from similar materials
		ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Remarks: Based on data from similar materials

Tris[bis(2-ethylhexyl)dithiocarbamato-S,S'] antimony:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.02 mg/l Exposure time: 21 d Method: OECD Test Guideline 211 Remarks: Based on data from similar materials

Ecotoxicology Assessment

Chronic aquatic toxicity	:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Calcium oxide:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
		EC10 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Crangon crangon (shrimp)): > 1 mg/l Exposure time: 14 d Remarks: Based on data from similar materials
Toxicity to microorganisms	:	EC50: > 100 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 Remarks: Based on data from similar materials

Antimony, dialkyl dithiocarbamate:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.02 mg/l Exposure time: 21 d Method: OECD Test Guideline 211

Ecotoxicology Assessment

Chronic aquatic toxicity	:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Quartz:

Ecotoxicology Assessment

Acute aquatic toxicity	:	No toxicity at the limit of solubility
Chronic aquatic toxicity	:	No toxicity at the limit of solubility

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 45 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	LL50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201 NOELR (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50: > 1,000 mg/l Exposure time: 3 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 209

Benzenesulphonic acid, propenated, calcium salts, overbased:

Toxicity to fish	:	LL50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials NOELR (Pseudokirchneriella subcapitata (green algae)): 100

mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50: > 100 mg/l
Exposure time: 8 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Persistence and degradability

Product:

Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

Components:

Distillates (petroleum), hydrotreated heavy paraffinic:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 31 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Distillates (petroleum), hydrotreated heavy naphthenic:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 2 - 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Dilithium azelate:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 83 %
Exposure time: 30 d
Method: OECD Test Guideline 301D
Remarks: Based on data from similar materials

Tris[bis(2-ethylhexyl)dithiocarbamato-S,S'] antimony:

Biodegradability : Result: Not readily biodegradable.
Remarks: Based on data from similar materials

Antimony, dialkyl dithiocarbamate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 20 %
Exposure time: 28 d

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d

Method: OECD Test Guideline 301B

Benzenesulphonic acid, propenated, calcium salts, overbased:

Biodegradability : Result: Not readily biodegradable.
Method: OECD Test Guideline 301D
Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Dilithium azelate:

Partition coefficient: n-octanol/water : log Pow: -3.53

2,5-Bis(octyldithio)-1,3,4-thiadiazole:

Partition coefficient: n-octanol/water : log Pow: > 6.5
Method: OECD Test Guideline 117

Benzenesulphonic acid, propenated, calcium salts, overbased:

Partition coefficient: n-octanol/water : log Pow: > 4
Remarks: Expert judgement

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous.
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Copper metal powder, Antimony, dialkyl dithiocarbamate)

Class : 9

Packing group : III

Labels	:	9

IATA-DGR

UN/ID No.	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (Copper metal powder, Antimony, dialkyl dithiocarbamate)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	956
Packing instruction (passenger aircraft)	:	956
Environmentally hazardous	:	yes

IMDG-Code

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper metal powder, Antimony, dialkyl dithiocarbamate)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

ADG

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper metal powder, Antimony, dialkyl dithiocarbamate)
Class	:	9
Packing group	:	III
Labels	:	9
Hazchem Code	:	2Z

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Standard for the Uniform Scheduling of Medicines and Poisons	:	Schedule 6
Prohibition/Licensing Requirements	:	Tris[bis(2-

ethylhexyl)dithiocarbamato-S,S'] antimony
Antimony, dialkyl dithiocarbamate
Quartz
Refer to model WHS Act and Regulations for prohibition, authorisation and restricted use.

The components of this product are reported in the following inventories:

DSL	:	All components of this product are on the Canadian DSL
TSCA	:	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
AICS	:	All ingredients listed or exempt.

SECTION 16. OTHER INFORMATION

Further information

Revision Date	:	28.10.2020
Sources of key data used to compile the Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format	:	dd.mm.yyyy

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
AU OEL	:	Australia. Workplace Exposure Standards for Airborne Contaminants.
ACGIH / TWA	:	8-hour, time-weighted average
AU OEL / TWA	:	Exposure standard - time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Con-

centration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

AU / EN

HALLIBURTON

SAFETY DATA SHEET

C-TEK

Revision Date: 05-Feb-2021 **Revision Number:** 24

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name C-TEK

Other means of Identification

Synonyms None

Hazardous Material Number: HM005268

Recommended use of the chemical and restrictions on use

Recommended Use THERMATEK Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures
Inhalation Under normal conditions, first aid procedures are not required.
Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin Wash with soap and water.
Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Not applicable

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Keep container closed when not in use.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally necessary.

Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Flake	**Color**	White
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	8.2 (10%)
Freezing Point / Range	118 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	1412 °C / 2573 °F
Flash Point	No data available
Evaporation rate	< 1
Vapor Pressure	15
Vapor Density	No data available
Specific Gravity	1.6
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
Bulk Density	40-60 lbs/ft3 @ 20 C

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Contact with metals.
10.6. Hazardous decomposition products
Hydrogen chloride.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mild eye irritation.
Skin Contact May cause mild skin irritation.
Ingestion Large doses may cause nausea, vomiting and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil
No information available

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.

Canadian Domestic Substances List (DSL) All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 05-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H319 - Causes serious eye irritation

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

D-AIR 3000L

Revision Date: 07-Nov-2019 **Revision Number:** 31

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name D-AIR 3000L

Other means of Identification

Synonyms None

Hazardous Material Number: HM003191

Recommended use of the chemical and restrictions on use

Recommended Use Defoamer

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Alkenes, C15-C18	93762-80-2

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Alkenes, C15-C18	93762-80-2	60 - 100%	Asp. Tox. 1 (H304) Skin haz. Repeated exp. Yes (AUH066)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration. Rinse mouth. Never give anything by mouth to an unconscious person.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Keep container closed when not in use. Product has a shelf life of 24 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Alkenes, C15-C18	93762-80-2	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Not normally necessary.

Hand Protection None known.

Skin Protection Normal work coveralls.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Opaque
Odor:	Hydrocarbon	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	5.5-7.9
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	> 121 °C / > 249.8 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	0.92
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Alkenes, C15-C18	93762-80-2	> 5000 mg/kg (Rat) (similar substance)	> 2000 mg/kg (Rat) (similar substance)	> 2.1 mg/L (Rat)

Immediate, delayed and chronic health effects from exposure

Inhalation	None known.
Eye Contact	May cause mild eye irritation.
Skin Contact	May cause mild skin irritation.

Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Alkenes, C15-C18	93762-80-2	Not irritating to skin in rabbits. (similar substances)

Substances	CAS Number	Serious eye damage/irritation
Alkenes, C15-C18	93762-80-2	Non-irritating to rabbit's eye (similar substances)

Substances	CAS Number	Skin Sensitization
Alkenes, C15-C18	93762-80-2	Did not cause sensitization on laboratory animals (similar substances)

Substances	CAS Number	Respiratory Sensitization
Alkenes, C15-C18	93762-80-2	No information available

Substances	CAS Number	Mutagenic Effects
Alkenes, C15-C18	93762-80-2	In vitro tests did not show mutagenic effects. (similar substances)

Substances	CAS Number	Carcinogenic Effects
Alkenes, C15-C18	93762-80-2	No information available

Substances	CAS Number	Reproductive toxicity
Alkenes, C15-C18	93762-80-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Alkenes, C15-C18	93762-80-2	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	STOT - repeated exposure
Alkenes, C15-C18	93762-80-2	No information available

Substances	CAS Number	Aspiration hazard
Alkenes, C15-C18	93762-80-2	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Alkenes, C15-C18	93762-80-2	EC50 (72h) > 1000 mg/L (Selenastrum capicomutum) (similar substance)	LL50 (96h) > 1000 mg/L (Oncorhynchus mykiss) (similar substance) LL50 (96h) > 10000 mg/L (Scopthalmus maximus) (similar substance)	No information available	EC50 (48h) > 1000 mg/L (Daphnia magna) (similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Alkenes, C15-C18	93762-80-2	Readily biodegradable (77 - 81% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Alkenes, C15-C18	93762-80-2	> 7

12.4. Mobility in soil

Substances	CAS Number	Mobility
Alkenes, C15-C18	93762-80-2	KOC >5

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number

None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 07-Nov-2019

Revision Note

SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3

H304 - May be fatal if swallowed and enters airways
EUH066 - Repeated exposure may cause skin dryness or cracking

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour

mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID
OSHA
ECHA C&L

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

DCA-22001

Revision Date: 30-Sep-2020 **Revision Number:** 12

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name DCA-22001

Other means of Identification

Synonyms None

Hazardous Material Number: HM007667

Recommended use of the chemical and restrictions on use

Recommended Use Cleaner

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 1 - H318
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H336
Acute Aquatic Toxicity	Category 1 - H400
Flammable liquids.	Category 2 - H225

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H225 - Highly flammable liquid and vapor
H315 - Causes skin irritation
H318 - Causes serious eye damage
H336 - May cause drowsiness or dizziness
H400 - Very toxic to aquatic life

Precautionary Statements

Prevention
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting/equipment
P242 - Use only non-sparking tools
P243 - Take action to prevent static discharges.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash before reuse
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P370 + P378 - In case of fire: Use water spray for extinction
P391 - Collect spillage

Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P403 + P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Alcohols, C12-16, ethoxylated	68551-12-2
Isopropanol	67-63-0

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Alcohols, C12-16, ethoxylated	68551-12-2	30 - 60%	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Aquatic Acute 1 (H400) Aquatic Chronic 3 (H412)
Isopropanol	67-63-0	10 - 30%	Eye Irrit. 2 (H319) STOT SE 3 (H336) Flam. Liq. 2 (H225)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes severe eye irritation which may damage tissue. Causes skin irritation. May cause headache, dizziness, and other central nervous system effects.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

May be ignited by heat, sparks or flames Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Remove sources of ignition. Wear self-contained breathing apparatus in enclosed areas. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation. Evacuate all persons from the area.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. Store between 40.5 F (4.7 C) and 120.5 F (49 C). Product has a shelf life of 24 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Alcohols, C12-16, ethoxylated	68551-12-2	Not applicable	Not applicable
Isopropanol	67-63-0	TWA: 400 ppm TWA: 983 mg/m^3 STEL: 500 ppm STEL: 1230 mg/m^3	TWA: 200 ppm STEL: 400 ppm

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Organic vapor respirator.

Hand Protection Impervious gloves Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color Colorless to Amber
Odor: Alcohol
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	6.5 - 7.5
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	80 °C / 176 °F
Flash Point	21.1 °C / 70 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	33 mmHg @ 20 C
Vapor Density	No data available
Specific Gravity	0.96
Water Solubility	Miscible with water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
Keep away from heat, sparks and flame.
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes severe eye irritation which may damage tissue. Causes skin irritation. May cause headache, dizziness, and other central nervous system effects.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation

Alcohols, C12-16, ethoxylated	68551-12-2	1600 mg/kg	2011 mg/kg-bw (rabbit)	No data available
Isopropanol	67-63-0	4700 mg/kg-bw (rat)	12870 mg/kg-bw (rabbit)	72.6 mg/L (Rat, 4h, vapor)

Immediate, delayed and chronic health effects from exposure

Inhalation May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Eye Contact Causes severe eye irritation which may damage tissue.

Skin Contact Causes skin irritation.

Ingestion Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression.

Chronic Effects/Carcinogenicity May contain ethylene oxide in the headspace of the drum. Ethylene oxide is a cancer and reproductive hazard.

Exposure Levels

No data available

Interactive effects

Skin disorders. Eye ailments.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Alcohols, C12-16, ethoxylated	68551-12-2	Causes skin irritation.
Isopropanol	67-63-0	Non-irritating to the skin (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
Alcohols, C12-16, ethoxylated	68551-12-2	Causes severe eye irritation which may damage tissue.
Isopropanol	67-63-0	Causes moderate eye irritation (Rabbit)

Substances	CAS Number	Skin Sensitization
Alcohols, C12-16, ethoxylated	68551-12-2	Did not cause sensitization on laboratory animals
Isopropanol	67-63-0	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Alcohols, C12-16, ethoxylated	68551-12-2	No information available
Isopropanol	67-63-0	No information available

Substances	CAS Number	Mutagenic Effects
Alcohols, C12-16, ethoxylated	68551-12-2	Not regarded as mutagenic.
Isopropanol	67-63-0	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Alcohols, C12-16, ethoxylated	68551-12-2	Not regarded as carcinogenic.
Isopropanol	67-63-0	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
Alcohols, C12-16, ethoxylated	68551-12-2	Not regarded as a reproductive and developmental toxicant.
Isopropanol	67-63-0	Animal testing did not show any effects on fertility.

Substances	CAS Number	STOT - single exposure
Alcohols, C12-16,	68551-12-2	No significant toxicity observed in animal studies at concentration requiring classification.

ethoxylated		
Isopropanol	67-63-0	May cause headache, dizziness, and other central nervous system effects.

Substances	CAS Number	STOT - repeated exposure
Alcohols, C12-16, ethoxylated	68551-12-2	No significant toxicity observed in animal studies at concentration requiring classification.
Isopropanol	67-63-0	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	Aspiration hazard
Alcohols, C12-16, ethoxylated	68551-12-2	Not applicable
Isopropanol	67-63-0	Not applicable

12. Ecological Information

Ecotoxicity

Product Ecotoxicity Data

Very toxic to aquatic organisms.

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Alcohols, C12-16, ethoxylated	68551-12-2	EC50 0.7 mg/L (Selenastrum capricornutum)	No information available	No information available	0.39 mg/L (Daphnia Magna)
Isopropanol	67-63-0	EC50 (72h) > 1000 mg/L (Desmodesmus subspicatus) EC50 (7d) 1800 mg/L (meanextinction value)(Scenedesmus quadricauda)	LC50 (96h) 9640 mg/L (Pimephales promelas) LC50 (7d) 7060 mg/L (Poecilia reticulata)	TT (16h) 1050 mg/L (Pseudomonas putida)	EC50 (48 h)=2285 mg/L (Daphnia sp.) EC50 (24h) > 10,000 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Alcohols, C12-16, ethoxylated	68551-12-2	No information available
Isopropanol	67-63-0	Readily biodegradable (53% @ 5d)

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Alcohols, C12-16, ethoxylated	68551-12-2	No information available
Isopropanol	67-63-0	LogPow < 4.5

12.4. Mobility in soil

Substances	CAS Number	Mobility
Alcohols, C12-16, ethoxylated	68551-12-2	No information available
Isopropanol	67-63-0	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations.

Disposal of any contaminated packaging
Follow all applicable national or local regulations.

Environmental regulations
Not applicable

14. Transport Information

Transportation Information
Australia ADG

UN Number	UN1993
UN proper shipping name:	Flammable Liquid, N.O.S. (Contains Isopropanol)
Transport Hazard Class(es):	3,
Packing Group:	II
Environmental Hazards:	Marine Pollutant (Contains Ethoxylated Alcohol)

IMDG/IMO

UN Number	UN1993
UN proper shipping name:	Flammable Liquid, N.O.S. (Contains Isopropanol)
Transport Hazard Class(es):	3
Packing Group:	II
Environmental Hazards:	Marine Pollutant (Contains Ethoxylated Alcohol)
EMS:	EmS F-E, S-E

IATA/ICAO

UN Number	UN1993
UN proper shipping name:	Flammable Liquid, N.O.S. (Contains Isopropanol)
Transport Hazard Class(es):	3
Packing Group:	II
Environmental Hazards:	Marine Pollutant (Contains Ethoxylated Alcohol)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
•3Y

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
S5

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Sep-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H225 - Highly flammable liquid and vapor
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H400 - Very toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

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This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

DCA-13002

Revision date: 12-Sep-2024 **Revision Number:** 27

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name DCA-13002

Product Code(s) HM007647

Other means of identification

Pure substance/mixture Substance

Molecular weight 238.1 g/mol

Recommended use of the chemical and restrictions on use

Recommended use Breaker
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

GHS Classification

Oxidising solids	Category 3
Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Respiratory sensitisation	Category 1
Skin sensitisation	Category 1
Specific target organ toxicity — single exposure	Category 3

Label elements



Signal word
DANGER

Hazard statements
May intensify fire; oxidiser.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause respiratory irritation.

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid breathing dust/fume/gas/mist/vapours/spray.
In case of inadequate ventilation wear respiratory protection.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/clothing and eye/face protection.
Use only outdoors or in a well-ventilated area.
Keep/Store away from clothing and other combustible materials.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
Rinse mouth.
IF ON SKIN: Wash with plenty of water and soap.
Take off all contaminated clothing and wash it before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
Call a POISON CENTRE or doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use water spray for extinction.
Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification
No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Sodium persulfate	7775-27-1	60 - 100%

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret

Section 4: First aid measures

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical attention.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a doctor. Wash off immediately with soap and plenty of water for at least 15 minutes.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. May produce an allergic reaction. Get immediate medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to doctors May cause sensitisation in susceptible persons. Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media Water fog, carbon dioxide, foam, dry chemical. Use water. Do not use dry chemicals or foams. CO_2 or Halon may provide limited control. Flood fire area with water from a distance. Move containers from fire area if you can do it without risk. Cool containers with flooding quantities of water until well after fire is out.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Dry chemical. Foam.

Specific hazards arising from the chemical

Specific hazards arising from the chemical These substances will accelerate burning when involved in a fire. Some may decompose explosively when heated or involved in a fire. May ignite combustibles (wood paper, oil, clothing, etc.). Runoff may create fire or explosion hazard. Product is or contains a sensitiser. May cause sensitisation by inhalation. May cause sensitisation by skin contact. Oxides of sulfur. Oxygen. Sulfuric acid.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. Do not move cargo or vehicle if cargo has been exposed to heat. Oxidiser. May ignite combustibles (wood paper, oil, clothing, etc.). Move containers from fire area if you can do it without risk. Fight fire from maximum distance or

use unmanned hose holders or monitor nozzles. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn.

Hazchem code 1Z

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See section 8 for more information. Stop leak if you can do it without risk. Use personal protective equipment as required.

Other information Keep combustibles (wood, paper, oil, etc) away from spilled material. DO NOT GET WATER INSIDE CONTAINERS. Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimise spreading or contact with rain.

Methods for cleaning up With clean shovel place material into clean, dry container and cover loosely; move containers from spill area. Flush area with flooding quantities of water. Prevent product from entering drains. Cover powder spill with plastic sheet or tarp to minimise spreading and keep powder dry.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Use personal protection equipment. Avoid contact with skin, eyes or clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Use with local exhaust ventilation. Handle in accordance with good industrial hygiene and safety practice. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash it before reuse. Avoid breathing vapours or mists.

General hygiene considerations Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store away from combustibles. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 12 months. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labelled containers. Do not store near combustible materials. Store in accordance with the particular national regulations. Store in accordance with local regulations. Keep out of the reach of children. Store locked up.

Incompatible materials Avoid halogens. Contact with acids. Strong alkalis. Combustible materials. Organic material. Combustible material. Hydrocarbons. Strong acids. Strong bases. Strong oxidising agents.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Australia	New Zealand	ACGIH TLV
Sodium persulfate 7775-27-1	Peak: 0.01 mg/m^3	-	TWA: 0.1 mg/m^3 Persulfate

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls Use in a well ventilated area. Localized ventilation should be used to control dust levels.

Individual protection measures, such as personal protective equipment

Eye/face protection Dust proof goggles. Tight sealing safety goggles.

Skin and body protection Rubber apron. Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Wear fire/flame resistant/retardant clothing.

Hand protection Chemical-resistant protective gloves (EN 374). Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):. Butyl rubber gloves. (>= 8 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types. Wear suitable gloves. Impervious gloves.

Respiratory protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3).

Environmental exposure controls No information available.

Other protective equipment None known.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Colour	White
Odour	Odourless.
Odour threshold	No information available

Property	**Values**	**Remarks • Method**
pH	6	None known
Melting point / freezing point	No data available	
Initial boiling point and boiling range		
Flash point	No data available	None known
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	
Relative vapour density	No data available	
Relative density	2.47	
Water solubility	Soluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
Molecular weight	238.1 g/mol	
Pour Point	No data available	
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity Oxidiser.

Chemical stability

Stability May cause fire or explosion; strong oxidiser.

Explosion data
Sensitivity to mechanical impact None.
Sensitivity to static discharge Yes.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Heat, flames and sparks. Incompatible materials.

Incompatible materials

Incompatible materials Avoid halogens. Contact with acids. Strong alkalis. Combustible materials. Organic material.

Combustible material. Hydrocarbons. Strong acids. Strong bases. Strong oxidising agents.

Hazardous decomposition products

Hazardous decomposition products Oxides of sulfur. Oxygen. Sulfuric acid.

Section 11: Toxicological information

Information on likely routes of exposure

Principle Routes of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause sensitisation in susceptible persons. (based on components). May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Skin contact Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). May cause sensitisation by skin contact. Causes skin irritation.

Ingestion Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation". Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Harmful if swallowed. (based on components).

Symptoms Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes.

Acute toxicity .

Numerical measures of toxicity - Product Information

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Sodium persulfate	895 mg/kg (Rat) 1200 mg/kg 930 mg/kg 1000 mg/kg 920 mg/kg	> 10000 mg/kg (Rat)	19.0 mg/L (Rat) 4h > 5.1 mg/L (Rat) 4h

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes skin irritation.

Chemical name	Skin corrosion/irritation
Sodium persulfate 7775-27-1	Causes skin irritation. (Rabbit)

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

Chemical name	Serious eye damage/eye irritation
Sodium persulfate 7775-27-1	Causes severe eye irritation (Rabbit)

Respiratory or skin sensitisation May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Chemical name	Respiratory sensitisation
Sodium persulfate 7775-27-1	May cause sensitisation by inhalation
Chemical name	**Skin sensitisation**
Sodium persulfate 7775-27-1	Skin sensitizer in guinea pig.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Chemical name	**Germ cell mutagenicity**
Sodium persulfate 7775-27-1	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.

Carcinogenicity Based on available data, the classification criteria are not met.

Chemical name	**Carcinogenicity**
Sodium persulfate 7775-27-1	Did not show carcinogenic effects in animal experiments (similar substances)

Reproductive toxicity Based on available data, the classification criteria are not met.

Chemical name	**Reproductive toxicity**
Sodium persulfate 7775-27-1	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

STOT - single exposure May cause respiratory irritation.

Chemical name	**STOT - single exposure**
Sodium persulfate 7775-27-1	May cause respiratory irritation.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Chemical name	**STOT - repeated exposure**
Sodium persulfate 7775-27-1	No significant toxicity observed in animal studies at concentration requiring classification.

Aspiration hazard Based on available data, the classification criteria are not met.

Chemical name	**Aspiration hazard**
Sodium persulfate 7775-27-1	Not applicable

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Sodium persulfate	EC50 (72h) 116 mg/L (biomass)	LC50 (96h) 163 mg/L (Oncorhynchus mykiss)	EC10 (18h) 36 mg/L (Pseudomonas putida)	EC50 (48h) 133 mg/L (Daphnia magna)

	(Pseudokirchnerella subcapitata)			

Terrestrial ecotoxicity There is no data for this product.

Persistence and degradability Based on available data, the classification criteria are not met

Chemical name	Persistence and degradability
Sodium persulfate 7775-27-1	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation There is no data for this product.

Mobility Based on available data, the classification criteria are not met

Chemical name	Mobility
Sodium persulfate 7775-27-1	No information available

Other adverse effects No data available

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG

UN number or ID number UN1505
UN proper shipping name Sodium persulphate
Transport hazard class(es) 5.1
Packing group III
Environmental hazard Yes
Description UN1505, Sodium persulphate, 5.1, III
Limited quantity (LQ) 5 kg
Hazchem code 1Z

IATA

UN number or ID number UN1505
UN proper shipping name Sodium persulphate
Transport hazard class(es) 5.1
Packing group III
ERG Code 5L
Special Provisions A803
Description UN1505, Sodium persulphate, 5.1, III

IMDG

UN number or ID number UN1505
UN proper shipping name Sodium persulphate
Transport hazard class(es) 5.1
Packing group III

EmS-No. F-A, S-Q
Description UN1505, Sodium persulphate, 5.1, III

Transport in bulk according to Annex II of MARPOL and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Classified as a scheduled poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Poison Schedule Number 6

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	Sodium persulfate - 7775-27-1
Present	Specific information requirement: Obligations to provide information apply. You must tell us within 28 days if the circumstances of your importation or manufacture (introduction) are different to those in our assessment.		

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

TSCA	All components listed on inventory or are exempt
AIIC	All components listed on inventory or are exempt
NZIoC	All components listed on inventory or are exempt

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal Not applicable

Section 16: Any other relevant information

Revision date 12-Sep-2024

Reason for revision Update to Format

Key or legend to abbreviations and acronyms used in the safety data sheet

ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations

VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

DCA-14003

Revision date: 12-Sep-2024 **Revision Number:** 14

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name DCA-14003

Product Code(s) HM007651

Other means of identification

Pure substance/mixture Substance

Recommended use of the chemical and restrictions on use

Recommended use Buffer
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

GHS Classification

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS). Not classified.

Label elements

Hazard statements

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS). Not classified.

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients

The product contains no substances which at their given concentration, are considered to be hazardous to health

Section 4: First aid measures

Description of first aid measures

Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.
Skin contact	Wash skin with soap and water.
Ingestion	Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms	No information available.
Effects of Exposure	No information available.

Indication of any immediate medical attention and special treatment needed

Note to doctors	Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media	All standard fire fighting media.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical	No information available. Carbon monoxide and carbon dioxide.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store away from acids. Store in a dry location.

Incompatible materials Strong acids.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses or goggles to protect against exposure.

Skin and body protection Normal work coveralls.

Hand protection Normal work gloves.

Respiratory protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3).

Environmental exposure controls No information available.

Other protective equipment None known.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Colour	White
Odour	Odourless.
Odour threshold	No information available

Property	**Values**	**Remarks • Method**
pH	8	None known
Melting point / freezing point	No data available	
Initial boiling point and boiling range		
Flash point	No data available	None known
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	
Relative vapour density	No data available	
Relative density	1.87	
Water solubility	Soluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
Pour Point	No data available	
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong acids.

Hazardous decomposition products

Hazardous decomposition products Carbon monoxide and carbon dioxide.

Section 11: Toxicological information

Information on likely routes of exposure

Principle Routes of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms No information available.

Acute toxicity .

Numerical measures of toxicity - Product Information

Component Information
See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Based on available data, the classification criteria are not met.

Reproductive toxicity Based on available data, the classification criteria are not met.

STOT - single exposure Based on available data, the classification criteria are not met.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Terrestrial ecotoxicity There is no data for this product.

Persistence and degradability Based on available data, the classification criteria are not met

Bioaccumulation There is no data for this product.

Mobility Based on available data, the classification criteria are not met

Other adverse effects No data available

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Classified as a scheduled poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Poison Schedule Number 6

Australian Industrial Chemicals Introduction Scheme (AICIS)

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

TSCA	All components listed on inventory or are exempt
AIIC	All components listed on inventory or are exempt
NZIoC	All components listed on inventory or are exempt

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal Not applicable

Section 16: Any other relevant information

Revision date 12-Sep-2024

Reason for revision Update to Format

Key or legend to abbreviations and acronyms used in the safety data sheet
ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%

EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

DCA-25021

Revision date: 12-Sep-2024 **Revision Number:** 1

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name DCA-25021

Product Code(s) HM009783

Other means of identification

Pure substance/mixture Substance

Recommended use of the chemical and restrictions on use

Recommended use Gelling Agent
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

GHS Classification

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS). Not classified.

Label elements

Hazard statements

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS). Not classified.

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Xanthan gum	11138-66-2	60 - 100%

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret

Section 4: First aid measures

Description of first aid measures

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

Skin contact Wash skin with soap and water.

Ingestion Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to doctors Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media Water fog, carbon dioxide, foam, dry chemical.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical No information available.

Carbon monoxide and carbon dioxide.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store away from oxidizers. Store in a cool, dry location. Keep from heat, sparks, and open flames. Product has a shelf life of 36 months.

Incompatible materials Strong oxidizers.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits. Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses or goggles to protect against exposure. (EN-166).

Skin and body protection Wear protective clothing appropriate for the work environment.

Hand protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.

Respiratory protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3).

Environmental exposure controls No information available.

Other protective equipment Eyewash fountains and safety showers must be easily accessible.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Colour	White to tan
Odour	Slight.
Odour threshold	No information available

Property	**Values**	**Remarks • Method**
pH	5.5 - 8.6	(1 % solution)
Melting point / freezing point	No data available	
Initial boiling point and boiling range		
Flash point	No data available	None known
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	
Relative vapour density	No data available	
Relative density	1.6	
Water solubility	Soluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
Pour Point	No data available	
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong oxidizers.

Hazardous decomposition products

Hazardous decomposition products Carbon monoxide and carbon dioxide.

Section 11: Toxicological information

Information on likely routes of exposure

Principle Routes of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms No information available.

Acute toxicity .

Numerical measures of toxicity - Product Information

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Xanthan gum	> 5000 mg/kg (Rat) > 45000 mg/kg (Rat)	-	> 21 mg/L (Rat) 1h > 4.25 mg/L (Rat) 4h

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Chemical name	Skin corrosion/irritation
Xanthan gum 11138-66-2	Not irritating to skin in rabbits.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Chemical name	Serious eye damage/eye irritation
Xanthan gum 11138-66-2	Non-irritating to rabbit's eye

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Chemical name	Respiratory sensitisation
Xanthan gum	No sensitisation responses were observed

11138-66-2	
Chemical name	Skin sensitisation
Xanthan gum 11138-66-2	Did not cause sensitisation on laboratory animals (guinea pig)

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Chemical name	Germ cell mutagenicity
Xanthan gum 11138-66-2	No information available

Carcinogenicity Based on available data, the classification criteria are not met.

Chemical name	Carcinogenicity
Xanthan gum 11138-66-2	Did not show carcinogenic effects in animal experiments

Reproductive toxicity Based on available data, the classification criteria are not met.

Chemical name	Reproductive toxicity
Xanthan gum 11138-66-2	Animal testing did not show any effects on fertility.

STOT - single exposure Based on available data, the classification criteria are not met.

Chemical name	STOT - single exposure
Xanthan gum 11138-66-2	No significant toxicity observed in animal studies at concentration requiring classification.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Chemical name	STOT - repeated exposure
Xanthan gum 11138-66-2	No significant toxicity observed in animal studies at concentration requiring classification.

Aspiration hazard Based on available data, the classification criteria are not met.

Chemical name	Aspiration hazard
Xanthan gum 11138-66-2	Not applicable

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Xanthan gum	-	TLM96 320-560 ppm (Oncorhynchus mykiss) LC50 (96h) 490 mg/L (Oncorhynchus mykiss)	-	TLM96 > 75000 ppm (Mysidopsis bahia) LC50 (48h) 980 mg/L (Daphnia magna)

Terrestrial ecotoxicity There is no data for this product.

Persistence and degradability Based on available data, the classification criteria are not met

Chemical name	Persistence and degradability
Xanthan gum 11138-66-2	Biodegradable. (93% @ 28d)

Bioaccumulation There is no data for this product.

Mobility Based on available data, the classification criteria are not met

Chemical name	Mobility
Xanthan gum 11138-66-2	No information available

Other adverse effects No data available

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	Xanthan gum - 11138-66-2
Present	-		

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

TSCA	All components listed on inventory or are exempt
AIIC	All components listed on inventory or are exempt
NZIoC	All components listed on inventory or are exempt

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal Not applicable

Section 16: Any other relevant information

Revision date 12-Sep-2024

Reason for revision Initial Release

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bw – body weight
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EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community

IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

DCA-26003

Revision date: 12-Sep-2024 **Revision Number:** 1

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name DCA-26003

Product Code(s) HM008062

Other means of identification

Pure substance/mixture Substance

Recommended use of the chemical and restrictions on use

Recommended use Stabiliser
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

GHS Classification

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS). Not classified.

Label elements

Hazard statements

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS). Not classified.

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Trisodium citrate, dihydrate	Proprietary	60 - 100%

Section 4: First aid measures

Description of first aid measures

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

Skin contact Wash skin with soap and water.

Ingestion Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to doctors Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media Water fog, carbon dioxide, foam, dry chemical.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical No information available.

Carbon monoxide and carbon dioxide.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store away from oxidizers. Keep from excessive heat. Keep container closed when not in use. Product has a shelf life of 60 months.

Incompatible materials Strong oxidizers.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls Use in a well ventilated area.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses or goggles to protect against exposure.

Skin and body protection Normal work coveralls.

Hand protection None known.

Respiratory protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Not normally needed.

But if significant exposures are possible then the following respirator is recommended: Dust/mist respirator. (N95, P2/P3).

Environmental exposure controls No information available.

Other protective equipment Eyewash fountains and safety showers must be easily accessible.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Colour	White
Odour	Odourless.
Odour threshold	No information available

Property	**Values**	**Remarks • Method**
pH	7.5 - 9.5	None known
Melting point / freezing point	150 °C / 302.0 °F	
Initial boiling point and boiling range		
Flash point	> 93.1 °C / 199.58 °F	Cleveland Open Cup (COC)
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	
Relative vapour density	No data available	
Relative density	1.7	
Water solubility	Soluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
Pour Point	No data available	
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong oxidizers.

Hazardous decomposition products

Hazardous decomposition products Carbon monoxide and carbon dioxide.

Section 11: Toxicological information

Information on likely routes of exposure

Principle Routes of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms No information available.

Acute toxicity .

Numerical measures of toxicity - Product Information

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Trisodium citrate, dihydrate	11700 mg/kg (Rat) (similar substance)	2000 mg/kg (Rat) (similar substance)	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Chemical name	Skin corrosion/irritation
Trisodium citrate, dihydrate	Not irritating to skin in rabbits. (similar substances)

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Chemical name	Serious eye damage/eye irritation
Trisodium citrate, dihydrate	Non-irritating to rabbit's eye (similar substances)

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Chemical name	Respiratory sensitisation

Trisodium citrate, dihydrate	No information available

Chemical name	Skin sensitisation
Trisodium citrate, dihydrate	Did not cause sensitisation on laboratory animals (guinea pig) (similar substances)

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Chemical name	Germ cell mutagenicity
Trisodium citrate, dihydrate	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)

Carcinogenicity Based on available data, the classification criteria are not met.

Chemical name	Carcinogenicity
Trisodium citrate, dihydrate	Did not show carcinogenic effects in animal experiments (similar substances)

Reproductive toxicity Based on available data, the classification criteria are not met.

Chemical name	Reproductive toxicity
Trisodium citrate, dihydrate	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

STOT - single exposure Based on available data, the classification criteria are not met.

Chemical name	STOT - single exposure
Trisodium citrate, dihydrate	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

STOT - repeated exposure Based on available data, the classification criteria are not met.

Chemical name	STOT - repeated exposure
Trisodium citrate, dihydrate	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Aspiration hazard Based on available data, the classification criteria are not met.

Chemical name	Aspiration hazard
Trisodium citrate, dihydrate	Not applicable

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Trisodium citrate, dihydrate	EbC50 (96h) > 18000-32000 mg/L (Chlorella vulgaris)	LC50 (48h) 440 mg/L (Leuciscus idus melanotus) (similar substance)	TT (16h) > 10000 mg/L (Pseudomonas putida) (similar substance)	LC50 (24h) 1535 mg/L (Daphnia magna) (similar substance)

Terrestrial ecotoxicity There is no data for this product.

Persistence and degradability Based on available data, the classification criteria are not met

Chemical name	Persistence and degradability
Trisodium citrate, dihydrate	Readily biodegradable (97% @ 28d)

Bioaccumulation There is no data for this product.

Mobility Based on available data, the classification criteria are not met

Chemical name	Mobility
Trisodium citrate, dihydrate	No information available

Other adverse effects No data available

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Classified as a scheduled poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

Poison Schedule Number 5

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	Trisodium citrate, dihydrate -
Present	-		

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

TSCA	All components listed on inventory or are exempt
AIIC	All components listed on inventory or are exempt
NZIoC	All components listed on inventory or are exempt

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

International Regulations

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Revision date 12-Sep-2024

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OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
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vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

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End of Safety Data Sheet

Safety Data Sheet
DEEPCLEAN*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name DEEPCLEAN*
Product code PID16970
Country Limitations This SDS is not for use in the European Union (EU).

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Completion fluid additive.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Aspiration toxicity	Category 1
Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1

Environmental hazards Not classified

Physical Hazards

Flammable Liquids	Category 4

2.2 Label elements



Signal word
DANGER

Hazard Statements
H302 - Harmful if swallowed
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H227 - Combustible liquid

Precautionary statements
P280 - Wear protective gloves and eye/face protection
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P331 - Do NOT induce vomiting

Supplementary precautionary statements
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P330 - Rinse mouth
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash it before reuse
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Contains
D-Glucopyranose, oligomeric, C8-10 glycosides

2-butoxyethanol

Citrus Extract

Distillates, petroleum, hydrotreated light

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
D-Glucopyranose, oligomeric, C8-10 glycosides	500-220-1	68515-73-1	30-60
2-butoxyethanol	203-905-0	111-76-2	10-30
Citrus Extract	Not applicable	68647-72-3	10-30
Distillates, petroleum, hydrotreated light	265-149-8	64742-47-8	10-30

Comments
Citrus extract can use either CAS# 8028-48-6 or 68647-72-3.

4. First Aid Measures

4.1 First aid measures

Inhalation Move the exposed person to fresh air at once. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen. Seek medical attention at once.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, minimize the risk of aspiration by properly positioning the affected person. Seek medical attention if irritation occurs. Risk of product entering the lungs on vomiting after ingestion. Seek medical attention at once.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
P378 - Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
combustible liquid. Vapors are heavier than air and may spread along floors. Vapors may travel considerable distance to source of ignition and flash back.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Take precautionary measures against static discharges. Use clean non-sparking tools to collect absorbed material. Ground and bond containers when transferring material. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use. Persons susceptible to allergic reactions should not handle this product.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Take precautionary measures against static discharges. Ensure all equipment is electrically grounded before beginning transfer operations. Use spark-proof tools and explosion-proof equipment.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Avoid contact with: Strong oxidizing agents Strong acids Strong alkalies. Strong reducing agents

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits OEL for "Normal and branched chain alkanes, > C7: 1200 mg/m³

Component Information

Chemical Name	Arabic	Australia	Egypt
D-Glucopyranose, oligomeric, C8-10 glycosides	Not determined	Not determined	Not determined
2-butoxyethanol	25 ppm TWA 121 mg/m³ TWA	50ppmSTEL 242mg/m³STEL 20ppmTWA 96.9mg/m³TWA	Not determined
Citrus Extract	Not determined	Not determined	Not determined
Distillates, petroleum, hydrotreated light	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
D-Glucopyranose, oligomeric, C8-10 glycosides	Not determined	Not determined	Not determined
2-butoxyethanol	Not determined	20 ppm TWA	20 ppm Ceiling 97 mg/m³ Ceiling May cause substantial skin absorption 25 ppm ACL
Citrus Extract	Not determined	Not determined	Not determined
Distillates, petroleum, hydrotreated light	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
D-Glucopyranose, oligomeric, C8-10 glycosides	Not determined	Not determined	Not determined
2-butoxyethanol	5 mg/m³ MAC	Not determined	25 ppm TWA

			121 mg/m³ TWA Possibility of significant uptake through the skin
Citrus Extract	Not determined	Not determined	Not determined
Distillates, petroleum, hydrotreated light	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
D-Glucopyranose, oligomeric, C8-10 glycosides	Not determined	Not determined	Not determined
2-butoxyethanol	20 ppm TWA 96.7 mg/m³ TWA Skin notation	skin - potential for cutaneous absorption 50 ppm TWA 240 mg/m³ TWA	5 mg/m³ MAC
Citrus Extract	Not determined	Not determined	Not determined
Distillates, petroleum, hydrotreated light	Not determined	Not determined	100 mg/m³ TWA 300 mg/m³ MAC
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
D-Glucopyranose, oligomeric, C8-10 glycosides	Not determined	Not determined	Not determined
2-butoxyethanol	50 ppm TWA	Not determined	50 ppm STEL 246 mg/m³ STEL Skin 20 ppm TWA 98 mg/m³ TWA
Citrus Extract	Not determined	Not determined	Not determined
Distillates, petroleum, hydrotreated light	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment.

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemical splash goggles and face shield

Hand protection
Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Nitrile Neoprene
Break through time >480 minutes
Glove thickness >=0.4 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection
No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Transparent
Odor	Slight Citrus
Color	Yellow

Property	Values	Remarks
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	-49.5 °C / -57.2 °F	
Boiling point/range	150 °C / 302 °F	
Flash point	61 °C / 143 °F	Closed cup
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	0.91 - 0.94	
Bulk density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	

Explosive properties	Vapours may form explosive mixtures with air
Oxidizing properties	No information available

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Combustible liquid.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static charges.

10.5 Incompatible materials

Strong oxidizing agents. Strong acids. Strong alkalies. Strong reducing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Harmful by inhalation. May cause additional affects as listed under "Ingestion".

Eye contact Causes serious eye damage.

Skin contact Causes skin irritation. May cause an allergic skin reaction. Components of the product may be absorbed into the body through the skin.

Ingestion Harmful if swallowed. May be fatal if swallowed and enters airways. Potential for aspiration if swallowed. Aspiration may cause pulmonary edema and pneumonitis.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
D-Glucopyranose, oligomeric, C8-10 glycosides	> 2000 mg/kg bw (Rat) ECHA Data	> 2000 mg/kg (Rabbit) ECHA Data	No data available
2-butoxyethanol	= 470 mg/kg (Rat)	= 435 mg/kg (Rabbit)	= 450 ppm (Rat) 4 h = 486 ppm (Rat) 4 h
Citrus Extract	No data available	No data available	No data available
Distillates, petroleum, hydrotreated light	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h

Sensitization May cause sensitization by skin contact.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Skin contact. Inhalation. Ingestion. Eye contact.

Routes of entry Skin absorption. Inhalation. Ingestion. Eye contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
D-Glucopyranose, oligomeric, C8-10 glycosides	170 mg/l LC50 Zebra fish	37 mg/L (= 21 mg a.i./L) EC50 to the freshwater algae Scenedesmus subspicatus 72h	> 100 mg/l EC50 Daphnia magna 48h
2-butoxyethanol	= 1490 mg/L LC50 Lepomis macrochirus 96 h = 2950 mg/L LC50 Lepomis macrochirus 96 h	No information available	> 1000 mg/L EC50 Daphnia magna 48 h
Citrus Extract	No information available	No information available	No information available
Distillates, petroleum, hydrotreated light	= 2.4 mg/L LC50 Oncorhynchus mykiss 96 h = 2.2 mg/L LC50 Lepomis macrochirus 96 h = 45 mg/L LC50 Pimephales promelas 96 h	No information available	No information available

12.2 Persistence and degradability

Product is biodegradable. See component information below.

Chemical Name	Persistence and degradability
D-Glucopyranose, oligomeric, C8-10 glycosides	Readily biodegradable
Distillates, petroleum, hydrotreated light	Readily biodegradable

12.3 Bioaccumulative potential

The product contains potentially bioaccumulating substances. See component information below.

Chemical Name	Bioaccumulation
D-Glucopyranose, oligomeric, C8-10 glycosides	Not likely to bioaccumulate
Distillates, petroleum, hydrotreated light	No bioaccumulation potential

12.4 Mobility

Mobility
Insoluble in water. See component information below.

Chemical Name	Mobility
D-Glucopyranose, oligomeric, C8-10 glycosides	Partially soluble
Distillates, petroleum, hydrotreated light	No information available

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Distillates, petroleum, hydrotreated light	No information available

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Do not burn, or use a cutting torch on, the empty drum. Empty containers may contain flammable or explosive vapors. Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated
IMDG/ANTAQ Hazard class Not regulated
ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard

No

14.6 Special precautions

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

2-butoxyethanol
Schedule 6

New Zealand Hazard Classification	Additives, Process Chemicals and Raw Materials (Combustible) Group Standard 2020
HSNO approval no.	HSR002490
Group number	6.1E, 6.1D, 6.3A, 8.3A, 6.5B, 3.1D

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Does not comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

This SDS is not for use in the European Union (EU).

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	01-Dec-2018
Revision date	22-Mar-2023
Version	5
This SDS has been revised in the following section(s)	All sections There have been changes with regard to classification.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

Training Advice
Do not handle until all safety precautions have been read and understood
Follow general hygiene considerations recognized as common good workplace practices

HMIS classification

Health	2
Flammability	2
Physical hazard	0
PPE	J

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SDS no. PID18960
Version 5
Revision date 07-Sep-2023
Supersedes Date: 28-Jan-2019

Safety Data Sheet
DEFOAM PLUS* NS

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name DEFOAM PLUS* NS
Product code PID18960

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Defoamer

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Contains No hazardous components

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

This product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits.

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact Wash skin thoroughly with soap and water. Get medical attention if irritation persists.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	Contains no substances with occupational exposure limit values

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Safety glasses with side-shields Tightly fitting safety goggles
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Neoprene Nitrile PVC Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Light yellow
Odor	Slight

Property	Values	Remarks
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	> 100 °C / > 212 °F	ASTM D 93-11
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	0.94 - 0.98	
Bulk density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	

Explosive properties	Not applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	-5°C / 23°F
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
LD50 Oral	> 2000 mg/kg (rat) (based on components) (MIXTURE)
Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	None known.
Routes of entry	No route of entry noted.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity -	Not classified.

Repeated exposure

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae. (LC50 > 100 mg/l - aquatic species (MIXTURE)).

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

Not readily biodegradable.

12.3 Bioaccumulative potential

The product contains potentially bioaccumulating substances.

12.4 Mobility

Mobility
Insoluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused Dispose of in accordance with local regulations.

products

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classified

HSNO approval no. Not required

Group number Not required

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Does not comply
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	28-Jan-2019
Revision date	07-Sep-2023
Version	5
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

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Safety Data Sheet

SDS no. PID10622

DRILPLEX* HDD

Revision date 27-Sep-2023 **Supersedes Date:** 28-Mar-2019 **Version** 9

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name DRILPLEX* HDD
Product code PID10622

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Rheology modifier.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves and eye/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

–

Contains
Sodium compound

Magnesium compound

Aluminium compound

Calcium compound

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Thermal decomposition can lead to release of irritating gases and vapors

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Sodium compound	Listed	Proprietary	30-60
Magnesium compound	Listed	Proprietary	10-30
Aluminium compound	Listed	Proprietary	10-30
Calcium compound	Listed	Proprietary	< 3

Comments
The product contains other ingredients which do not contribute to the overall classification.

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention if irritation occurs.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon dioxide (CO2).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to applicable federal, state and local regulations.

Environmental exposure controls
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture Avoid contact with: Acids

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

Chemical Name	Arabic	Australia	Egypt
Sodium compound	Not determined	Not determined	Not determined
Magnesium compound	10 mg/m³ TWA	10mg/m³TWAfume	10 mg/m³ TWA
Aluminium compound	10 mg/m³ TWA	10mg/m³TWAinhalable dust	Not determined
Calcium compound	5 mg/m³ TWA	5mg/m³TWA	5 mg/m³ TWA
Chemical Name	**India**	**Indonesian**	**Japan**
Sodium compound	Not determined	Not determined	Not determined
Magnesium compound	Not determined	10 mg/m³ TWA	Not determined
Aluminium compound	Not determined	10 mg/m³ TWA	2 mg/m³ OEL 0.5 mg/m³ OEL
Calcium compound	Not determined	5 mg/m³ TWA	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Sodium compound	Not determined	Not determined	Not determined
Magnesium compound	4 mg/m³ MAC	15 mg/m³ TWA	10 mg/m³ TWA
Aluminium compound	Not determined	15.0 mg/m³ TWA 5.0 mg/m³ TWA	10 mg/m³ TWA
Calcium compound	2 mg/m³ MAC	15.0 mg/m³ TWA 5.0 mg/m³ TWA	5 mg/m³ TWA
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Sodium compound	Not determined	Not determined	Skin notation 2 mg/m³ MAC Skin
Magnesium compound	10 mg/m³ TWA	15 mg/m³ TWA	4 mg/m³ MAC
Aluminium compound	10 mg/m³ TWA	Not determined	6 mg/m³ TWA 1 mg/m³ TWA 3 mg/m³ MAC Fibrogenic substance in the form of disintegration aerosol 0043
Calcium compound	5 mg/m³ TWA	Not determined	Skin notation 2 mg/m³ MAC Skin
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Sodium compound	Not determined	Not determined	Not determined
Magnesium compound	Not determined	5 mg/m³ TWA 10 mg/m³ STEL	Not determined
Aluminium compound	15 mg/m³ TWA 5 mg/m³ TWA	Not determined	Not determined
Calcium compound	15 mg/m³ TWA 5 mg/m³ TWA	5 mg/m³ TWA	5 mg/m³ TWA

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may

be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Use protective gloves made of: Nitrile Neoprene Frequent change is advisable
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Color	Off-white
Odor	Odorless

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	10-11	@ 1%
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	2.8 - 3.1	@ 20 °C

Bulk density	650-800 kg/m³ / 35-45 lb/cu.ft
Water solubility	Slightly soluble in water.
Solubility in other solvents	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Partition Coefficient (n-octanol/water)	No information available
Density and/or Relative Density	No information available
Explosive properties	Not applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from moisture.

10.5 Incompatible materials

Acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium compound	= 4090 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 2300 mg/m³ (Rat) 2 h
Magnesium compound	= 3990 mg/kg (Rat) = 3870 mg/kg (Rat)	No data available	No data available
Aluminium compound	> 5000 mg/kg (Rat)	No data available	No data available
Calcium compound	= 7340 mg/kg (Rat)	> 2500 mg/kg (Rat)	> 6.04 mg/L (Rat) 4 h

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation. Eye contact. Skin contact.

Routes of entry Inhalation. Eye contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Sodium compound	310 - 1220 mg/L LC50 Pimephales promelas 96 h = 300 mg/L LC50 Lepomis macrochirus 96 h	No information available	= 265 mg/L EC50 Daphnia magna 48 h
Magnesium compound	No information available	No information available	No information available
Aluminium compound	No information available	No information available	No information available
Calcium compound	No information available	No information available	No information available

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility

Mobility
Slightly soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Sodium compound
Schedule 6
Schedule 5

New Zealand Hazard Classification	Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020
HSNO approval no.	HSR002503
Group number	6.4A

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	28-Mar-2019
Revision date	27-Sep-2023
Version	9
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3
Flammability	0
Physical hazard	0
PPE	X

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Drispac® (Regular and Superlo®) Polymer

Version 1.9 Revision Date 2021-05-25

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Product Name	:	Drispac® (Regular and Superlo®) Polymer
Material	:	1016806, 1016803, 1116045
Use	:	Drilling Mud Additive
Company	:	Chevron Phillips Chemical Company LP Drilling Specialties Company LLC 10001 Six Pines Drive The Woodlands, TX 77380
Local	:	Chevron Phillips Chemicals Australia Pte Ltd Suite 409 685 Burke Road Camberwell, Victoria Australia 3124 Hours of Operation: 9:00 a.m. - 5:00 p.m. SDS Requests: 61 3 8080 5700 Technical Information: 61 3 8080 5700 Responsible Party: Product Safety Group Email:sds@cpchem.com

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
61 3 8080 5700 (Australia)

Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department	:	Product Safety and Toxicology Group
E-mail address	:	SDS@CPChem.com
Website	:	www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
Model Work Health and Safety Regulations 2011, Model Code of Practice for the Labelling of Workplace Hazardous Chemicals (2011), Guidance on the Classification of Hazardous Chemicals under the WHS Regulations (2012) (GHS 2009)

Classification

Not a hazardous substance or mixture.

Labeling

Not a hazardous substance or mixture.

SECTION 3: Composition/information on ingredients

Synonyms : Viscosifier, Water loss control agent

Chemical name	CAS-No. / EINECS-No.	Concentration [wt%]
Sodium Carboxymethylcellulose	9004-32-4	98 - 100

Contains no hazardous ingredients according to GHS.

SECTION 4: First aid measures

General advice : No hazards which require special first aid measures.

If inhaled : If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of eye contact : Remove contact lenses. Protect unharmed eye. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

Flash point : Not applicable

Autoignition temperature : Not applicable

Unsuitable extinguishing media : High volume water jet.

Specific hazards during fire fighting : Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.

Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire and explosion protection	:	Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed.

SECTION 6: Accidental release measures

Personal precautions	:	Avoid dust formation.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.
Additional advice	:	Contaminated surfaces will be extremely slippery. Avoid spillage on floor as the product can become very slippery when wet. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

SECTION 7: Handling and storage

Handling

Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary, but may not by themselves be sufficient.
Advice on protection against fire and explosion	:	Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed.

Storage

Requirements for storage areas and containers	:	Electrical installations / working materials must comply with the technological safety standards.
Advice on common storage	:	No materials to be especially mentioned.
Use	:	Drilling Mud Additive

SECTION 8: Exposure controls/personal protection

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection	:	Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Dusts and Mists / P100. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye wash bottle with pure water. Safety glasses.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Protective suit. Safety shoes.
Hygiene measures	:	General industrial hygiene practice.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form	:	Powder
Physical state	:	solid
Color	:	White to off-white
Odor	:	Slight
Odor Threshold	:	No data available

Safety data

Flash point	:	Not applicable
Lower explosion limit	:	Not applicable
Upper explosion limit	:	Not applicable
Flammability (solid, gas)	:	May form combustible dust concentrations in air.
Oxidizing properties	:	no
Autoignition temperature	:	Not applicable
Thermal decomposition	:	No data available
Molecular weight	:	No data available
pH	:	Not applicable
Pour point	:	No data available
Melting point/range		No data available
Boiling point/boiling range	:	No data available
Vapor pressure	:	Not applicable
Relative density	:	Not applicable
Density	:	1.5 g/cm3
Water solubility	:	Completely Soluble
Partition coefficient: n-octanol/water	:	No data available
Solubility in other solvents	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	Not applicable
Evaporation rate	:	No data available

SECTION 10: Stability and reactivity

Reactivity	:	Stable at normal ambient temperature and pressure.

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Hazardous reactions : Further information: Stable under recommended storage conditions., No hazards to be specially mentioned.

Conditions to avoid : Generation of Dusts.

Materials to avoid : No data available.

Thermal decomposition : No data available

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity

Sodium Carboxymethylcellulose : LD50: 27,000 mg/kg
Species: Rat

Acute inhalation toxicity

Sodium Carboxymethylcellulose : LC50: > 5800 mg/m3Exposure time: 4 h
Species: Rat
Test atmosphere: dust/mist

Drispac® (Regular and Superlo®) Polymer
Further information : No data available.

SECTION 12: Ecological information

Ecotoxicity effects

Toxicity to fish : This material is not expected to be harmful to aquatic organisms.

Toxicity to daphnia and other aquatic invertebrates : This material is not expected to be harmful to aquatic organisms.

Toxicity to algae : This material is not expected to be harmful to aquatic organisms.

Biodegradability

Sodium Carboxymethylcellulose	:	This material is expected to be readily biodegradable.

Bioaccumulation

Sodium Carboxymethylcellulose	:	This material is not expected to bioaccumulate.

Mobility

Sodium Carboxymethylcellulose	:	No data available
Additional ecological information	:	No data available

Ecotoxicology Assessment

Short-term (acute) aquatic hazard

Sodium Carboxymethylcellulose	:	This material is not expected to be harmful to aquatic organisms.

Long-term (chronic) aquatic hazard

Sodium Carboxymethylcellulose	:	This material is not expected to be harmful to aquatic organisms.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

National legislation

Standard for the Uniform Scheduling of Medicines and Poisons	:	No poison schedule number allocated

Notification status

Europe REACH	:	This product is in full compliance according to REACH regulation 1907/2006/EC.
Switzerland CH INV	:	Not in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada DSL	:	All components of this product are on the Canadian DSL
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).

Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

Further information

Legacy SDS Number : 25950

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials

			Information System
LC50	Lethal Concentration 50%		

SDS no. PID510
Version 13
Revision date 03-Mar-2022
Supersedes Date: 16-Nov-2018

Safety Data Sheet
DUO-VIS*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name DUO-VIS*
Product code PID510

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Viscosifier.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

–

Contains
Glyoxal

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Combustible dust

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Glyoxal	203-474-9	107-22-2	<1

Comments
The product contains other ingredients which do not contribute to the overall classification.
Note B: Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8. Material becomes slippery when wet. Use caution if wet.

6.2 Environmental precautions

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to applicable federal, state and local regulations.

Environmental exposure controls
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Take precautionary measures against static discharges. Use non-sparking tools and equipment. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Material becomes slippery when wet. Use caution if wet. Persons susceptible to allergic reactions should not handle this product.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Avoid heat, flames and other sources of ignition. Protect from moisture Avoid contact with: Strong oxidizing agents

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Component Information

Chemical Name	Arabic	Australia	Egypt
Glyoxal	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Glyoxal	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Glyoxal	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Glyoxal	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Glyoxal	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Butyl Neoprene Nitrile Frequent change is advisable
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust) Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Odor	Mild
Color	Cream - Tan

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution	7	@ 1% sol.
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	

Relative Vapor Density	No information available	
Specific gravity	1.5	20 °C
Bulk density	50 lb/ft³ (800 kg/m³)	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	> 200 °C / > 392 °F	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	

Explosive properties Suspended dust may present a dust explosion hazard
Oxidizing properties None known.

9.2 Other information

Pour point No information available
Molecular weight No information available
VOC content(%) None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid dust formation. Take precautionary measures against static charges. Avoid heat, flames and other sources of ignition. Protect from moisture.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glyoxal	= 200 mg/kg (Rat)	= 12700 mg/kg (Rabbit)	= 2.44 mg/L (Rat) 4 h

Sensitization EUH208 - Contains (Glyoxal). May produce an allergic reaction.

Mutagenic effects Contains an known or suspected mutagen.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation. Skin contact.

Routes of entry Inhalation. Skin contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Glyoxal	> 1000 mg/l LC50 Scophthalmus	207 mg/l EC50 Skeletonema 72h	259 mg/L LC50 Acartia 48h

	Maximus 96h SLB data	SLB data	SLB Data

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
Glyoxal	Not readily biodegradable

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
Glyoxal	Does not bioaccumulate

12.4 Mobility

Mobility
Soluble in water. See component information below.

Chemical Name	Mobility
Glyoxal	Soluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Glyoxal	Not expected to adsorb on soil

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required.
Group number	Not required.

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies

Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	16-Nov-2018
Revision date	03-Mar-2022
Version	13
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2
Flammability	1
Physical hazard	0
PPE	E

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Mixture identification:

Trade name: DYNAMON SX-130

Trade code: 9021455

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use: Admixture for concrete

Uses advised against: Data not available

1.3. Details of the supplier of the safety data sheet

Company: MAPEI AS - Vallsetvegen, 6 - 2120 Sagstua - Norway

phone: +47-62972000 - fax: +47-62972099 - www.mapei.no (office hours)

Responsible: sicurezza@mapei.it

1.4. Emergency telephone number

Giftinformasjonen – phone number: +47 22591300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

0 The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%.

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

Not Relevant

3.2. Mixtures

Mixture identification: DYNAMON SX-130

Hazardous components within the meaning of the CLP regulation and related classification:

None

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Wash with plenty of water and soap.

In case of eyes contact:

Wash immediately with water.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and the hazard label.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

4.2. Most important symptoms and effects, both acute and delayed

Not available

4.3. Indication of any immediate medical attention and special treatment needed

Treatment:

Not available

(see paragraph 4.1)

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO_2).

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

5.3. Advice for firefighters

Use suitable breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Limit leakages with earth or sand.

6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Retain contaminated washing water and dispose it.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No data available

8.2. Exposure controls

Eye protection:

Not needed for normal use. Anyway, operate according good working practices.

Protection for skin:

No special precaution must be adopted for normal use.

Protection for hands:

Suitable materials for safety gloves; EN ISO 374:

Polychloroprene - CR: thickness >=0,5mm; breakthrough time >=480min.

Nitrile rubber - NBR: thickness >=0,35mm; breakthrough time >=480min.

Butyl rubber - IIR: thickness >=0,5mm; breakthrough time >=480min.

Fluorinated rubber - FKM: thickness >=0,4mm; breakthrough time >=480min.

Respiratory protection:

Personal Protective Equipment should comply with relevant CE standards (as EN ISO 374 for gloves and EN ISO 166 for goggles), correctly maintained and stored. Consult the supplier to check the suitability of equipment against specific chemicals and for user information.

Not needed for normal use. Anyway, operate according good working practices.

Hygienic and Technical measures

Not available

Appropriate engineering controls:

Not available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Appearance: liquid

Color: light brown

Odour: Characteristic

Odour threshold:

Melting point / freezing point: Not available

Initial boiling point and boiling range: 100 °C (212 °F)

Flammability: Not available

Upper/lower flammability or explosive limits: Not available

Flash point: Not available

Auto-ignition temperature: Not available

Decomposition temperature: Not available

pH: Not available

Viscosity: 30.00 cPs

Kinematic viscosity: Not available

Solubility in water: dispersible

Solubility in oil: insoluble

Partition coefficient (n-octanol/water): Not available

Vapour pressure: Not available

Relative density: 1.08 g/cm3

Vapour density: Not available

Particle characteristics:

Particle size: Not available

9.2. Other information

Miscibility: Not available

Conductivity: Not available

Explosive properties: ==

No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the mixture:

a) acute toxicity — Not classified

Based on available data, the classification criteria are not met

b) skin corrosion/irritation	Not classified
	Based on available data, the classification criteria are not met
c) serious eye damage/irritation	Not classified
	Based on available data, the classification criteria are not met
d) respiratory or skin sensitisation	Not classified
	Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified
	Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified
	Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified
	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified
	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

11.2 Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 0.1%

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

List of Eco-Toxicological properties of the product

Not classified for environmental hazards

Based on available data, the classification criteria are not met

12.2. Persistence and degradability

Not available

12.3. Bioaccumulative potential

Not available

12.4. Mobility in soil

Not available

12.5. Results of PBT and vPvB assessment

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%.

12.6 Endocrine disrupting properties

No endocrine disruptor substances present in concentration >= 0.1%

12.7 Other adverse effects

Not available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Recover if possible.

A waste code (EWC) according to European List of Waste (LoW) cannot be specified, due to dependence on the usage. Contact and send to an authorized waste disposal service.

Methods of disposal:

Disposal of this product, solutions, packaging and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor.

Do not dispose of waste into sewers.

Clean waste packaging should be recycled when possible and authorized by the authority.

Hazardous waste: No

Disposal considerations:

Do not allow to enter drains or watercourses.

Dispose of product according to all federal, state and local applicable regulations.

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.

Dispose of containers contaminated by the product in accordance with local or national legal provisions. For further information, contact your local waste authority.

Special precautions:

This material and its container must be disposed of in a safe way. Care should be taken when handling untreated empty containers.

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty containers or liners may retain some product residues. Do not re-use empty containers.

SECTION 14: Transport information

Not classified as dangerous in the meaning of transport regulations.

14.1. UN number or ID number

Not Applicable

14.2. UN proper shipping name

Not Applicable

14.3. Transport hazard class(es)

Not Applicable

14.4. Packing group

Not Applicable

14.5. Environmental hazards

Not Applicable

14.6. Special precautions for user

Not Applicable

Road and Rail (ADR-RID) :

Not Applicable

Air (IATA) :

Not Applicable

Sea (IMDG) :

Not Applicable

14.7. Maritime transport in bulk according to IMO instruments

Not Applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

VOC (2004/42/EC) : N.A. g/l

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EU) n. 2020/878

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)

Regulation (EU) n. 2015/1221 (ATP 7 CLP)

Regulation (EU) n. 2016/918 (ATP 8 CLP)

Regulation (EU) n. 2016/1179 (ATP 9 CLP)

Regulation (EU) n. 2017/776 (ATP 10 CLP)

Regulation (EU) n. 2018/669 (ATP 11 CLP)

Regulation (EU) n. 2019/521 (ATP 12 CLP)

Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Regulation (EU) n. 2020/217 (ATP 14 CLP)

Regulation (EU) n. 2020/1182 (ATP 15 CLP)

Provisions related to directive EU 2012/18 (Seveso III):

Not available

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: None.

Restrictions related to the substances contained: 40, 75

SVHC Substances:

SVHC substances not present in a concentration ≥ 0.1% (w/w)

National regulations

MAL-kode: 2-1 (1993)

German Water Hazard Class (WGK)

Class 1: slightly hazardous for water.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

If appropriate, specific provisions in relation to possible training for workers are mentioned in section 2. Any training related to safety in the workplace must in any case refer to a risk assessment that must be carried out by a company safety officer taking into account the specific operating and environmental conditions in which the products are used.

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This SDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

IC50: half maximal inhibitory concentration

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

IMDG: International Maritime Code for Dangerous Goods.

INCI: International Nomenclature of Cosmetic Ingredients.
IRCCS: Scientific Institute for Research, Hospitalization and Health Care
KSt: Explosion coefficient.
LC50: Lethal concentration, for 50 percent of test population.
LD50: Lethal dose, for 50 percent of test population.
LDLo: Leathal Dose Low
N.A.: Not Applicable
N/A: Not Applicable
N/D: Not defined/ Not available
NA: Not available
NIOSH: National Institute for Occupational Safety and Health
NOAEL: No Observed Adverse Effect Level
OSHA: Occupational Safety and Health Administration.
PBT: Persistent, Bioaccumulative and Toxic
PGK: Packaging Instruction
PNEC: Predicted No Effect Concentration.
PSG: Passengers
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
TLV: Threshold Limiting Value.
TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

* Sheet model entirely changed in compliance to regulatory update.

HALLIBURTON

SAFETY DATA SHEET

ECONOLITE LIQUID

Revision Date: 03-Dec-2020 **Revision Number:** 103

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name ECONOLITE LIQUID

Other means of Identification

Synonyms None

Hazardous Material Number: HM000478

Recommended use of the chemical and restrictions on use

Recommended Use Light Weight Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 1 - H318

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H315 - Causes skin irritation
H318 - Causes serious eye damage

Precautionary Statements

Prevention
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/eye protection/face protection

Response
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash before reuse
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

Storage None
Disposal None

Contains

Substances	**CAS Number**
Sodium silicate	1344-09-8

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Sodium silicate	1344-09-8	30 - 60%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
Causes severe eye irritation which may damage tissue. Causes skin irritation.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Neutralize to pH of 6-8. Scoop up and remove. Do NOT spread spilled product with water.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. Wash hands after use. Launder contaminated clothing before reuse. Avoid breathing vapors. Avoid breathing mist. Ensure adequate ventilation. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from acids. Store in a cool well ventilated area. Keep container closed when not in use.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Sodium silicate	1344-09-8	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection	Chemical-resistant protective gloves (EN 374) Nitrile gloves. Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): (>= 8 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.
Skin Protection	Full protective chemical resistant clothing.
Eye Protection	Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions	Eyewash fountains and safety showers must be easily accessible.
Environmental Exposure Controls	Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Clear to hazy
Odor:	Slightly soapy	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	11.2
Freezing Point / Range	-1 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	101 °C / 214 °F
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.4
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong acids. Amphoteric metals such as aluminum, magnesium, lead, tin, or zinc.
10.6. Hazardous decomposition products
Hydrogen

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes severe eye irritation which may damage tissue. Causes skin irritation.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium silicate	1344-09-8	3400 mg/kg (Rat)	> 5000 mg/kg (Rat) (similar substance)	> 2.06 mg/L (Rat) 4h (similar substance)

Immediate, delayed and chronic health effects from exposure
Inhalation May cause respiratory irritation.
Eye Contact Causes severe eye irritation which may damage tissue.
Skin Contact Causes skin irritation.
Ingestion Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Skin disorders.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Sodium silicate	1344-09-8	Causes moderate skin irritation. (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
Sodium silicate	1344-09-8	Causes severe eye irritation which may damage tissue. (Rabbit)

Substances	CAS Number	Skin Sensitization
Sodium silicate	1344-09-8	Did not cause sensitization on laboratory animals (mouse) (similar substances)

Substances	CAS Number	Respiratory Sensitization
Sodium silicate	1344-09-8	No information available

Substances	CAS Number	Mutagenic Effects
Sodium silicate	1344-09-8	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Sodium silicate	1344-09-8	No information available

Substances	CAS Number	Reproductive toxicity
Sodium silicate	1344-09-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Sodium silicate	1344-09-8	No information available.

Substances	CAS Number	STOT - repeated exposure
Sodium silicate	1344-09-8	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Sodium silicate	1344-09-8	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Sodium silicate	1344-09-8	EC50 (72h) > 345 mg/L (growth rate) (Scenedesmus subspicatus) EC0 (72h) 35 mg/L (growth rate) (Scenedesmus subspicatus)	LC50 (96h) 1108 mg/L (Danio rerio) LC50 (96h) 260 – 310 mg/L (Oncorhynchus mykiss)	EC0 (0.5h) 3454 mg/L (Pseudomonas putida)	EC50 (48h) 1700 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Sodium silicate	1344-09-8	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Sodium silicate	1344-09-8	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Sodium silicate	1344-09-8	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number

S5

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 03-Dec-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H315 - Causes skin irritation
H318 - Causes serious eye damage

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

SDS no. PID620
Version 7
Revision date 02-May-2022
Supersedes Date: 28-Apr-2017

Safety Data Sheet
FLO-TROL*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name FLO-TROL*
Product code PID620

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Filtration-control.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

–

Contains No hazardous components

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Suspended dust may present a dust explosion hazard

Australian statement of hazardous/dangerous nature

Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

No classified ingredients, or those having occupational exposure limits, present above the level of disclosure.

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if symptoms occur.

Eye Contact — Remove contact lenses, if worn. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact — Please see Section 11. Toxicological Information for further information.

Eye contact — Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Avoid dust formation. Use personal protective equipment. See also section 8. Material becomes slippery when wet. Use caution if wet.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Take precautionary measures against static discharges. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Material becomes slippery when wet. Use caution if wet.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Take precautionary measures against static discharges. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Protect from moisture Avoid contact with: Oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear gloves according to EN 374 to protect against skin effects from powders Repeated or prolonged contact Nitrile Neoprene Frequent change is advisable
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces,

respiratory protection with air supply must be used.

Skin and body protection Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Odor	Odorless
Color	White

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	7.0 - 8.0	@1%
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.5	
Bulk density	30-37 lb/ft3	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	380 °C / 716 °F	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	

Explosive properties Suspended dust may present a dust explosion hazard
Oxidizing properties None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available

VOC content(%) None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static charges. Protect from moisture. Avoid dust formation.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure	Inhalation.
Routes of entry	Inhalation.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

Product is biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classified

HSNO approval no. Not required

Group number	Not required

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	28-Apr-2017
Revision date	02-May-2022
Version	7
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	1
Physical hazard	0
PPE	E

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Flowzan® Biopolymer

Version 1.9 Revision Date 2021-05-25

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Product Name : Flowzan® Biopolymer
Material : 1123442, 1016765, 1016826, 1016827

Use : Drilling Fluid Additive

Company : Chevron Phillips Chemical Company LP
Drilling Specialties Company LLC
10001 Six Pines Drive
The Woodlands, TX 77380

Local : Chevron Phillips Chemicals Australia Pte Ltd
Suite 409
685 Burke Road
Camberwell, Victoria
Australia 3124
Hours of Operation: 9:00 a.m. - 5:00 p.m.

SDS Requests: 61 3 8080 5700
Technical Information: 61 3 8080 5700
Responsible Party: Product Safety Group
Email:sds@cpchem.com

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
61 3 8080 5700 (Australia)

Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group
E-mail address : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
Model Work Health and Safety Regulations 2011, Model Code of Practice for the Labelling of Workplace Hazardous Chemicals (2011), Guidance on the Classification of Hazardous Chemicals under the WHS Regulations (2012) (GHS 2009)

Classification

Not a hazardous substance or mixture.

Labeling

Not a hazardous substance or mixture.

SECTION 3: Composition/information on ingredients

Synonyms	:	None Established
Molecular formula	:	Mixture

Contains no hazardous ingredients according to GHS.

SECTION 4: First aid measures

General advice	:	No hazards which require special first aid measures.
If inhaled	:	If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	Wash off with soap and water.
In case of eye contact	:	Remove contact lenses. Protect unharmed eye. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

Flash point	:	Not applicable
Autoignition temperature	:	No data available
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Risks of ignition followed by flame propagation or secondary explosions can be caused by the accumulation of dust, e.g. on floors and ledges.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Standard procedure for chemical fires. Use extinguishing

measures that are appropriate to local circumstances and the surrounding environment.

Fire and explosion protection	:	Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed.
Hazardous decomposition products	:	No data available.

SECTION 6: Accidental release measures

Personal precautions	:	Avoid dust formation.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Pick up and arrange disposal without creating dust. Clean up promptly by sweeping or vacuum. Keep in suitable, closed containers for disposal.
Additional advice	:	Contaminated surfaces will be extremely slippery. Avoid spillage on floor as the product can become very slippery when wet. Sweep up to prevent slipping hazard. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Special exposure hazards arising from the substance or mixture itself, combustion products, resulting gases

SECTION 7: Handling and storage

Handling

Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary, but may not by themselves be sufficient.
Advice on protection against fire and explosion	:	Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed.

Storage

Requirements for storage areas and containers	:	Electrical installations / working materials must comply with the technological safety standards.
Advice on common storage	:	No materials to be especially mentioned.
Use	:	Drilling Fluid Additive

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

AU

Components	Basis	Value	Control parameters	Note
Saturated monocarboxylic acid, calcium salt	AU OEL	TWA	10 mg/m3	

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Dusts and Mists / P100. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Eye wash bottle with pure water. Safety glasses.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Protective suit. Safety shoes.

Hygiene measures : General industrial hygiene practice.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form : Powder
Physical state : solid
Color : Cream to light yellow

Odor	:	Slight
Odor Threshold	:	No data available

Safety data

Flash point	:	Not applicable
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Oxidizing properties	:	No
Autoignition temperature	:	No data available
Molecular formula	:	Mixture
Molecular weight	:	Not applicable
pH	:	5.5 - 8.5
Pour point	:	No data available
Boiling point/boiling range	:	Not applicable
Vapor pressure	:	Not applicable
Relative density	:	1.4 - 1.6
Water solubility	:	Completely Soluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	Not applicable
Evaporation rate	:	No data available

SECTION 10: Stability and reactivity

Reactivity	:	Stable at normal ambient temperature and pressure.
Chemical stability	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur.

Further information: Stable under recommended storage conditions., No hazards to be specially mentioned.

Conditions to avoid : Generation of Dusts.

Materials to avoid : No data available.

Hazardous decomposition products : No data available

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Flowzan® Biopolymer

Further information : The product contains no substances classified as hazardous to health in concentrations which should be taken into account.

SECTION 12: Ecological information

Ecotoxicity effects

Toxicity to fish : This material is not expected to be harmful to aquatic organisms.

Toxicity to daphnia and other aquatic invertebrates : This material is not expected to be harmful to aquatic organisms.

Toxicity to algae : This material is not expected to be harmful to aquatic organisms.

Biodegradability : Taking into consideration the properties of several ingredients, the product is estimated to be biodegradable according to OECD classification.

Elimination information (persistence and degradability)

Bioaccumulation : This material is not expected to bioaccumulate.

Mobility : immobile

Additional ecological information : This material is not expected to be harmful to aquatic organisms.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : This product has no known ecotoxicological effects.

Long-term (chronic) aquatic hazard : This product has no known ecotoxicological effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

National legislation

Standard for the Uniform Scheduling of Medicines and Poisons	:	No poison schedule number allocated

Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada DSL	:	All components of this product are on the Canadian DSL
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

Further information

Legacy SDS Number : 463650

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Safety Data Sheet

SDS no. PID20006

FORM-A-BLOK* AS

Revision date 10-Jan-2024 **Supersedes Date:** 08-Jan-2019 **Version** 3

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name FORM-A-BLOK* AS
Product code PID20006

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Lost circulation material.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

_

Contains
Cellulose

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Combustible dust

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Cellulose	232-674-9	9004-34-6	5-10

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact Wash skin thoroughly with soap and water. Get medical attention if irritation persists.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Suspended dust may present a dust explosion hazard.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Magnesium oxide, Sulphur oxides, Silicon oxide.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Avoid dust formation. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Take precautionary measures against static discharges. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Take precautionary measures against static discharges. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Protect from moisture Avoid contact with: Strong oxidizing agents Strong acids

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, TWA 4mg/m³ Respirable Dust, 10mg/m³ Total Dust.
Control as an ACGIH particulate not otherwise specified (PNOS): 10 mg/m³ (Inhalable); 3 mg/m³ (Respirable) and an OSHA particulate not otherwise regulated (PNOR): 15 mg/m³ (Total); 5 mg/m³ (Respirable).

Component Information

Chemical Name	**Arabic**	**Australia**	**Egypt**
Cellulose	10 mg/m³ TWA	10mg/m³TWAinhalable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Cellulose	Not determined	10 mg/m³ TWA	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Cellulose	10 mg/m³ MAC	Not determined	10 mg/m³ TWA
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Cellulose	10 mg/m³ TWA	Not determined	10 mg/m³ MAC
Chemical Name	**Thailand**	**Vietnam**	**Turkey**

Cellulose	Not determined	10 mg/m³ TWA 5 mg/m³ TWA 20 mg/m³ STEL	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection — Use eye protection according to EN 166, designed to protect against powders and dusts
Tightly fitting safety goggles Safety glasses with side-shields

Hand protection — Wear gloves according to EN 374 to protect against skin effects from powders
Use protective gloves made of: Nitrile Neoprene
Frequent change is advisable

Respiratory protection — No protective equipment is needed under normal use conditions In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection — Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures — Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure — Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state — Solid
Appearance — Fibrous
Color — Gray
Odor — Slight Aromatic

Property	Values	Remarks
pH	No information available	

pH @ dilution	No information available
Melting / freezing point	No information available
Boiling point/range	No information available
Flash point	No information available
Evaporation rate (BuAc =1)	No information available
Flammability	Not applicable
Explosion limits:	
Upper explosion limit	No information available
Lower explosion limit	No information available
Vapor pressure	No information available
Relative Vapor Density	No information available
Specific gravity	2.23 - 2.4
Bulk density	No information available
Water solubility	Insoluble in water
Solubility in other solvents	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Partition Coefficient (n-octanol/water)	No information available
Density and/or Relative Density	No information available
Explosive properties	Suspended dust may present a dust explosion hazard
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Not known.

10.4 Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static charges. Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Strong oxidizing agents. Strong acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cellulose	> 5 g/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5800 mg/m³ (Rat) 4 h

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that

large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Cellulose	No information available	No information available	No information available

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility

Mobility
Insoluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classified

HSNO approval no. Not classified

Group number Not classified

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Does not comply
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	08-Jan-2019
Revision date	10-Jan-2024
Version	3
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	1
Physical hazard	0
PPE	X

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HALLIBURTON

SAFETY DATA SHEET

GASCON 469

Revision Date: 30-Apr-2020 **Revision Number:** 33

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name GASCON 469

Other means of Identification

Synonyms None

Hazardous Material Number: HM000753

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Not applicable

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store in a cool well ventilated area. Keep from excessive heat. Keep from freezing. Keep container closed when not in use. Store in non-rusting containers. Product has a shelf life of 12 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection None known.
Skin Protection Normal work coveralls.
Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color Transparent
Odor: Odorless
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	10
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	100 °C / 212 °F
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.1
Water Solubility	Soluble in water (10g/100ml)
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) 80

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers. Strong acids.
10.6. Hazardous decomposition products
None known.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous	NA	No data available	No data available	No data available

substances in concentrations above cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation None known.
Eye Contact May cause mechanical irritation to eye.
Skin Contact May cause mild skin irritation.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory All components are listed on the AICS or are subject to a relevant exemption, permit, or

	assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Apr-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

GASSTOP ADDITIVE

Revision Date: 03-Aug-2023 **Revision Number:** 42

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name GASSTOP ADDITIVE

Other means of Identification

Synonyms None

Hazardous Material Number: HM000755

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Rinse mouth with water many times. Get medical attention, if symptoms occur

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media. Use an extinguishing agent suitable for the surrounding fire.
Extinguishing media which must not be used for safety reasons
Water spray jet

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid creating or inhaling dust. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store in a cool, dry location. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)
Hand Protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.
Skin Protection Wear protective clothing appropriate for the work environment.
Eye Protection Wear safety glasses or goggles to protect against exposure. (EN-166)
Other Precautions Eyewash fountains and safety showers must be easily accessible.
Environmental Exposure Controls Do not allow material to contaminate ground water system. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid
Color White to off white
Odor: Odorless
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	7-8
Freezing Point / Range	-8 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	>93.3°C / >200°F
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.37
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	> 600
VOC Content (%)	< 5%

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Oxides of nitrogen. Oxides of sulfur. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous	NA	No data available	No data available	No data available

substances in concentrations above cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mechanical irritation to eye.
Skin Contact Not irritating to skin in rabbits.
Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Dispose in accordance with local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 03-Aug-2023

Revision Note
Update to Format

Full text of H-Statements referred to under sections 2 and 3
None

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

GASSTOP EXP

Revision Date: 05-Feb-2021 **Revision Number:** 30

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name GASSTOP EXP

Other means of Identification

Synonyms None

Hazardous Material Number: HM004586

Recommended use of the chemical and restrictions on use

Recommended Use Fluid Loss Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Paraffin based petroleum oil	8012-95-1

Other hazards which do not result in classification
None known

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Paraffin based petroleum oil	8012-95-1	30 - 60%	Asp. Tox. 1 (H304) Aquatic Chronic 4 (H413)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult. Not a hazard under normal use conditions.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and discard.

Ingestion Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration. Rinse mouth. Never give anything by mouth to an unconscious person.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
Do NOT spray pool fires directly with water. A solid stream of water directed into hot burning liquid can cause splattering.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Keep container closed when not in use. Store in a well ventilated area. Store between 40.5 F (4.7 C) and 120.5 F (49 C).

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Paraffin based petroleum oil	8012-95-1	TWA: 5 mg/m³	TWA: 5 mg/m³

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)

Hand Protection Chemical-resistant protective gloves (EN 374)

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions None known.

Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Yellowish
Odor:	Mild	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	< -9 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	301 - 427 °C
Flash Point	185 °C / 365 °F ASTM D 92
Upper flammability limit	7%
Lower flammability limit	1%
Evaporation rate	No data available
Vapor Pressure	< 0.1 mmHg
Vapor Density	> 10 (air = 1)
Specific Gravity	1.057
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	360 °C / 680 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation. Ingestion.

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Paraffin based petroleum oil	8012-95-1	> 2000 mg/kg (Rat) >5000 mg/kg (Rat) (similar substance)	> 15000 mg/kg (Rodent) > 2000 mg/kg (Rabbit) (similar substance)	> 0.210 mg/L (Rat) (similar substance)

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mild eye irritation.
Skin Contact May cause mild skin irritation.
Ingestion Aspiration can be a hazard if this material is swallowed.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Paraffin based petroleum oil	8012-95-1	Non-irritating to the skin (similar substances)

Substances	CAS Number	Serious eye damage/irritation
Paraffin based petroleum oil	8012-95-1	Non-irritating to the eye (similar substances)

Substances	CAS Number	Skin Sensitization
Paraffin based petroleum oil	8012-95-1	Not confirmed to cause skin or respiratory sensitization. (similar substances)

Substances	CAS Number	Respiratory Sensitization
Paraffin based petroleum oil	8012-95-1	No information available

Substances	CAS Number	Mutagenic Effects
Paraffin based petroleum oil	8012-95-1	In vitro tests did not show mutagenic effects. (similar substances)

Substances	CAS Number	Carcinogenic Effects
Paraffin based petroleum oil	8012-95-1	Did not show carcinogenic effects in animal experiments (similar substances)

Substances	CAS Number	Reproductive toxicity
Paraffin based petroleum oil	8012-95-1	No information available

Substances	CAS Number	STOT - single exposure
Paraffin based petroleum oil	8012-95-1	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	STOT - repeated exposure
Paraffin based petroleum oil	8012-95-1	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	Aspiration hazard
Paraffin based petroleum oil	8012-95-1	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Paraffin based petroleum oil	8012-95-1	No information available	LC50 (96h) >1000 mg/L (Oncorhynchus mykiss)	No information available	No information available

			LC50 (96h) > 100 mg/L (Lepomis macrochirus)		

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Paraffin based petroleum oil	8012-95-1	(15 - 35% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Paraffin based petroleum oil	8012-95-1	5.71

12.4. Mobility in soil

Substances	CAS Number	Mobility
Paraffin based petroleum oil	8012-95-1	KOC > 3

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 05-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H304 - May be fatal if swallowed and enters airways
H413 - May cause long lasting harmful effects to aquatic life

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter

NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID
BIBRA
OSHA
SIDS

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End of Safety Data Sheet

SAFETY DATA SHEET

Cleansorb
A NEWPARK Company

GBC-1

Issue Date 07-Jan-2020 **Revision date** 21-Mar-2022 **Version** 1
EN

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

Product identifier

Product Name GBC-1

Product Code NDF00667

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended Use buffer

Uses advised against No information available

Details of manufacturer or importer

Supplier
Newpark Drilling Fluids (Australia) LTD
11 Alacrity Place
Henderson, WA, 6166
Australia

For further information, please contact

Contact Point Telephone: +61 8 9410 8200
Fax: +61 8 9410 8299
Website: www.newpark.com

Emergency telephone number

Emergency telephone number +(61)-290372994 (Australia); +(64)-98010034 (New Zealand)

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Hazard statements
Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Other hazards which do not result in classification

General Hazards

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Not applicable

Mixture

Chemical name	CAS No	Weight-%
Non-hazardous ingredients	-	100

Section 4: FIRST AID MEASURES

Description of first aid measures

Emergency telephone number Poisons Information Center, Australia: 13 11 26
Poisons Information Center, New Zealand: 0800 764 766

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Do not allow run-off from fire-fighting to enter drains or water courses.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Hazchem code Not Listed.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Wash contaminated clothing before reuse.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles.

Skin and body protection Wear suitable protective clothing.

Respiratory protection In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	liquid	**Odor**	Odorless.
Color	colorless	**Odor threshold**	No information available

Property	**Values**	**Remarks • Method**
pH	8.5 - 11	
Melting point / freezing point	0 °C	
Boiling point / boiling range	> 135 °C	
Flash point	> 100 °C	
Evaporation rate		No information available
Flammability (solid, gas)		Not applicable
Flammability Limit in Air		No information available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure	10-41 mmHg	
Vapor density		No data available
Relative density	1480-1580 kg/m^3	
Water solubility	Soluble in water	
Solubility(ies)		No information available
Partition coefficient		No information available
Autoignition temperature	>300 deg C °C	
Hyphen		No information available
Kinematic viscosity		
Dynamic viscosity		

Other information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials None known based on information supplied.

Hazardous decomposition products

Hazardous Decomposition Products None known based on information supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information .

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available

Symptoms No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity 75 % of the mixture consists of ingredient(s) of unknown toxicity
75 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
75 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
75 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
75 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
75 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity The environmental impact of this product has not been fully investigated.

Unknown aquatic toxicity 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation No information available.

Mobility

Mobility in soil No information available.

Mobility No information available.

Other adverse effects

Other adverse effects No information available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

ADG Not regulated

IATA Not Regulated

IMDG Not Regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
PICCS	Does not comply
AICS	Complies
NZIoC	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Brunei Poison List Not applicable.

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 07-Jan-2020

Revision date 21-Mar-2022

Revision Note
No information available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

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End of Safety Data Sheet

SDS no. PID686
Version 10
Revision date 24-Sep-2019
Supersedes Date: 11-Dec-2018

Safety Data Sheet
G-SEAL* (All Grades)

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name G-SEAL* (All Grades)
Product code PID686

Synonyms G-SEAL* FINE

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Plugging agent.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

Contains
Graphite

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Suspended dust may present a dust explosion hazard

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Graphite	231-955-3	7782-42-5	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if irritation persists.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Avoid dust formation. Take precautionary measures against static discharges. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Take precautionary measures against static discharges.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Suspended dust may present a dust explosion hazard Protect from moisture Avoid contact with: Oxidizing agents

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits No biological limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
Graphite	2 mg/m³ TWA	3mg/m³TWArespirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Graphite	Not determined	2 mg/m³ TWA	2 mg/m³ OEL 0.5 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Graphite	Not determined	Not determined	3 mg/m³ TWA
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Graphite	2 mg/m³ TWA	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Graphite	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may

be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Neoprene Nitrile Frequent change is advisable
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Suitable mask with particle filter P3 (European Norm 143) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used. No personal respiratory protective equipment normally required
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Odor	Odorless
Color	Gray - Black
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	3652 °C / 6605.6 °F	
Boiling point/range	4827 °C / 8720.6 °F	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	2.19 - 2.26	20 °C
Bulk density	No information available	
Relative density	No information available	
Water solubility	Insoluble in water	

Solubility in other solvents	No information available
Autoignition temperature	> 500 °C / 932 °F
Decomposition temperature	> 400 °C / 752°F
Kinematic viscosity	No information available
Dynamic viscosity	No information available
log Pow	No information available

Explosive properties	Suspended dust may present a dust explosion hazard
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Take precautionary measures against static charges. Keep away from open flames, hot surfaces and sources of ignition. Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.
Eye contact	Dust may cause mechanical irritation.
Skin contact	Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Graphite	> 2000 mg/kg Rat OECD 423	No data available	> 2000 mg/m³ Rat OECD 403

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Graphite	LC50 > 100 mg/l, 96h OECD 203	EC50 > 100 mg/l 72h OECD 201	EC50 > 100 mg/l 48h202

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility

Mobility
Insoluble in water.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

Not regulated

14.2. UN proper shipping name

The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required.
Group number	Not required.

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Does not comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	11-Dec-2018
Revision date	24-Sep-2019
Version	10
This SDS has been revised in the following section(s)	1, 15, 16 No changes with regard to classification have been made. Updated according to GHS/CLP.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

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HALLIBURTON

SAFETY DATA SHEET

HALAD® 344 CEMENT ADDITIVE

Revision Date: 01-Feb-2021 **Revision Number:** 45

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name HALAD® 344 CEMENT ADDITIVE

Other means of Identification

Synonyms None

Hazardous Material Number: HM000816

Recommended use of the chemical and restrictions on use

Recommended Use Fluid Loss Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	NF	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid creating or inhaling dust. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool, dry location. Store away from oxidizers. Keep container closed when not in use. Product has a shelf life of 60 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)

Hand Protection None known.

Skin Protection Normal work coveralls.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Powder
Color White to off white
Odor: Odorless
Odor Threshold: No information available

Property	Values	Remarks/ - Method
pH:	No data available	
Freezing Point / Range	-8 °C	
Melting Point / Range	No data available	
Pour Point / Range	No data available	
Boiling Point / Range	No data available	
Flash Point	No data available	
Evaporation rate	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Specific Gravity	1.22	
Water Solubility	Soluble in water	
Solubility in other solvents	No data available	
Partition coefficient: n-octanol/water	No data available	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	

9.2. Other information

Molecular Weight	> 600
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
None known.
10.6. Hazardous decomposition products
Oxides of nitrogen. Carbon monoxide and carbon dioxide. Oxides of sulfur.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation None known.

Eye Contact May cause mechanical irritation to eye.

Skin Contact Not irritating to skin in rabbits.

Ingestion No adverse health effects are expected from swallowing.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels

No data available

Interactive effects

None known.

Data limitations

No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Not readily biodegradable

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Does not bioaccumulate.

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in	NA	No information available

concentrations above cut-off values according to the competent authority		

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number

None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 01-Feb-2021

Revision Note

SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3

None

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury

w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

HALAD® 413L CEMENT ADDITIVE

Revision Date: 29-Jun-2023 **Revision Number:** 38

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name HALAD® 413L CEMENT ADDITIVE

Other means of Identification

Synonyms None

Hazardous Material Number: HM000824

Recommended use of the chemical and restrictions on use

Recommended Use Fluid Loss Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Product has a shelf life of 24 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Not normally needed. But if significant exposures are possible then the following respirator is recommended: Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Brown-black
Odor:	Sweet	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	7.5
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.1
Water Solubility	Miscible with water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Oxides of nitrogen. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above	NA	No data available	No data available	No data available

cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation None known.
Eye Contact None known.
Skin Contact None known.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.

New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 29-Jun-2023

Revision Note
Update to Format

Full text of H-Statements referred to under sections 2 and 3
None

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

SDS no. PID2179
Version 8
Revision date 26-Apr-2023
Supersedes Date: 22-Oct-2018

Safety Data Sheet
IDCAP* D

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name IDCAP* D
Product code PID2179

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Drilling fluid additive. Shale control agent.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

–

Contains No hazardous components

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature

Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

This product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact — Please see Section 11. Toxicological Information for further information.

Eye contact — Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Nitrogen oxides (NOx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. Material becomes slippery when wet. Use caution if wet.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Material becomes slippery when wet. Use caution if wet.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Avoid heat, flames and other sources of ignition. Protect from moisture Avoid contact with: Oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Repeated or prolonged contact Use protective gloves made of: Nitrile Neoprene Frequent change is advisable
Respiratory protection	No personal respiratory protective equipment normally required Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust) Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Granules Dust
Odor	Mild
Color	White

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution	6.0 ± 1.00	@ 1%
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	Does not flash	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.4 - 1.55	
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	Not determined	
Density and/or Relative Density	No information available	
Explosive properties	No information available	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition. Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
Eye contact	Dust may cause mechanical irritation.
Skin contact	Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.
Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	Inhalation.
Routes of entry	Inhalation.

Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

Product is not biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required.
Group number	Not required.

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Does not comply
Japan (ENCS)	Does not comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	22-Oct-2018
Revision date	26-Apr-2023
Version	8
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	0
Physical hazard	0
PPE	B

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of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.
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Safety data sheet
IS 3116

Safety Data Sheet dated 18/10/2016, version 1
Printing date: 20/10/2016

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name: IS 3116
MSDS code: F006260
Chemical description: Polymeric solution.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use:
Industrial uses.

1.3. Details of the supplier of the safety data sheet

Supplier:
LAMBERTI S.p.A. - Via Piave 18 - 21041 Albizzate (VA)
Tel.: +39 0331 715 111 - Fax.: +39 0331 775 577 - e-mail: hse@lamberti.com

Competent person responsible for the safety data sheet:
hse@lamberti.com

1.4. Emergency telephone number

LAMBERTI S.p.A. - Tel. : +39 0331 715 111 - 24h

Importer Name: Chevron Australia Pty Ltd
Address: 250 St Georges Terrace, Perth, WA, 6000, Australia
Telephone: 08 9216 4000
Fax: 08 9216 4444
Emergency contact number available during office hours only: 0427 495 187

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Hazard pictograms:

None

Hazard statements:

None

Precautionary statements:

None

Special Provisions:

None

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

2.3. Other hazards

vPvB Substances: None - PBT Substances: None

Other Hazards:

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:
No ingredients to be listed.

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:
Wash with plenty of water and soap.
In case of eyes contact:
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
In case of Ingestion:
Do not under any circumstances induce vomiting. Seek immediately medical advice.
In case of Inhalation:
Remove casualty to fresh air and keep warm and at rest.
4.2. Most important symptoms and effects, both acute and delayed
Not known.
4.3. Indication of any immediate medical attention and special treatment needed
Treatment:
Not known.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
Water.
Carbon dioxide (CO2).
Extinguishing media which must not be used for safety reasons:
Not known.
5.2. Special hazards arising from the substance or mixture
Do not inhale explosion and combustion gases.
5.3. Advice for firefighters
Use suitable breathing apparatus .
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Wear personal protection equipment.
Remove persons to safety.
See protective measures under point 7 and 8.
6.2. Environmental precautions
Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
Retain contaminated washing water and dispose it.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
6.3. Methods and material for containment and cleaning up
Suitable material for taking up: absorbing material, organic, sand
Wash with plenty of water.
6.4. Reference to other sections
See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid contact with skin and eyes, inhalation of vapours and mists.
Do not eat or drink while working.
See also section 8 for recommended protective equipment.
7.2. Conditions for safe storage, including any incompatibilities
Keep away from food, drink and feed.
Incompatible materials:
None.
Instructions as regards storage premises:

Adequate ventilation in working area.
Packaging suggested:
Plastic drums.

7.3. Specific end use(s)
None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No occupational exposure limit available
DNEL Exposure Limit Values
N.D.
PNEC Exposure Limit Values
N.D.
8.2. Exposure controls
Eye protection:
Use close fitting safety goggles. (ref. EN 166, EN 140, EN175).
Protection for skin:
No special precaution must be adopted for normal use.
Protection for hands:
Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized. In case of prolonged contact, the use of protective gloves is recommended , providing comprehensive protection to chemicals (refer to EN 374).
Respiratory protection:
Use respiratory protection where ventilation is insufficient or exposure is prolonged, e.g. (ref. EN 136, EN 140, EN 141, EN 143, EN 149, EN 405).
Thermal Hazards:
None
Environmental exposure controls:
None
Appropriate engineering controls:
None

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Appearance and colour: Liquid (20 °C)
Odour: Slight.
Odour threshold: N.D.
pH: 9.0 - 11.0 (as supplied)
Melting point / freezing point: N.D.
Initial boiling point and boiling range: N.A.
Solid/gas flammability: N.D.
Upper/lower flammability or explosive limits: N.D.
Vapour density: N.D.
Flash point: > 100 °C
Evaporation rate: N.D.
Vapour pressure: N.D.
Relative density: 1.23 - 1.30
Solubility in water: Soluble
Solubility in oil: N.D.
Partition coefficient (n-octanol/water): N.D.
Auto-ignition temperature: N.D.
Decomposition temperature: N.D.
Viscosity: N.D.
Explosive properties: N.D.

Oxidizing properties: N.D.

9.2. Other information

Miscibility: N.D.
Fat Solubility: N.D.
Conductivity: N.D.
Substance Groups relevant properties N.D.

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions
10.2. Chemical stability
Stable under normal conditions
10.3. Possibility of hazardous reactions
Stable under normal conditions
10.4. Conditions to avoid
Stable under normal conditions.
10.5. Incompatible materials
Not known.
10.6. Hazardous decomposition products
Not known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Toxicological information of the mixture:
a) acute toxicity:
Toxicity Oral Rat LD50> 2000 mg/kg - Based on components.
b) skin corrosion/irritation:
Irritation Skin : repeated and prolonged contacts may cause slight irritation.
c) serious eye damage/irritation:
Irritation Eye : repeated and prolonged contacts may cause slight irritation.
Other : N.D.
If not differently specified, the information required in Regulation (EU)2015/830 listed below must be considered as N.D.:
a) acute toxicity;
b) skin corrosion/irritation;
c) serious eye damage/irritation;
d) respiratory or skin sensitisation;
e) germ cell mutagenicity;
f) carcinogenicity;
g) reproductive toxicity;
h) STOT-single exposure;
i) STOT-repeated exposure;
j) aspiration hazard.

SECTION 12: Ecological information

12.1. Toxicity
Ecological information of the mixture:
a) Aquatic acute toxicity:
EC50/LC50 > 100 mg/l - aquatic species (Lamberti internal data).
12.2. Persistence and degradability
Ecological information of the mixture:
Biodegradability: Readily biodegradable. - Test OECD 306: > 60% - Lamberti internal data.
12.3. Bioaccumulative potential
Ecological information of the mixture:

Bioaccumulation: Data not available.

12.4. Mobility in soil

Ecological information of the mixture:

Mobility in soil: Data not available.

12.5. Results of PBT and vPvB assessment

vPvB Substances: None - PBT Substances: None

12.6. Other adverse effects

None

Use according to criteria of good industrial practice, avoiding product dispersion in the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

If possible recover the product in accordance with local regulation.

SECTION 14: Transport information

14.1. UN number

N.A.

14.2. UN proper shipping name

Proper Shipping Name: N.A.

14.3. Transport hazard class(es)

Road (ADR): N.A.
Air (ICAO/IATA): N.A.
Sea (IMO/IMDG): N.A.

14.4. Packing group

N.A.

14.5. Environmental hazards

N.A.

14.6. Special precautions for user

N.A.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

N.D.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Dir. 2000/39/EC (Occupational exposure limit values); Dir. 2006/8/CE. Regulation (CE) n. 1907/2006 (REACH).

For non-EU Countries, the Material Safety Data Sheet it is prepared following the main principles of Globally Harmonized System of Classification and Labelling of Chemicals (GHS) which are adopted worldwide.

15.2. Chemical safety assessment

No

SECTION 16: Other information

N.A. = Not Applicable

N.D. = No Data available

This safety data sheet has been completely updated in compliance to Regulation 2015/830.

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

TOXNET - Databases on toxicology, hazardous chemicals, environmental health, and toxic releases;

NIOSH - Registry of toxic effects of chemical substances (1983) - Occupational Health Guidelines for Chemical Hazards (1995) - Pocket Guide to Chemical Hazards (on line)
OECD - eChemPortal: The Global Portal to Information on Chemical Substances;
CESIO - Human Health and Environmental classification of AE, AES, AS and various surfactant families.
M.Sittig-Handbook of toxic and Hazardous Chemicals and Carcinogens- III Ed.
E.R. Plunkett - Handbook of Industrial Toxicology - III Ed. 1991.
Samson Chem. Pub.-Chemical Safety Sheet working safely with hazardous chemical.
SAX'S Dangerous Properties of Industrial Materials. VIII (1993)
ACGIH - "TLVs and BEIs" - latest edition

The product must be stored, handled and used according to criteria of good industrial practice and to regulations in force. This leaflet is offered for your consideration and guidance only. This leaflet complements the Technical Data Sheet but does not replace it. The information herein contained is given to the best of our knowledge at the time of issue.
Due to the several ways in which the product may be used and the possible interaction with variables not depending on or unknown to the supplier, we also cannot accept any liability whatsoever for any loss or damage however arising from the handling and use of our products.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
LTE:	Long-term exposure.
PNEC:	Predicted No Effect Concentration.
REACH:	Registration Evaluation and Authorization of Chemicals.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STE:	Short-term exposure.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
SVHC:	Candidate List of Substances of Very High Concerns.
TLV:	Threshold Limiting Value.
TWATLV:	Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
WGK:	German Water Hazard Class.

Safety data sheet
IS FLR H 10

Safety Data Sheet dated 18/10/2016, version 1

Printing date: 20/10/2016



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name: IS FLR H 10
MSDS code: F006736
Chemical description: Product based on polymer in hydro-glycolic solution.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use:
Industrial uses.

1.3. Details of the supplier of the safety data sheet

Supplier:
LAMBERTI S.p.A. - Via Piave 18 - 21041 Albizzate (VA)
Tel.: +39 0331 715 111 - Fax.: +39 0331 775 577 - e-mail: hse@lamberti.com

Competent person responsible for the safety data sheet:
hse@lamberti.com

1.4. Emergency telephone number

LAMBERTI S.p.A. - Tel. : +39 0331 715 111 - 24h

Importer Name: Chevron Australia Pty Ltd
Address: 250 St Georges Terrace, Perth, WA, 6000, Australia
Telephone: 08 9216 4000
Fax: 08 9216 4444

Emergency contact number available during office hours only: 0427 495 187

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)



Warning, STOT RE 2, May cause damage to organs through prolonged or repeated exposure.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Hazard pictograms:



Warning

Hazard statements:

H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P314 Get medical advice/attention if you feel unwell.
P501 Dispose of contents/container in accordance with applicable regulations.

Special Provisions:

None

Contents

Ethylene glycol

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

2.3. Other hazards

vPvB Substances: None - PBT Substances: None

Other Hazards:

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

>= 10% - < 25% Ethylene glycol

REACH No.: 01-2119456816-28-XXXX, Index number: 603-027-00-1, CAS: 107-21-1, EC: 203-473-3


3.1/4/Oral Acute Tox. 4 H302


3.9/2 STOT RE 2 H373

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash with plenty of water and soap.

Remove contaminated clothing immediately and dispose of safely.

In case of eyes contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

In case of Ingestion:

Do not under any circumstances induce vomiting. Seek immediately medical advice.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

4.2. Most important symptoms and effects, both acute and delayed

Not known.

4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

Not known.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons:

Not known.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
Retain contaminated washing water and dispose it.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand
Wash with plenty of water.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.
Do not use empty container before they have been cleaned.
Before making transfer operations, assure that there are not any incompatible material residuals in the containers.
Contamined clothing should be changed before entering eating areas.
Do not eat or drink while working.
See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.
Incompatible materials:
None.
Instructions as regards storage premises:
Adequate ventilation in working area.
Packaging suggested:
Plastic drums.

7.3. Specific end use(s)

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ethylene glycol

US - ACGIH (TLV) - STEL(15 min.): C 100 ppm - Notes: A4
UK - EH40/2005 (WEL) - LTE(8h): 10 ppm - Notes: Skin; Particulate
DE - TRGS 900 (MAK) - LTE(8h): 26 mg/m3, 10 ppm - STEL(15 min.): 52 mg/m3, 20 ppm - Notes: Particulate and Vapour.
IT - D. 6 agosto 2012 (Valore limite) - LTE(8h): 52 mg/m3, 20 ppm - STEL(15 min.): 104 mg/m3, 40 ppm - Notes: Skin; Vapour.
EU - Dir. 2000/39/CE (ILV) - LTE(8h): 52 mg/m3, 20 ppm - STEL(15 min.): 104 mg/m3, 40 ppm - Notes: Skin; Vapour.
UK - EH40/2005 (WEL) - LTE(8h): 52 mg/m3, 20 ppm - STEL(15 min.): 104 mg/m3, 40 ppm - Notes: Skin; Vapour.
FR - VLEP - LTE(8h): 52 mg/m3, 20 ppm - STEL(15 min.): 104 mg/m3, 40 ppm - Notes: Vapour.

DNEL Exposure Limit Values

Ethylene glycol

Worker Industry: 35 mg/m3 - Worker Professional: 35 mg/m3 - General population: 7 mg/m3 - Frequency: Long Term, local effects Human Inhalation
Worker Industry: 106 mg/kg - Worker Professional: 106 mg/kg - General population: 53 mg/kg - Frequency: Long Term, systemic effects Human Dermal

PNEC Exposure Limit Values

Ethylene glycol

Fresh Water 10 mg/l
Marine water 1 mg/l
Intermittent release 10 mg/l
STP 199.5 mg/l
Freshwater sediments 37 mg/kg
Marine water sediments 3.7 mg/kg
Soil (agricultural) 1.53 mg/kg

8.2. Exposure controls

Eye protection:

Use close fitting safety goggles. (ref. EN 166, EN 140, EN175).

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton. (ref. EN 340).

Protection for hands:

Chemical-resistant protective gloves (EN 374). When prolonged or frequently repeated contact may occur, a glove is recommended to prevent contact. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). As general indication we suggest as suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374): nitrile rubber (NBR; >= 0.4 mm thickness) and suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): nitrile rubber (NBR; >= 0.4 mm thickness). This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances-mixtures.

Respiratory protection:

Use adequate protective respiratory equipment. (ref. EN 136, EN 140, EN 141, EN 143, EN 149, EN 405).

Thermal Hazards:

None

Environmental exposure controls:

None

Appropriate engineering controls:

None

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance and colour: Liquid (20 °C)
Odour: Slight.
Odour threshold: N.D.
pH: 7.0 - 9.0 (as supplied)
Melting point / freezing point: N.D.
Initial boiling point and boiling range: N.A.
Solid/gas flammability: N.D.
Upper/lower flammability or explosive limits: N.D.
Vapour density: N.D.
Flash point: > 100 °C
Evaporation rate: N.D.
Vapour pressure: N.D.
Relative density: 1.04 - 1.07
Solubility in water: Soluble.
Solubility in oil: N.D.
Partition coefficient (n-octanol/water): N.D.
Auto-ignition temperature: N.D.
Decomposition temperature: N.D.
Viscosity: > 20.5 cSt @ 40 °C
Explosive properties: N.D.

Oxidizing properties: N.D.

9.2. Other information

Miscibility: N.D.
Fat Solubility: N.D.
Conductivity: N.D.
Substance Groups relevant properties N.D.

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions
10.2. Chemical stability
Stable under normal conditions
10.3. Possibility of hazardous reactions
Stable under normal conditions
10.4. Conditions to avoid
Stable under normal conditions.
10.5. Incompatible materials
Not known.
10.6. Hazardous decomposition products
Not known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Toxicological information of the mixture:
a) acute toxicity:
Toxicity Oral Rat LD50> 2000 mg/kg - Calculated data.
b) skin corrosion/irritation:
Irritation Skin : repeated and prolonged contacts may cause slight irritation.
c) serious eye damage/irritation:
Irritation Eye : repeated and prolonged contacts may cause slight irritation.
i) STOT-repeated exposure:
May cause damage to organs through prolonged or repeated exposure.
Toxicological information of the main substances found in the mixture:
Ethylene glycol
a) acute toxicity:
Toxicity Oral Rat LD50= 7712 mg/kg - Literature data.
Toxicity Inhalation Rat LC50 > 2.5 mg/l - Duration: 6h - Literature data.
Toxicity Skin Mouse LD50> 3500 mg/kg - Literature data.
Toxicity Oral : harmful. - Duration: > 90 days. - Literature data.
b) skin corrosion/irritation:
Irritation Skin Rabbit : Not irritant. - Literature data.
c) serious eye damage/irritation:
Irritation Eye Rabbit : Not irritant. - Duration: 24h - Literature data.
d) respiratory or skin sensitisation:
Guinea pig maximization test Skin Guinea pig : Not sensitizing. - Literature data.
e) germ cell mutagenicity:
OECD 474 Mouse : Not mutagenic. - Literature data.
i) STOT-repeated exposure:
Repeated dose effects. Oral Rat NOAEL = 150 mg/kg - Duration: > 90 days. Literature data. - Notes: STOT - Kidneys.
Other : N.D.
If not differently specified, the information required in Regulation (EU)2015/830 listed below must be considered as N.D.:
a) acute toxicity;
b) skin corrosion/irritation;

c) serious eye damage/irritation;
d) respiratory or skin sensitisation;
e) germ cell mutagenicity;
f) carcinogenicity;
g) reproductive toxicity;
h) STOT-single exposure;
i) STOT-repeated exposure;
j) aspiration hazard.

SECTION 12: Ecological information

12.1. Toxicity

Ecological information of the mixture:

a) Aquatic acute toxicity:

Data not available.

Ecological information of the main substances found in the mixture:

Ethylene glycol

a) Aquatic acute toxicity:

EPA Guideline Fish LC50 = 72860 mg/l - Duration h: 96 - Notes: Literature data.
OECD 202 Daphnia magna EC50 > 100 mg/l - Duration h: 48 - Notes: Literature data.

12.2. Persistence and degradability

Ecological information of the mixture:

Biodegradability: Data not available.

Ecological information of the main substances found in the mixture:

Ethylene glycol

Biodegradability: Readily biodegradable - Test: OECD 301 A - Duration: 10 days: 90% - Notes: Literature data.

12.3. Bioaccumulative potential

Ecological information of the mixture:

Bioaccumulation: Data not available.

Ecological information of the main substances found in the mixture:

Ethylene glycol

Bioaccumulation: Not bioaccumulative - Test: BCF - Bioconcentrantion factor 10 - Duration: 72h - Notes: Literature data.

12.4. Mobility in soil

Ecological information of the mixture:

Mobility in soil: Data not available.

Ecological information of the main substances found in the mixture:

Ethylene glycol

Mobility in soil: Very high - Test: Koc: 1 - Notes: Calculated data (in silico).

12.5. Results of PBT and vPvB assessment

vPvB Substances: None - PBT Substances: None

12.6. Other adverse effects

None

Use according to criteria of good industrial practice, avoiding product dispersion in the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

If possible recover the product, otherwise dispose of in authorized landfill or incineration in accordance with local regulation.

SECTION 14: Transport information

14.1. UN number

N.A.

14.2. UN proper shipping name

Proper Shipping Name: N.A.

14.3. Transport hazard class(es)

Road (ADR): N.A.
Air (ICAO/IATA): N.A.
Sea (IMO/IMDG): N.A.

14.4. Packing group

N.A.

14.5. Environmental hazards

N.A.

14.6. Special precautions for user

N.A.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

N.A.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Dir. 2000/39/EC (Occupational exposure limit values); Dir. 2006/8/CE. Regulation (CE) n. 1907/2006 (REACH).
For non-EU Countries, the Material Safety Data Sheet it is prepared following the main principles of Globally Harmonized System of Classification and Labelling of Chemicals (GHS) which are adopted worldwide.

15.2. Chemical safety assessment

No

SECTION 16: Other information

N.A. = Not Applicable
N.D. = No Data available

Full text of phrases referred to in Section 3:

H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.

This safety data sheet has been completely updated in compliance to Regulation 2015/830.
This document was prepared by a competent person who has received appropriate training.
Main bibliographic sources:

TOXNET - Databases on toxicology, hazardous chemicals, environmental health, and toxic releases;
NIOSH - Registry of toxic effects of chemical substances (1983) - Occupational Health Guidelines for Chemical Hazards (1995) - Pocket Guide to Chemical Hazards (on line)
OECD - eChemPortal: The Global Portal to Information on Chemical Substances;
CESIO - Human Health and Environmental classification of AE, AES, AS and various surfactant families.
M.Sittig-Handbook of toxic and Hazardous Chemicals and Carcinogens- III Ed.
E.R. Plunkett - Handbook of Industrial Toxicology - III Ed. 1991.
Samson Chem. Pub.-Chemical Safety Sheet working safely with hazardous chemical.
SAX'S Dangerous Properties of Industrial Materials. VIII (1993)
ACGIH - "TLVs and BEIs" - latest edition

The product must be stored, handled and used according to criteria of good industrial practice and to regulations in force. This leaflet is offered for your consideration and guidance only. This leaflet complements the Technical Data Sheet but does not replace it. The information herein contained is given to the best of our knowledge at the time of issue.
Due to the several ways in which the product may be used and the possible interaction with variables not depending on or unknown to the supplier, we also cannot accept any liability whatsoever for any loss or damage however arising from the handling and use of our products.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
LTE:	Long-term exposure.
PNEC:	Predicted No Effect Concentration.
REACH:	Registration Evaluation and Authorization of Chemicals.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STE:	Short-term exposure.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
SVHC:	Candidate List of Substances of Very High Concerns.
TLV:	Threshold Limiting Value.
TWATLV:	Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
WGK:	German Water Hazard Class.

HALLIBURTON

SAFETY DATA SHEET

IsoGuard Cement Additive

Revision Date: 12-Mar-2021 **Revision Number:** 4

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name IsoGuard Cement Additive

Other means of Identification

Synonyms None

Hazardous Material Number: HM009464

Recommended use of the chemical and restrictions on use

Recommended Use Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
None known

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Rinse mouth with water many times. Get medical attention, if symptoms occur

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
Do NOT spray pool fires directly with water. A solid stream of water directed into hot burning liquid can cause splattering.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid creating and breathing dust. Ensure adequate ventilation. Use appropriate protective equipment.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Pick up and transfer to properly labeled containers.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid creating or inhaling dust. Ensure adequate ventilation. Use appropriate protective equipment. Remove sources of ignition. Ground and bond containers when transferring from one container to another.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store in a cool well ventilated area. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls A well ventilated area to control dust levels. Personal protective equipment must be CE marked and should be selected in collaboration with the supplier of such equipment.
The recommended protective equipment and the specified standards are indicative. Standards should be of the latest version.
Risk assessment of the actual workplace / operation (actual risk) may result in other protective measures.
The suitability and durability of the protective equipment will depend on the application.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)

Hand Protection	Normal work gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing. Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	Eyewash fountains and safety showers must be easily accessible.
Environmental Exposure Controls	Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration Prevent product from entering drains. Avoid dust formation

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Powder	**Color**	White
Odor:	Characteristic	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	5 - 7 (40 g/L% in H2O)
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.3
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity

May form combustible dust concentrations in air.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

Keep away from heat, sparks and flame.

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Carbon oxides.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure	Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.

Eye Contact May cause mechanical irritation to eye.

Skin Contact Non-irritating to the skin

Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels

No data available

Interactive effects

No data available

Data limitations

No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability

Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 12-Mar-2021

Revision Note
SDS sections updated:
2
11

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit

TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

Disclaimer Statement
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End of Safety Data Sheet

Safety Data Sheet

K240 Shale Inhibitor

Revision date 30-Nov-2023 **Supersedes Date:** 09-May-2023 **Version** 5

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name K240 Shale Inhibitor
Product code K240

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Shale inhibitor.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
Level 5, 10 Telethon Avenue
Perth WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518, Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Skin corrosion/irritation	Category 1 Subcategory 1C
Serious eye damage/eye irritation	Category 1

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
DANGER

Hazard Statements
H314 - Causes severe skin burns and eye damage

Precautionary statements
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves and eye/face protection
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Supplementary precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P363 - Wash contaminated clothing before reuse

Contains
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Thermal decomposition can lead to release of toxic and corrosive gases/vapors

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	-	9046-10-0	60-100

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. If not breathing, give artificial respiration. Seek medical attention at once.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Skin contact Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns must be treated by a physician.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention at once.

4.2. Most important symptoms and effects, both acute and delayed

General advice Seek medical attention for all burns, regardless how minor they may seem. The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing agent suitable for type of surrounding fire.

Extinguishing media which must not be used for safety reasons
High volume water jet.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

Hazchem code ADG 2X

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Do not get on skin or clothing. Wash thoroughly after handling. Avoid contact with eyes. Do not breathe vapors or spray mist. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see Section 13).

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Do not get in eyes, on skin or on clothing. Avoid spills and splashing during use. Do not breathe vapors or spray mist.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Avoid contact with: Strong acids

Storage class Corrosive storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Contains no substances with occupational exposure limit values

Component Information

Chemical Name	Arabic	Australia	Egypt
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemical splash goggles and face shield
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Nitrile Neoprene Rubber Break through time >480 minutes Glove thickness >=0.4 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Color	Colorless
Odor	Ammoniacal

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	9.4 - 10.2	@ 5%
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	> 93 °C / > 200 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.00 - 1.02	
Bulk density	No information available	
Water solubility	Miscible with water.	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	

Decomposition temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Partition Coefficient (n-octanol/water)	No information available
Density and/or Relative Density	No information available
Explosive properties	No information available
Oxidizing properties	No information available

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Corrosive.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Not known.

10.4 Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition.

10.5 Incompatible materials

Strong acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Vapors may irritate throat and respiratory system. Inhaled corrosive substances can lead to a toxic edema of the lungs.
Eye contact	Causes burns. May cause irreversible damage to eyes.
Skin contact	Causes severe skin burns.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Unknown acute toxicity Not Applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	2885 mg/kg (Rat) OECD 401	2979 mg/kg (Rabbit) OECD 402	> 0.74 mg/l (Rat) OECD 403

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation. Eye contact. Skin contact.

Routes of entry Inhalation. Eye contact. Skin contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not Applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	LC50 >700 mg/l 96h	EC50 >700 mg/l 72h	EC50 >1001 mg/l 48h

12.2 Persistence and degradability

Product is not biodegradable. See component information below.

Chemical Name	Persistence and degradability
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not biodegradable

12.3 Bioaccumulative potential

Does not bioaccumulate. See component information below.

Chemical Name	Bioaccumulation
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Does not bioaccumulate

12.4 Mobility

Mobility
The product is miscible with water. May spread in water systems.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

UN/ID No. (ADR/RID/ADN/ADG)	UN2735
UN No. (IMDG/ANTAQ)	UN2735
UN No. (ICAO/ANAC)	UN2735

14.2. UN proper shipping name

AMINES, LIQUID, CORROSIVE, N.O.S. (contains Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups)

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	8
IMDG/ANTAQ Hazard class	8
ICAO/ANAC Hazard class/division	8

14.4 Packing group

ADR/RID/ADN/ADG Packing group	III
IMDG/ANTAQ Packing group	III
ICAO/ANAC Packing group	III



14.5 Environmental hazard

No

14.6 Special precautions

Hazard identification no (ADR)	80
EmS (IMDG)	F-A, S-B
Emergency Action Code (EAC)	2X
Tunnel restriction code	(E)
Hazchem code ADG	2X

14.7 Maritime transport in bulk according to IMO instruments

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

No poisons schedule number allocated

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

ADG Code – Australian Dangerous Goods Code

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	09-May-2023
Revision date	30-Nov-2023
Version	5
This SDS has been revised in the following section(s)	1, 16 No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3
Flammability	1
Physical hazard	0
PPE	X

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SDS no. PID12074
Version 10
Revision date 03-May-2023
Supersedes Date: 21-Feb-2019

Safety Data Sheet
KLA-STOP*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name KLA-STOP*
Product code PID12074

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Shale inhibitor.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Skin corrosion/irritation	Category 1 Subcategory 1C
Serious eye damage/eye irritation	Category 1

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
DANGER

Hazard Statements
H314 - Causes severe skin burns and eye damage

Precautionary statements
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves and eye/face protection
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Supplementary precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P363 - Wash contaminated clothing before reuse

Contains
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Thermal decomposition can lead to release of toxic and corrosive gases/vapors

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	-	9046-10-0	60-100

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation	Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. If not breathing, give artificial respiration. Seek medical attention at once.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.
Skin contact	Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns must be treated by a physician.
Eye Contact	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention at once.

4.2. Most important symptoms and effects, both acute and delayed

General advice	Seek medical attention for all burns, regardless how minor they may seem. The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing agent suitable for type of surrounding fire.

Extinguishing media which must not be used for safety reasons
High volume water jet.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

Hazchem code ADG 2X

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Do not get on skin or clothing. Wash thoroughly after handling. Avoid contact with eyes. Do not breathe vapors or spray mist. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see Section 13).

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Do not get in eyes, on skin or on clothing. Avoid spills and splashing during use. Do not breathe vapors or spray mist.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Avoid contact with: Strong acids
Storage class	Corrosive storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Contains no substances with occupational exposure limit values

Component Information

Chemical Name	Arabic	Australia	Egypt
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection Wear chemical splash goggles and face shield

Hand protection Impervious gloves made of: Nitrile Neoprene Rubber
Break through time >480 minutes
Glove thickness >=0.4 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	Ammoniacal
Color	Colorless

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	9.4 - 10.2	@ 5%
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	> 93 °C / > 200 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.00 - 1.02	
Bulk density	No information available	
Water solubility	Miscible with water.	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available

Comments

The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Corrosive.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Not known.

10.4 Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition.

10.5 Incompatible materials

Strong acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Vapors may irritate throat and respiratory system. Inhaled corrosive substances can lead to a toxic edema of the lungs.

Eye contact Causes burns. May cause irreversible damage to eyes.

Skin contact Causes severe skin burns.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	2885 mg/kg (Rat) OECD 401	2979 mg/kg (Rabbit) OECD 402	> 0.74 mg/l (Rat) OECD 403

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation. Eye contact. Skin contact.

Routes of entry Inhalation. Eye contact. Skin contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	LC50 >700 mg/l 96h	EC50 >700 mg/l 72h	EC50 >1001 mg/l 48h

12.2 Persistence and degradability

Product is not biodegradable. See component information below.

Chemical Name	Persistence and degradability
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Not biodegradable

12.3 Bioaccumulative potential

Does not bioaccumulate. See component information below.

Chemical Name	Bioaccumulation
Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups	Does not bioaccumulate

12.4 Mobility

Mobility
The product is miscible with water. May spread in water systems.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

UN/ID No. (ADR/RID/ADN/ADG)	UN2735
UN No. (IMDG/ANTAQ)	UN2735
UN No. (ICAO/ANAC)	UN2735

14.2. UN proper shipping name

AMINES, LIQUID, CORROSIVE, N.O.S. (contains Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl groups)

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	8
IMDG/ANTAQ Hazard class	8
ICAO/ANAC Hazard class/division	8

14.4 Packing group

ADR/RID/ADN/ADG Packing group	III
IMDG/ANTAQ Packing group	III
ICAO/ANAC Packing group	III



14.5 Environmental hazard
No

14.6 Special precautions

Hazard identification no (ADR)	80
EmS (IMDG)	F-A, S-B
Emergency Action Code (EAC)	2X
Tunnel restriction code	(E)
Hazchem code ADG	2X

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Additives, Process Chemicals and Raw Materials (Corrosive) Group Standard 2020
HSNO approval no.	HSR002491
Group number	8.3A, 8.2C

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

ADG Code – Australian Dangerous Goods Code

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies

Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	21-Feb-2019
Revision date	03-May-2023
Version	10
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3
Flammability	1
Physical hazard	0
PPE	X

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SDS no. PID859
Version 5
Revision date 14-Nov-2019
Supersedes Date: 01-Aug-2016

Safety Data Sheet
KLEEN UP*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name KLEEN UP*
Product code PID859

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Detergent

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 1

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
DANGER

Hazard Statements
H318 - Causes serious eye damage

Precautionary statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

-

Contains
Alcohols, C11-14-iso-, C13-rich, ethoxylated

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature

Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Alcohols, C11-14-iso-, C13-rich, ethoxylated	polymer	78330-21-9	10-30

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Seek medical attention at once.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Store at room temperature Do not freeze Avoid contact with: Strong oxidizing agents

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Contains no substances with occupational exposure limit values No biological limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
Alcohols, C11-14-iso-, C13-rich, ethoxylated	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Alcohols, C11-14-iso-, C13-rich, ethoxylated	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**

Alcohols, C11-14-iso-, C13-rich, ethoxylated	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Alcohols, C11-14-iso-, C13-rich, ethoxylated	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Alcohols, C11-14-iso-, C13-rich, ethoxylated	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against liquid splashes Safety glasses with side-shields Tightly fitting safety goggles

Hand protection
Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Neoprene Nitrile PVC
Break through time >480 minutes
Glove thickness >=0.4 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection
No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure
Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state Liquid
Appearance No information available
Odor Slight
Color Off-white
Odor threshold Not applicable

Property	Values	Remarks
pH	7.0 - 8.5	ASTM E70 (as supplied)
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	~ 100 °C / ~ 212 °F	
Flash point	> 100 °C / > 212 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	~ 1.02	@ 20 °C
Bulk density	No information available	
Relative density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
log Pow	Not determined	

Explosive properties	Not applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	</= 0°C
Molecular weight	No information available
VOC content(%)	No information available
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Store at room temperature. Do not freeze.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye damage.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

LD50 Oral > 2000 mg/kg (rat) (based on components) (MIXTURE)

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Alcohols, C11-14-iso-, C13-rich, ethoxylated	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact.

Routes of entry No route of entry noted.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that

large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Alcohols, C11-14-iso-, C13-rich, ethoxylated	No information available	No information available	No information available

12.2 Persistence and degradability

Not readily biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Classified
HSNO approval no.	HSR002503
Group number	8.3A

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances

[NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	01-Aug-2016
Revision date	14-Nov-2019
Version	5
This SDS has been revised in the following section(s)	2, 3, 7, 8, 11, 15, 16 No changes with regard to classification have been made. Updated according to GHS/CLP.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

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Safety Data Sheet

Kwik-Seal® Fine, Medium], Coarse [MI]

According to WHS Act and the Work Health and Safety Regulations (theWHS Regulations), Section 274.
New Zealand HSNO Chemical Classification
Globally Harmonized System (GHS)

SECTION 1: Identification: Product identifier and chemical identity

1.1. Product identifier

Product Name: Kwik-Seal® Fine, Medium], Coarse [MI]

Wood, wood fibers, ground hulls or shells
CAS Number --
Synthetic flakes
CAS Number --

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Lost circulation material.

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
Level 5, 256 St Georges Terrace
Perth WA 6000
Tel: 08 9440 2900

Company:
CP Kelco U.S., Inc.
A Huber Company
3000 Cumberland Blvd, Suite 600
Atlanta, GA 30339 USA
tel: +1 (678) 247-7300

Kelco Oil Field Group
Regus House
1 Berry Street
Aberdeen, Scotland
AB25 1HF
UK
Tel: +44 1224 843784

Internet www.cpkelco.com

E-mail customer.request@cpkelco.com

1.4. Emergency telephone

CHEMTREC: +1 800 424 9300 or International +1 703 527 3887

number

In Asia Pacific: +65 6491 9100
EU KOFG Phone: +44 (0) 1224 843 784 Aberdeen, Scotland

In Australia - Carechem 24 hour emergency telephone number: +61 2801 44558

SECTION 2: Hazard(s) Identification

2.1. Classification of the substance or mixture

Physical Hazards Not classified

Health Hazards Not classified

Environmental Hazard Not classified

2.2. Label elements

Symbols/Pictograms None.

Signal Word None.

Hazard Statement None

Precautionary Statements

Prevention Employ good industrial hygiene practice. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Wear protective gloves/protective clothing/eye protection/face protection. Combustible dust may form combustible (explosive) dust-air mixtures. Take precautionary measures against static discharges.

Response IF exposed or concerned: Get medical advice/attention. Wash with plenty of soap and water.

Storage Store away from incompatible materials. Keep in a dry place.

Disposal Dispose of contents/containers in accordance with local regulations.

Hazards not otherwise classified (HNOC) COMBUSTIBLE DUST MAY FORM COMBUSTIBLE (EXPLOSIVE) DUSTAIR MIXTURES. Slippery, can cause falls if walked on.

SECTION 3: Composition and Information on Ingredients

Chemical Name	Australia (AICS)	New Zealand	TSCA: United States	Hazardous Substances
Wood, wood fibers, ground	-	-	-	No

hulls or shells CAS NUMBER-N/A				
Synthetic flakes CAS NUMBER-N/A	-	-	-	No

SECTION 4: First Aid Measures

4.1. Description of first aid measures

Eye Contact In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash with plenty of soap and water.

Ingestion Rinse mouth thoroughly with water.

Inhalation If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

4.2. Most important symptoms and effects, both acute and delayed None known.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

SECTION 5: Fire Fighting Measures

5.1. Extinguishing media

Suitable Extinguishing Media Water spray (fog). Dry chemical. Foam.

Unsuitable Extinguishing Media None known.

5.2. Special hazards arising from the substance or mixture Avoid dust formation.

Hazardous Combustion Products
Carbon dioxide
Carbon monoxide
aldehydes
organic acids

5.3. Advice for firefighters

Special protective Wear self-contained breathing apparatus and protective suit.

equipment for firefighters	
Fire-fighting measures	COMBUSTIBLE DUST MAY FORM COMBUSTIBLE (EXPLOSIVE) DUSTAIR MIXTURES.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures	Avoid dust formation. Avoid inhalation of dust. Use personal protection recommended in Section 8.
For non-emergency personnel	Keep unauthorized personnel away.
For emergency responders	Keep unauthorized personnel away. Use personal protection recommended in Section 8.
6.2. Environmental precautions	Avoid runoff to waterways and sewers. Dispose of in accordance with federal, state and local regulations.
6.3. Methods and material for containment and cleaning up	Large Spill:. Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust. Small Spill:. Vacuum or sweep material and place in a disposal container.
6.4. Reference to other sections	Section 8: Exposure controls and personal protection. See Section 13 for additional waste treatment information.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling	Minimize dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid contact with skin, eyes or clothing. Avoid prolonged contact with material. Use personal protection recommended in Section 8. Employ good industrial hygiene practice.
7.2. Conditions for safe storage, including any incompatibilities	Keep container tightly closed and dry. Store away from incompatible materials. See section 10.

SECTION 8: Exposure controls and personal protection

8.1. Control parameters

Occupational exposure limits

Wood, wood fibers, ground hulls or shells

Exposure limits Not established

Synthetic flakes

Exposure limits Not established
The creation of aerosols should be avoided.

8.2. Exposure controls

Engineering Measures Ensure adequate ventilation, especially in confined areas

Personal protective equipment

Eye/Face Protection Wear safety glasses with side shields (or goggles).

Skin and Body Protection Wear suitable protective clothing.

Hand protection For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

Respiratory Protection Use NIOSH/MSHA approved respiratory protection equipment when airborne exposures exceeds established guidelines.

Thermal hazards None known.

Hygiene Measures Follow general hygiene considerations recognized as common good workplace practices

Environmental Exposure Controls Dispose of in accordance with local regulations

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State Flakes. granulate.

Form Not determined

Color Tan to brown

Odor Mild

Odor Threshold No information available

pH: No information available

pH:	
Melting Point / Melting Range	Not applicable
Boiling Point	Not applicable
Flash Point:	Not applicable
Evaporation Rate	Not applicable
Flammability (solid, gas)	Combustible
Vapor Pressure	Not applicable
Vapor Density	Not applicable
Water Solubility	Insoluble
Partition coefficient	No information available
Autoignition Temperature	Not applicable
Oxidizing Properties	Not applicable
Fat solubility (g/l)	None

SECTION 10: Stability and Reactivity

10.1. Reactivity	No data available
10.2. Chemical stability	Stable under normal conditions
10.3. Possibility of hazardous reactions	None under normal processing
10.4. Conditions to avoid	Keep away from heat, sparks and flame.
10.5. Incompatible materials	None known.
10.6. Hazardous decomposition products	Carbon dioxide (CO2) Nitrogen oxides (NOx) Organic acids Aldehydes Cyanide compounds Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration

SECTION 11: Toxicological Information

General Information	Users are advised to consider national Occupational Exposure Limits or other

equivalent values.

Information on Likely Routes of Exposure

Inhalation	Inhalation of dust may cause irritation of the respiratory system. May cause respiratory tract irritation.
Skin	Prolonged exposure may cause skin irritation.
Eyes	May cause irritation.
Ingestion	None known.
Symptoms	Inhalation of dust may cause irritation of the respiratory system

11.1. Information on toxicological effects

Acute Toxicity	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.
Respiratory Sensitization	Based on available data, the classification criteria are not met.
Skin Corrosion/Irritation	Prolonged or repeated contact may dry skin and cause irritation.
Skin Sensitization	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Reproductive Effects	This product does not contain any known or suspected reproductive hazards.
Reproductive Toxicity	Based on available data, the classification criteria are not met.
Carcinogenicity	This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.
Specific target organ toxicity - Single exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity - Repeated exposure	Based on available data, the classification criteria are not met.
Chronic Effects	Based on available data, the classification criteria are not met.

SECTION 12: Ecological Information

12.1. Ecotoxicity	Not classified.

Wood, wood fibers, ground hulls or shells - CAS NUMBER-N/A
96-Hour LC50 Crustacea 1000000 ppm Acute
Synthetic flakes - CAS NUMBER-N/A
96-Hour LC50 Crustacea 1000000 ppm Acute

12.2. Persistence and degradability Inherently biodegradable, not fulfilling criteria.

12.3. Bioaccumulative potential No information available.

Partition coefficient Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment This substance does not meet the criteria for classification as PBT or vPvB.

12.6. Other adverse effects None known

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contaminated Packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Waste codes Waste codes should be assigned by the user based on the application for which the product was used

Disposal Methods Dispose of waste product or used containers according to local regulations

SECTION 14: Transport Information

Mode of Transportation (Road, Water, Air, Rail)

ICAO Not regulated
IMDG/IMO Not regulated
RID Not regulated
DOT Not regulated

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Global Inventories

Chemical Name	CAS Number	Australia (AICS)	Canada (DSL)	China (IECSC)	REACH registration number	EC No	Japan	S. Korea (KECL)	Mexico	New Zealand	Philippines (PICCS)	Taiwan	TSCA: United States
Wood, wood fibers, ground hulls or shells	--	-	-	-	--	--	-	-	-	-	-	-	-
Synthetic flakes	--	-	-	-	--	--	-	-	-	-	-	-	-

Legend
X / Y: Complies , - / N: Not Listed , Exempt

SECTION 16: Other information

Prepared by
CP Kelco Global Regulatory Affairs
Email: Regulatory.Affairs@cpkelco.com

Reason for Revision
According to WHS Act and the Work Health and Safety Regulations (theWHS Regulations), Section 274.
New Zealand HSNO Chemical Classification
Globally Harmonized System (GHS)

Hazards identification

Physical Hazards Not classified

Health Hazards Not classified

Environmental Hazard Not classified

Labeling

Symbols/Pictograms None.

Signal Word None.

Hazard Statement None

Training Advice Do not handle until all safety precautions have been read and understood.

Abbreviations and acronyms
International Agency for Research on Cancer (IARC)
International Air Transport Association (IATA)
International Maritime Dangerous Goods (IMDG)
International Uniform Chemical Information Database (IUCLID)
Workplace Hazardous Materials Information System (WHMIS) status and classification
EPA SARA Title III Section 312 (40 CFR 370) Hazard Classification
DOT (Department of Transportation)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)
TWA - Time-Weighted Average
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)
The Classification, Labeling and Packaging of Substances and Mixtures (CLP) Regulation (EC 1272/2008)
PPE - Personal Protection Equipment
NIOSH - National Institute for Occupational Safety and Health
TDG (Transport of Dangerous Goods) Canada
CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)
Reportable Quantity (RQ) (RQ/% in mixture)
STEL - Short Term Exposure Limit
TLV® - Threshold Limit Value
Derived No Effect Level (DNEL)
SVHC: Substances of Very High Concern for Authorization:
Land transport (ADR/RID)
Biochemical oxygen demand (BOD)
Chemical oxygen demand (COD)
ICAO (air)
(IMDG) International Maritime Dangerous Goods
Positive Pressure Self-Contained Breathing Apparatus (SCBA)
Predicted No Effect Concentration (PNEC)
Globally Harmonized System (GHS)

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet

SDS no. L055
Version 4
Revision date 11/Sep/2020
Supersedes date 08/Jun/2015

Safety Data Sheet
Clay Stabilizer L55

1. Identification

1.1 Product identifier

Product name Clay Stabilizer L55

Product code L055

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Clay control agent in oilfield applications.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Technology Corporation
110 Schlumberger Drive
Sugar Land, Texas 77478, USA
Telephone: 1-281-285-7873

Schlumberger Canada, Ltd.
200, 125 - 9th Avenue SE
Calgary, Alberta T2G 0P6, Canada

E-mail address SDS@slb.com

Prepared by
Global Regulatory Compliance - Chemicals (GRC - Chemicals)

1.4 Emergency Telephone Number

Emergency telephone (24 Hour) Asia Pacific +65 3158 1074, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, USA +1 281 561 1600, Canada +1 800 579 7421, Argentina: +54 11 5984 3690, Brazil : +55 11 3197 5891

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS - Classification

Health hazards

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4
Acute toxicity - Inhalation (Vapors)	Category 4
Specific target organ toxicity - Single exposure	Category 1

Environmental hazards Not classified

Physical Hazards

Flammable Liquids	Category 3

2.2 Label elements



Signal word
DANGER

Hazard Statements
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H332 - Harmful if inhaled
H370 - Causes damage to organs
H226 - Flammable liquid and vapor

Precautionary Statements
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P280 - Wear protective gloves, protective clothing, eye protection
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P303 + P361 + P353 - IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Supplementary precautionary statements
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, ventilating, lighting, equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P260 - Do not breathe dust, fume, gas, mist, vapors, spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P308 + P311 - IF exposed or concerned: Call a POISON CENTER or doctor
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth
P362 + P364 - Take off contaminated clothing and wash it before reuse
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P403 + P235 - Store in a well-ventilated place. Keep cool
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Unknown acute toxicity Not applicable.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	CAS No	Weight-%
Methanol	67-56-1	15 - 40

Comments
The product contains other ingredients which do not contribute to the overall classification. The exact percentage (concentration) of composition has been withheld as a trade secret.

Hazardous Material Information Review Act registry number (HMIRA registry #) 11312
Filing Date: 08/May/2017

4. First Aid Measures

4.1 First aid measures

Inhalation Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. If not breathing, give artificial respiration. Seek medical attention at once.

Ingestion Do NOT induce vomiting. Get immediate medical attention. Rinse mouth. Risk of product entering the lungs on vomiting after ingestion. Never give anything by mouth to an unconscious person.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek medical attention.

Eye Contact Remove contact lenses, if worn. Immediately flush eyes with water for 15 minutes while holding eyelids open. Seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Flammable liquid. Vapors may travel to source of ignition and flash back.

Hazardous combustion products
Carbon oxides (COx).

5.3 Advice for firefighters

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Remove all sources of ignition. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Take precautionary measures against static discharges. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Use clean non-sparking tools to collect absorbed material. Ground and bond containers when transferring material. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Take

precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. Ensure all equipment is electrically grounded before beginning transfer operations.

Storage precautions Store indoors or under cover. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Protect from freezing. Avoid contact with:. Strong oxidizing agents.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

Chemical Name	ACGIH TLV	OSHA PEL	Argentina - Occupational Exposure Limits - TWAs (CMPs)	Brazil - Occupational Exposure Limits - TWAs (LTs)	Mexico - Occupational Exposure Limits - TWAs (LMPE-PPTs)
Methanol	200 ppm	200 ppm TWA 260 mg/m³ TWA	200 ppm TWA	156 ppm TWA LT; 200 mg/m³ TWA LT	200 ppm TWA VLE-PPT

IDLH (Immediately Dangerous to Life or Health)

Immediately Dangerous to Life or Health (IDLH) is established by the US National Institute for Occupational Safety and Health (NIOSH). The purpose of establishing an IDLH value is to ensure that the worker can escape from a given contaminated environment in the event of failure of the most protective respiratory protection equipment. In the event of failure of respiratory protection equipment every effort should be made to exit immediately.

Chemical Name	IDLH (Immediately Dangerous to Life or Health)
Methanol 67-56-1	6000 ppm IDLH

8.2 Exposure controls

A risk assessment is recommended to be performed by a qualified and trained personnel to analyze the worksite and recommends the appropriate controls such as engineering controls, work practice controls, and administrative controls as primary means of reducing employee exposure. When there is a remaining hazards after applying the primary controls, Personal Protective Equipment (PPE) must be used.

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls

Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Personal protective equipment

Eye protection Use eye protection according to EN 166, designed to protect against liquid splashes. Safety glasses with side-shields. Tightly fitting safety goggles.

Hand protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Neoprene Nitrile
Break through time >480 minutes
Glove thickness 0.6-0.8 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory Protection All respiratory protection equipment should be used within a comprehensive respiratory protection program that meets the requirements of 29 CFR 1910.134 (U.S. OSHA Respiratory Protection Standard) or local equivalent.If exposed to airborne mist/aerosol of

	this product, use an organic vapor cartridge with a P-95 pre-filter attached. In work environments containing oil mist/aerosol, use an organic vapor cartridge with a P-95 pre-filter attached.If exposed to vapors from this product, use a NIOSH/MSHA-approved respirator with an organic vapor cartridge.
Skin and body protection	Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Colorless
Odor	Sweet
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	4.7	
pH @ dilution	No information available	
Melting point	- 25 °C / - 13 °F	
Boiling point	57 °C / 135 °F	
Flash point	35 °C / 95 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	36%	
Lower flammability limit	6%	
Vapor pressure	14 kPa	@ 38 °C
Vapor density	No information available	
Specific gravity	1.01 - 1.03 g/cm³	@ 15.6 °C
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	599.5 cSt @ 16 °C	
Dynamic viscosity	600 mPa s	Not applicable
Partition Coefficient (n-octanol/water)	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	19
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

FLAMMABLE LIQUID AND VAPOR.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from freezing. Take precautionary measures against static charges. Avoid heat, flames and other sources of ignition.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Product information Methanol is more toxic to humans and primates than to most experimental animals, due to differences in how it is metabolized. Non-primates do not appear to experience the acidosis or vision effects observed in humans and primates.

Inhalation Harmful by inhalation.

Eye contact Contact with eyes may cause irritation.

Skin contact Harmful in contact with skin. May be absorbed through the skin in harmful amounts.

Ingestion Harmful if swallowed. May cause adverse cardiac effects, blood disturbances, and metabolic acidosis.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methanol	6200 mg/kg (rat)	15800 mg/kg (Rabbit)	No data available

Chemical Name	IARC Group 1 or 2	ACGIH - Carcinogens	OSHA listed carcinogens	NTP
Methanol	No data available	No data available	No data available	No data available

Delayed and immediate effects and chronic effects from short and long term exposure

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Developmental toxicity	Not known to cause birth defects or have a deleterious effect on a developing fetus.
Routes of Exposure	Skin contact. Eye contact. Inhalation. Ingestion.
Routes of entry	Skin absorption. Inhalation. Ingestion.
Specific target organ toxicity - Single exposure	Category 1
Specific target organ toxicity - Repeated exposure	Not classified.
Target organ effects	Central nervous system. Optic nerve (nervus opticus).
Aspiration hazard	Not applicable.

12. Ecological Information

12.1 Toxicity

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Methanol	13500 - 17600 mg/L LC50 Lepomis macrochirus 96 h 18 - 20 mL/L LC50 Oncorhynchus mykiss 96 h 19500 - 20700 mg/L LC50 Oncorhynchus mykiss 96 h > 100 mg/L LC50 Pimephales promelas 96 h = 28200 mg/L LC50 Pimephales promelas 96 h	EC50= 22000 mg/l - Duration h: 96 - Notes: Literature data.	EC50> 10000 mg/l - Duration h: 48 - Notes: Literature data.

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility

The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)
This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

12.6 Other adverse effects.

None known.

13. Disposal Considerations

13.1 Waste treatment methods

Disposal Method Disposal should be made in accordance with federal, state and local regulations.

Contaminated packaging Do not burn, or use a cutting torch on, the empty drum. Empty containers may contain flammable or explosive vapors. Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

UN No. (DOT)	UN1992
UN No. (MT/ANTT)	UN1992
UN No. (TDG)	UN1992
UN/ID No. (ADR/RID/ADN/ADG)	UN1992
UN No. (IMDG/ANTAQ)	UN1992
UN No. (ICAO/ANAC)	UN1992
UN No. (DPC)	UN1992

14.2. UN proper shipping name
FLAMMABLE LIQUID, TOXIC, N.O.S. (contains methanol),

DOT reportable quantity Product (RQ): 3012 gallons (add RQ if shipped in containers >RQ for DOT only)

14.3 Hazard class(es)

DOT Hazard class	3 (6.1),
ANTT Hazard class	3 (6.1)
TDG Hazard class	3 (6.1)
ADR/RID/ADN/ADG Hazard class	3 (6.1)
IMDG/ANTAQ Hazard class	3 (6.1)
ICAO/ANAC Hazard class/division	3 (6.1)
DPC Hazard class	3 (6.1)

14.4 Packing group

DOT Packing group	PG III,
ANTT Packing group	PG III
TDG Packing group	PG III
ADR/RID/ADN/ADG Packing group	III
IMDG/ANTAQ Packing group	III
ICAO/ANAC Packing group	III
DPC Packing group	III

14.5 Environmental hazard

Marine pollutant	No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

Europe - REACH
All products supplied from the European Economic Area (EEA) are compliant with the REACH Regulation EC 1907/2006.For products supplied from the EEA, Schlumberger and/or its suppliers have pre-registered and is registering all of the substances that it and/or its suppliers manufactures in or imports into the EEA that are subject to Title II of the REACH Regulation. All products supplied from outside the EEA are subject to REACH only if imported into the EEA. The importer of the products must comply with REACH for each imported substance. Contact REACH@slb.com for REACH information.

IMPORTS, Canada
No import volume restrictions.

U.S. Federal and State Regulations

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

Chemical Name	SARA 302 / TPQs	SARA 313	CERCLA RQ
Methanol	N/A	1.0 %	5000 lb final RQ 2270 kg final RQ

California Proposition 65

This product does not contain chemical[s] which is [are] known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Chemical Name	California Proposition 65
Methanol 67-56-1	developmental toxicity

Canadian Classification

This Safety Data Sheet has been prepared in compliance with the Hazardous Products Regulations.

16. Other Information

Supersedes date	08/Jun/2015
Revision date	11/Sep/2020
Version	4

This SDS has been revised in the following section(s)	7, 16

HMIS classification

Health	2*
Flammability	3
Physical hazard	0
PPE	X

Disclaimer
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SDS no. L071
Version 5
Revision date 24-May-2023
Supersedes Date: 31-Jul-2017

Safety Data Sheet
L071 Temporary Clay Stabilizer

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name L071 Temporary Clay Stabilizer
Product code L071

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Clay control agent in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
Level 5, 10 Telethon Avenue
Perth WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518, Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Contains No hazardous components

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

This product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits.

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact Wash skin thoroughly with soap and water. Get medical attention if symptoms occur.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Nitrogen oxides (NOx), Ammonia.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. If spilled, take caution, as material can cause surfaces to become very slippery.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists. Avoid spills and splashing during use. Ammonia or amines may be released when this component is heated or exposed to high pH.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Avoid heat, flames and other sources of ignition. Avoid contact with: Strong oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	Contains no substances with occupational exposure limit values

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Nitrile Break through time >480 minutes Glove thickness 0.4 mm or PVC disposable gloves Break through time >480 minutes Glove thickness 0.7 mm

	Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with combination filter for vapour/particulate (EN 141) Chemical respirator with ammonia and amines cartridge (K/P2, green filter). At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before breaks and immediately after handling the product Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	Mild amine
Color	Clear - Blue

Property	**Values**	**Remarks**
pH	6.5 - 9.5	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	125 °C / 257 °F	
Flash point	> 98 °C / 208.4 °F	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	0.99 - 1.20	
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	No information available	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition. Ammonia or amines may be released when this component is heated or exposed to high pH.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	None known.
Routes of entry	No route of entry noted.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

Readily biodegradable.

12.3 Bioaccumulative potential

Bioaccumulation is unlikely.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classified

HSNO approval no. Not required

Group number	Not required

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	31-Jul-2017
Revision date	24-May-2023
Version	5
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	0
Physical hazard	0
PPE	B

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HALLIBURTON

SAFETY DATA SHEET

LATEX 3000

Revision Date: 10-Feb-2021 **Revision Number:** 29

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name LATEX 3000

Other means of Identification

Synonyms None

Hazardous Material Number: HM006737

Recommended use of the chemical and restrictions on use

Recommended Use Fluid Loss Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
None known

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Rinse mouth with water many times. Get medical attention, if symptoms occur

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions

None known.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Avoid breathing mist. Ensure adequate ventilation. Material is slippery underfoot. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool well ventilated area. Keep container closed when not in use.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Trace amounts of monomers may be released during use of this material. Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Not normally necessary.

Hand Protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.

Skin Protection Wear protective clothing appropriate for the work environment.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Odor: Mild
Color Milky white
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	6.0 - 7.5
Freezing Point / Range	0 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	100 °C / 212 °F
Flash Point	No data available
Evaporation rate	< 1
Vapor Pressure	17
Vapor Density	<1
Specific Gravity	1.03
Water Solubility	Miscible with water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	> 600
VOC Content (%)	46-48 (0.0003 lbs/gal)
Liquid Density	8.61 lbs/gal

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
1,3-Butadiene. Styrene.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye and skin contact.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mild eye irritation.
Skin Contact May cause mild skin irritation.
Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 10-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury

w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

LATEX 4000

Revision Date: 31-Jul-2019 **Revision Number:** 3

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name LATEX 4000

Other means of Identification

Synonyms None

Hazardous Material Number: HM008963

Recommended use of the chemical and restrictions on use

Recommended Use Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention	None
Response	None
Storage	None
Disposal	None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation	Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin	Flush skin with large amounts of water. If irritation persists, get medical attention.
Ingestion	Rinse mouth with water many times. Get medical attention, if symptoms occur

Symptoms caused by exposure

No significant hazards expected.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions
None known.

6.3. Methods and material for containment and cleaning up
Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Use appropriate protective equipment. Ensure adequate ventilation. Avoid contact with eyes, skin, or clothing.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Keep from freezing. Keep containers tightly closed in a cool, well ventilated place
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.
Dust/mist respirator. (N95, P2/P3)
Hand Protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.
Skin Protection Wear protective clothing appropriate for the work environment.
Eye Protection Safety glasses with side-shields. If splashes are likely to occur, wear: Goggles, Face-shield.
Other Precautions None known.
Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Milky white
Odor:	Faint	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	6.5-7.5
Freezing Point / Range	0 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	100 °C
Flash Point	Not applicable.
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.02
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) MAX 0.05%

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Strong oxidizers. Strong acids. Strong alkalis.

10.6. Hazardous decomposition products

Thermal decomposition can lead to release of toxic/corrosive gases and vapors

11. Toxicological Information

Information on routes of exposure

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation	May cause respiratory irritation.
Eye Contact	May cause mild eye irritation.
Skin Contact	May cause mild skin irritation.
Ingestion	May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
No data available

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number

None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 31-Jul-2019

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

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End of Safety Data Sheet

Safety Data Sheet

SDS no. PID904

LIME

Revision date 14-Jun-2023 **Supersedes Date:** 09-Jul-2015 **Version** 9

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name LIME
Product code PID904

Synonyms CALCIUM HYDROXIDE, HYDRATKALK

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Drilling fluid additive. pH modifier

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity - Single exposure	Category 3

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
DANGER

Hazard Statements
H315 - Causes skin irritation
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Supplementary precautionary statements
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P362 + P364 - Take off contaminated clothing and wash it before reuse
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Contains
Calcium hydroxide

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Calcium hydroxide	215-137-3	1305-62-0	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation persists.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact — Please see Section 11. Toxicological Information for further information.

Eye contact — Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician — Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
Water.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Calcium oxide.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.

Methods for cleaning up
Avoid dust formation. Sweep up and shovel into suitable containers for disposal.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. Do not eat, drink or smoke when using this product Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture Avoid contact with: Acids
Storage class	Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

Chemical Name	Arabic	Australia	Egypt
Calcium hydroxide	5 mg/m³ TWA	5mg/m³TWA	5 mg/m³ TWA
Chemical Name	**India**	**Indonesian**	**Japan**
Calcium hydroxide	Not determined	5 mg/m³ TWA	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Calcium hydroxide	2 mg/m³ MAC	15.0 mg/m³ TWA 5.0 mg/m³ TWA	5 mg/m³ TWA
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Calcium hydroxide	5 mg/m³ TWA	Not determined	Skin notation 2 mg/m³ MAC Skin
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Calcium hydroxide	15 mg/m³ TWA 5 mg/m³ TWA	5 mg/m³ TWA	5 mg/m³ TWA

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation, especially in confined areas Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection Use eye protection according to EN 166, designed to protect against dusts Wear chemical splash goggles and face shield

Hand protection Wear gloves according to EN 374 to protect against skin effects from powders
Wear protective nitrile rubber gloves
Frequent change is advisable

Respiratory protection No personal respiratory protective equipment normally required Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust) Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection Wear suitable protective clothing and gloves Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Color	White - Off-white
Odor	Odorless

Property	**Values**	**Remarks**
pH	12.4	
pH @ dilution	No information available	
Melting / freezing point	> 450 °C / > 842 °F	
Boiling point/range	No information available	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	2.24	20 °C
Bulk density	400 Kg/m³	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Acids. Water.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation May cause respiratory irritation. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.

Eye contact Causes serious eye damage.

Skin contact Causes skin irritation.

Ingestion Ingestion may cause stomach discomfort. May cause additional affects as listed under "Inhalation".

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium hydroxide	= 7340 mg/kg (Rat)	> 2500 mg/kg (Rat)	> 6.04 mg/L (Rat) 4 h

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	Eye contact. Skin contact. Inhalation.
Routes of entry	Inhalation.
Specific target organ toxicity - Single exposure	Category 3
Specific target organ toxicity - Repeated exposure	Not classified.
Target organ effects	Respiratory system.
Aspiration hazard	Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Calcium hydroxide	No information available	No information available	No information available

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
Calcium hydroxide	Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
Calcium hydroxide	No bioaccumulation potential

12.4 Mobility

Mobility
Soluble in water. See component information below.

Chemical Name	Mobility
Calcium hydroxide	Easily soluble

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Calcium hydroxide	Not expected to adsorb on soil

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated
IMDG/ANTAQ Hazard class Not regulated
ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group
ADR/RID/ADN/ADG Packing group Not regulated
IMDG/ANTAQ Packing group Not regulated
ICAO/ANAC Packing group Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	09-Jul-2015
Revision date	14-Jun-2023
Version	9
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier

National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3
Flammability	0
Physical hazard	0
PPE	E

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SAFETY DATA SHEET

Cleansorb
A NEWPARK Company

LyoStar™

Issue Date 21-Jan-2020 **Revision date** 21-Mar-2022 **Version** 1
EN

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

0

Product identifier

Product Name LyoStar™

Product Code NDF00673

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended Use Enzyme breaker

Uses advised against No information available

Details of manufacturer or importer

Supplier
Newpark Drilling Fluids (Australia) LTD
11 Alacrity Place
Henderson, WA, 6166
Australia

For further information, please contact

Contact Point Telephone: +61 8 9410 8200
Fax: +61 8 9410 8299
Website: www.newpark.com

Emergency telephone number

Emergency telephone number +(61)-290372994 (Australia); +(64)-98010034 (New Zealand)

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Respiratory sensitization	Category 1 - (H334)

Label elements

Health hazard



Signal word
Danger

Hazard statements
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary Statements - Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
In case of inadequate ventilation wear respiratory protection
Precautionary Statements - Response

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other hazards which do not result in classification
General Hazards
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Not applicable

Mixture

Chemical name	CAS No	Weight-%	REACH registration number
Bacterial alpha amylase	9000-85-5	1-10	No data available
Non-hazardous ingredients	-	Balance	

Section 4: FIRST AID MEASURES

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Emergency telephone number Poisons Information Center, Australia: 13 11 26
Poisons Information Center, New Zealand: 0800 764 766

Inhalation May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.

Ingestion May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

In the event of fire and/or explosion do not breathe fumes. May cause sensitization by inhalation and skin contact. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Hazardous combustion products Carbon oxides.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Hazchem code Not Listed.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing.

Hand protection Wear suitable gloves.

Respiratory protection In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	liquid	**Odor**	Slight.
Color	yellow to brown	**Odor threshold**	No information available

Property	Values	Remarks • Method
pH	5 - 7	
Melting point / freezing point		No information available
Boiling point / boiling range		No information available
Flash point		No information available
Evaporation rate		No information available
Flammability (solid, gas)		Not applicable
Flammability Limit in Air		No information available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available
Vapor density		No data available
Relative density		No information available
Water solubility	Soluble in water	
Solubility(ies)		No information available
Partition coefficient		No information available
Autoignition temperature		No information available
Hyphen		No information available
Kinematic viscosity		
Dynamic viscosity		

Other information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials None known based on information supplied.

Hazardous decomposition products

Hazardous Decomposition Products None known based on information supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available. May cause sensitization in susceptible persons. (based on components).
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components).
Ingestion	Specific test data for the substance or mixture is not available May cause additional affects as listed under "Inhalation"
Symptoms	Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	50,000.00 mg/kg
ATEmix (dermal)	52,000.00 mg/kg

Unknown acute toxicity 0 % of the mixture consists of ingredient(s) of unknown toxicity

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Component Information

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitization	May cause sensitization by inhalation.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity

Unknown aquatic toxicity	0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Persistence and degradability

Persistence and degradability	Readily biodegradable.

Bioaccumulative potential

Bioaccumulation	MATERIAL DOES NOT BIOACCUMULATE.

Mobility

Mobility in soil	No information available.
Mobility	No information available.

Other adverse effects

Other adverse effects	No information available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

ADG	Not regulated
IATA	Not Regulated
IMDG	Not Regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Does not comply
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
PICCS	Does not comply
AICS	Complies
NZIoC	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Brunei Poison List Not applicable.

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 21-Jan-2020

Revision date 21-Mar-2022

Revision Note
No information available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

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End of Safety Data Sheet

SAFETY DATA SHEET

Cleansorb
A NEWPARK Company

LyoZan™

Issue Date 22-Jan-2020 **Revision date** 18-Dec-2023 **Version** 1.2
EN

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

0

Product identifier

Product Name LyoZan™

Product Code NDF00674

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended Use Enzyme breaker

Uses advised against No information available

Details of manufacturer or importer

Supplier
Newpark Drilling Fluids (Australia) LTD
11 Alacrity Place
Henderson, WA, 6166
Australia

For further information, please contact

Contact Point Telephone: +61 8 9410 8200
Fax: +61 8 9410 8299
Website: www.newpark.com

Emergency telephone number

Emergency telephone number +(61)-290372994 (Australia); +(64)-98010034 (New Zealand); 1-800-424-9300 (International Number);

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Respiratory sensitization	Category 1A - (H334)

Label elements

Health hazard



Signal word
Danger

Hazard statements
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary Statements - Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
In case of inadequate ventilation wear respiratory protection
Precautionary Statements - Response

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other hazards which do not result in classification
General Hazards
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Not applicable

Mixture

Chemical name	CAS No	Weight-%	REACH registration number
Glucanase, endo-1,3(4)-β-	62213-14-3	1-10	No data available

Chemical name	CAS No	Weight-%
Non-hazardous ingredients	-	Balance

Section 4: FIRST AID MEASURES

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Emergency telephone number Poisons Information Center, Australia: 13 11 26
Poisons Information Center, New Zealand: 0800 764 766

Inhalation May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash with soap and water. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.

Ingestion May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Note to physicians May cause sensitization in susceptible persons. Treat symptomatically.

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous combustion products This product is non-combustible. If heated, corrosive and toxic vapors or gases may be formed.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Hazchem code Not Listed.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid breathing vapors or mists.

Other Information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Dilute with plenty of water. Absorb spill with inert material (e.g. dry sand or earth), then

place in a chemical waste container.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Wash contaminated clothing before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Use personal protection recommended in Section 8. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children. Keep at temperatures between 4 and 8 °C. Protect from sunlight.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing. Chemical resistant apron.

Hand protection Wear suitable gloves. Impervious gloves. Nitrile rubber.

Respiratory protection In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid

Appearance	liquid	**Odor**	Microbial fermentation odor.
Color	yellow to brown	**Odor threshold**	No information available

Property	Values	Remarks • Method
pH	4 - 4.5	
Melting point / freezing point		No information available
Boiling point / boiling range		No information available
Flash point		No information available
Evaporation rate		No information available
Flammability (solid, gas)		Not applicable
Flammability Limit in Air		No information available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available
Vapor density		No data available
Relative density		No information available
Water solubility	Soluble in water	
Solubility(ies)		No information available
Partition coefficient		No information available
Autoignition temperature		No information available
Hyphen		No information available
Kinematic viscosity		
Dynamic viscosity		

Other information

Softening point	No information available
Molecular weight	No information available
VOC content	No information available
Liquid Density	No information available
Bulk density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials None known based on information supplied.

Hazardous decomposition products

Hazardous Decomposition Products None known based on information supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause sensitization in susceptible persons. (based on components).

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available May cause additional affects as listed under "Inhalation"

Symptoms Coughing and/ or wheezing. Difficulty in breathing.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document mg/kg

Unknown acute toxicity 2.75 % of the mixture consists of ingredient(s) of unknown toxicity
0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
2.75 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
2.75 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
2.75 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
2.75 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Glucanase, endo-1,3(4)-β-	>5000 mg/kg (Rat)	-	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization May cause sensitization by inhalation.

Germ cell mutagenicity No information available.

Component Information		
Glucanase, endo-1,3(4)-β- (62213-14-3)		
Method	Species	Results
OECD 471	in vitro	Not mutagenic

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity

Unknown aquatic toxicity 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Persistence and degradability

Persistence and degradability Readily biodegradable.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Mobility

Mobility in soil No information available.

Mobility No information available.

Other adverse effects

Other adverse effects No information available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of waste in accordance with environmental legislation. Dispose of in accordance with local regulations.

Contaminated packaging Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

ADG Not regulated

IATA Not Regulated

IMDG Not Regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
KECL	Complies
PICCS	Does not comply
AICS	Complies
NZIoC	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Brunei Poison List Not applicable.

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 22-Jan-2020

Revision date 18-Dec-2023

Revision Note
No information available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

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End of Safety Data Sheet

SDS no. M117
Version 5
Revision date 17-Mar-2023
Supersedes Date: 20-Jun-2018

Safety Data Sheet
Potassium Chloride M117

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Potassium Chloride M117
Product code M117

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Clay control agent in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
Level 5, 10 Telethon Avenue
Perth WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518, Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Contains No hazardous components
2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

This product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits.

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact Wash skin thoroughly with soap and water. Get medical attention if symptoms occur.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Chlorides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture Avoid contact with: Strong oxidizing agents Strong acids Strong alkalies.
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection	Eye protection must conform to standard EN 166 Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Neoprene Nitrile PVC Frequent change is advisable
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Crystalline
Odor	Very faint
Color	White

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	6 - 8	2% sol.
Melting / freezing point	No information available	
Boiling point/range	Not applicable	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	Not applicable	
Relative Vapor Density	No information available	
Specific gravity	1.984 - 1.989	@ 20 °C
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Strong oxidizing agents. Strong acids. Strong alkalies.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.
Eye contact	Dust may cause mechanical irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.
Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	Inhalation.
Routes of entry	Inhalation.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classified

HSNO approval no. Not applicable

Group number Not applicable

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations

2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	20-Jun-2018
Revision date	17-Mar-2023
Version	5
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	0
Physical hazard	0
PPE	E

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Safety Data Sheet

Coiled Tubing Lubricant M303

Revision date 19-Dec-2023 **Supersedes Date:** 23-May-2023 **Version** 3

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Coiled Tubing Lubricant M303
Product code M303

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Lubricating agent in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518, Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation

Precautionary statements
P273 - Avoid release to the environment
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Contains
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	280-518-3	83682-78-4	5-<10

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye Contact	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Nitrogen oxides (NOx), Hydrogen chloride gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters

As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Protect from freezing Avoid contact with: Strong acids Strong bases Strong oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits The product does not contain any hazardous materials with occupational exposure limits established.

Component Information

Chemical Name	Arabic	Australia	Egypt
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields

Hand protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training
Impervious gloves made of: Nitrile

	Break through time >480 minutes Glove thickness 0.6 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Yellow
Odor	No information available

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	6.0 - 7.5	10%
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	> 93 °C / > 200 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	0.95 - 1.10	@ 25 °C
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient	No information available	

(n-octanol/water)
Density and/or Relative Density No information available

Explosive properties Not applicable
Oxidizing properties None known.

9.2 Other information
Pour point No information available
Molecular weight No information available
VOC content(%) No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from freezing.

10.5 Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects
Acute toxicity
Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not Applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact.

Routes of entry Eye contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not Applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

Toxic to aquatic life

Toxicity to algae
EC50 0.11mg/l Skeletonema costatum (72h) - SLB Product level Data.

Toxicity to fish
LC50 > 0.24mg/l Scophthalmus maximus (96h) - SLB Product level Data.

Toxicity to daphnia and other aquatic invertebrates
LC50 1.9 mg/l Acartia tonsa (48h) - SLB Product level Data.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	LC50 2 mg/l 96h Turbot ECHA Data	EC50 0.37 mg/l 72h Pseudokirchneriella subcapitata ECHA Data	EC50 3.0 mg/l 48h Daphnia Magna ECHA Data

12.2 Persistence and degradability

This product is expected to be readily biodegradable. See component information below.

Chemical Name	Persistence and degradability
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Readily biodegradable

12.3 Bioaccumulative potential

Bioaccumulation is unlikely. See component information below.

Chemical Name	Bioaccumulation
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	No information available

12.4 Mobility

Mobility
Soluble in water. See component information below.

Chemical Name	Mobility
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Soluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	No data available

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies

Japan (ENCS)	Complies Volume restriction.
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	23-May-2023
Revision date	19-Dec-2023
Version	3
This SDS has been revised in the following section(s)	1, 15, 16 No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2
Flammability	1
Physical hazard	0
PPE	X

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1. IDENTIFICATION

Product Name	**Magnesium oxide, >=85%**
Other Names	No Data Available
Uses	Agricultural, chemical and pharmaceutical chemical.
Chemical Family	No Data Available
Chemical Formula	MgO
Chemical Name	Magnesium oxide
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification	NOT hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
Signal Word	None

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Magnesium oxide	MgO	1309-48-4	>=85 %
Ingredients determined not to be hazardous	Unspecified	Unspecified	Balance %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Get medical advice/attention if you feel unwell.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
Skin	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention.
Advice to Doctor	Treat symptomatically.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Non-combustible; Material itself does not burn.
Extinguishing Media	If material is involved in a fire, use extinguishing media appropriate to surrounding fire conditions.
Fire and Explosion Hazard	Magnesium oxide may ignite and explode when heated with sublimed Sulfur, Magnesium powder or Aluminium powder. It reacts violently with interhalogens (e.g. Chlorine trifluoride) and produces flame; It incandesces when combined with Phosphorus pentachloride.
Hazardous Products of Combustion	Fire or heat may produce irritating, toxic and/or corrosive fumes.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) and chemical splash suit. SCBA and structural firefighter's uniform may provide limited protection.
Flash Point	No Data Available
	No Data Available

Lower Explosion Limit	
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid generating dust. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Collect material (wet sweep or vacuum up) and place into suitable containers for disposal (see SECTION 13).
Containment	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Prevent dust cloud.
Decontamination	Wash area down with excess water.
Environmental Precautionary Measures	Prevent entry into drains and waterways.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Minimise dust generation and accumulation. Avoid breathing dust and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Product can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Do not use compressed air to transfer, discharge or transport the product.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Avoid exposure to air and moisture. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10).
Container	Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. For Magnesium oxide (fume): - Safe Work Australia Exposure Standard: TWA = 10 mg/m3. - New Zealand Workplace Exposure Standard: TWA = 10 mg/m3.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Use explosion-proof electrical/ventilating/lighting equipment.
Personal Protection Equipment	- Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Dust mask/particulate filter respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Chemical goggles. - Hand protection: Handle with gloves. Recommended: Impervious gloves. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, safety shoes.
Special Hazards Precaustions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Powder or granules
Odour	Odourless
Colour	White or beige/brown
pH	10.0 - 11.8 (1% aqueous soln.)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	3,600 °C
Melting Point	2,800 °C
Freezing Point	No Data Available
Solubility	Insoluble in water
Specific Gravity	1.4 - 1.5
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	No information available.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	Magnesium oxide may ignite and explode when heated with sublimed Sulfur, Magnesium powder or Aluminium powder. It reacts violently with interhalogens (e.g. Chlorine trifluoride) and produces flame; It incandesces when combined with Phosphorus pentachloride.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; Material itself does not burn.
Reactions That Release Gases or Vapours	Fire/decomposition may produce irritating, toxic and/or corrosive fumes.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	Magnesium oxide may ignite and explode when heated with sublimed Sulfur, Magnesium powder or Aluminium powder. It reacts violently with interhalogens (e.g. Chlorine trifluoride) and produces flame; It incandesces when combined with Phosphorus pentachloride.
Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Avoid generating dust.
Materials to Avoid	Incompatible/reactive with strong acids, strong oxidising agents, Chlorine trifluoride, Phosphorus pentachloride.
Hazardous Decomposition Products	Fire/decomposition may produce irritating, toxic and/or corrosive fumes.
Hazardous Polymerisation	Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	- Acute toxicity: No adverse effects expected; Large amounts may cause nausea and vomiting. - Skin corrosion/irritation: May cause (mechanical) skin irritation. - Eye damage/irritation: May cause eye irritation. - Respiratory/skin sensitisation: No information available. - Germ cell mutagenicity: No information available. - Carcinogenicity: No information available. - Reproductive toxicity: No information available. - STOT (single exposure): Inhalation of Magnesium oxide (fume) can cause metal fume fever: cough, chest pain, flu-like fever. Inhalation of dust may result in respiratory tract irritation. - STOT (repeated exposure): No information available. - Aspiration toxicity: No information available.
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	No information available.
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Prevent entry into drains and waterways.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations.
Special Precautions for Land Fill	No information available.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	Magnesium oxide
Class	No Data Available

Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)
ADR Code

Proper Shipping Name	Magnesium oxide
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	Magnesium oxide
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)
US DOT

Proper Shipping Name	Magnesium oxide
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport
IMDG Code

Proper Shipping Name	Magnesium oxide
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available

Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport
IATA DGR

Proper Shipping Name	MAGNESIUM OXIDE
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	Not Hazardous

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACh)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined

Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	MAGOXB1000, MAGOXB6000, MAGOXB6100, MAGOXB6200, MAGOXI0002, MAGOXI0003, MAGOXI0004, MAGOXI0005, MAGOXI0085, MAGOXI0086, MAGOXI0095, MAGOXI0097, MAGOXI0100, MAGOXI0101, MAGOXI0102, MAGOXI0106, MAGOXI0150, MAGOXI0200, MAGOXI0201, MAGOXI0202, MAGOXI0300, MAGOXI0301, MAGOXI0302, MAGOXI0303, MAGOXI0304, MAGOXI0400, MAGOXI0499, MAGOXI0500, MAGOXI0501, MAGOXI0502, MAGOXI0503, MAGOXI0600, MAGOXI0601, MAGOXI0700, MAGOXI0701, MAGOXI0702, MAGOXI0800, MAGOXI0900, MAGOXI0901, MAGOXI1000, MAGOXI1001, MAGOXI1002, MAGOXI1003, MAGOXI1004, MAGOXI1005, MAGOXI1006, MAGOXI1007, MAGOXI1008, MAGOXI1009, MAGOXI1010, MAGOXI1011, MAGOXI1012, MAGOXI1013, MAGOXI1014, MAGOXI1015, MAGOXI1016, MAGOXI1017, MAGOXI1018, MAGOXI1019, MAGOXI1020, MAGOXI1021, MAGOXI1022, MAGOXI1023, MAGOXI1024, MAGOXI1025, MAGOXI1026, MAGOXI1027, MAGOXI1028, MAGOXI1029, MAGOXI1030, MAGOXI1031, MAGOXI1032, MAGOXI1033, MAGOXI1034, MAGOXI1035, MAGOXI1050, MAGOXI1051, MAGOXI1100, MAGOXI1101, MAGOXI1133, MAGOXI1180, MAGOXI1199, MAGOXI1200, MAGOXI1201, MAGOXI1215, MAGOXI1300, MAGOXI1301, MAGOXI1302, MAGOXI1310, MAGOXI1311, MAGOXI1315, MAGOXI1316, MAGOXI1317, MAGOXI1318, MAGOXI1319, MAGOXI1320, MAGOXI1350, MAGOXI1353, MAGOXI1360, MAGOXI1391, MAGOXI1392, MAGOXI1400, MAGOXI1401, MAGOXI1402, MAGOXI1500, MAGOXI1501, MAGOXI1600, MAGOXI1601, MAGOXI1602, MAGOXI1603, MAGOXI1604, MAGOXI1700, MAGOXI1701, MAGOXI1702, MAGOXI1703, MAGOXI1800, MAGOXI1801, MAGOXI1802, MAGOXI1803, MAGOXI1804, MAGOXI1805, MAGOXI1806, MAGOXI1807, MAGOXI1808, MAGOXI1809, MAGOXI1810, MAGOXI1900, MAGOXI1901, MAGOXI2000, MAGOXI2100, MAGOXI2200, MAGOXI2300, MAGOXI2400, MAGOXI2500, MAGOXI2700, MAGOXI2701, MAGOXI2800, MAGOXI2801, MAGOXI2805, MAGOXI2808, MAGOXI2900, MAGOXI2901, MAGOXI2902, MAGOXI3000, MAGOXI3001, MAGOXI3002, MAGOXI3003, MAGOXI3010, MAGOXI3020, MAGOXI3100, MAGOXI3110, MAGOXI3200, MAGOXI3300, MAGOXI3301, MAGOXI3302, MAGOXI3400, MAGOXI3401, MAGOXI3402, MAGOXI3500, MAGOXI3501, MAGOXI3502, MAGOXI3600, MAGOXI3700, MAGOXI3701, MAGOXI3800, MAGOXI3801, MAGOXI3900, MAGOXI3901, MAGOXI4000, MAGOXI4001, MAGOXI4002, MAGOXI4100, MAGOXI4101, MAGOXI4200, MAGOXI4500, MAGOXI4501, MAGOXI4600, MAGOXI4601, MAGOXI4700, MAGOXI4701, MAGOXI4702, MAGOXI4703, MAGOXI4708, MAGOXI4709, MAGOXI4800, MAGOXI4801, MAGOXI4900, MAGOXI4901, MAGOXI5000, MAGOXI5001, MAGOXI5002, MAGOXI5100, MAGOXI5101, MAGOXI5200, MAGOXI5201, MAGOXI5300, MAGOXI5301, MAGOXI5510, MAGOXI5511, MAGOXI5512, MAGOXI5513, MAGOXI5515, MAGOXI5520, MAGOXI5521, MAGOXI5522, MAGOXI5523, MAGOXI5525, MAGOXI5526, MAGOXI5527, MAGOXI5528, MAGOXI5529, MAGOXI5530, MAGOXI5700, MAGOXI5750, MAGOXI5800, MAGOXI5801, MAGOXI5802, MAGOXI5900, MAGOXI5901, MAGOXI6000, MAGOXI6001, MAGOXI6002, MAGOXI6003, MAGOXI6004, MAGOXI6005, MAGOXI6006, MAGOXI6100, MAGOXI6101, MAGOXI6102, MAGOXI6103, MAGOXI6105, MAGOXI6200, MAGOXI6201, MAGOXI6202, MAGOXI6203, MAGOXI6262, MAGOXI6300, MAGOXI6301, MAGOXI6303, MAGOXI6400, MAGOXI6401, MAGOXI6402, MAGOXI6403, MAGOXI6404, MAGOXI6405, MAGOXI6406, MAGOXI6407, MAGOXI6408, MAGOXI6409, MAGOXI6410, MAGOXI6500, MAGOXI6501, MAGOXI6502, MAGOXI6503, MAGOXI6504, MAGOXI6505, MAGOXI6506, MAGOXI6507, MAGOXI6508, MAGOXI6510, MAGOXI6520, MAGOXI6587, MAGOXI6588, MAGOXI6589, MAGOXI6600, MAGOXI6601, MAGOXI6602, MAGOXI6603, MAGOXI6700, MAGOXI6701, MAGOXI6800, MAGOXI6801, MAGOXI6802, MAGOXI6900, MAGOXI7000, MAGOXI7001, MAGOXI7002, MAGOXI7003, MAGOXI7004, MAGOXI7100, MAGOXI7101, MAGOXI7200, MAGOXI7300, MAGOXI7400, MAGOXI7500, MAGOXI7600, MAGOXI7601, MAGOXI7700, MAGOXI7701, MAGOXI7800, MAGOXI7801, MAGOXI7900, MAGOXI7901, MAGOXI8000, MAGOXI8001, MAGOXI8002, MAGOXI8003, MAGOXI8004, MAGOXI8100, MAGOXI8200, MAGOXI8300, MAGOXI8400, MAGOXI8401, MAGOXI8500, MAGOXI8600, MAGOXI8700, MAGOXI8701, MAGOXI8800, MAGOXI8900, MAGOXI9000, MAGOXI9001, MAGOXI9002, MAGOXI9003, MAGOXI9100, MAGOXI9200, MAGOXI9201, MAGOXI9202, MAGOXI9300, MAGOXI9310, MAGOXI9400, MAGOXI9401, MAGOXI9500, MAGOXI9501, MAGOXI9600, MAGOXI9601, MAGOXI9700, MAGOXI9701, MAGOXI9800, MAGOXI9810, MAGOXI9811, MAGOXI9900, MAGOXI9901, MAGOXL1000, MAGOXM1000, MAGOXP0600, MAGOXP1000, MAGOXP1500, MAGOXP2000, MAGOXP3000, MAGOXP5000, MAGOXP9800, MAGOXP9801
Revision	5
Revision Date	28 Feb 2020

Key/Legend

< Less Than
> Greater Than
AICS Australian Inventory of Chemical Substances
atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)
cm² Square Centimetres
CO2 Carbon Dioxide
COD Chemical Oxygen Demand
deg C (°C) Degrees Celcius
EPA (New Zealand) Environmental Protection Authority of New Zealand
deg F (°F) Degrees Farenheit
g Grams
g/cm³ Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH2O Inch of Water
K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or **L** Litre
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight

SECTION 1: Identification of the substance / mixture and of the company / undertaking

1.1. Product identifier

Mixture identification:

Trade name: MAPEFAST HA

Trade code: 9007631

UFI: H504-T0KJ-J00C-5QNH

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use: Admixture for concrete

Uses advised against: Data not available

1.3. Details of the supplier of the safety data sheet

Company: MAPEI AS - Vallsetvegen, 6 - 2120 Sagstua - Norway

phone: +47-62972000 - fax: +47-62972099 - www.mapei.no (office hours)

Responsible: sicurezza@mapei.it

1.4. Emergency telephone number

Giftinformasjonen – phone number: +47 22591300

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

Acute Tox. 4	Harmful if swallowed.
Eye Dam. 1	Causes serious eye damage.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Regulation (EC) n. 1272/2008 (CLP)

Pictograms and Signal Words



Danger

Hazard statements:

H302	Harmful if swallowed.
H318	Causes serious eye damage.

Precautionary statements:

P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/clothing and eye/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER.
P501	Dispose of contents/container in accordance with applicable regulations.

Contains:

sodium thiocyanate

2,2'-iminodiethanol; diethanolamine

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%.

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

Not Relevant

3.2. Mixtures

Mixture identification: MAPEFAST HA

Hazardous components within the meaning of the CLP regulation and related classification:

Concentration (% w/w)	Name	Ident. Numb.	Classification	Registration Number
≥10 - <20 %	sodium thiocyanate	CAS:540-72-7 EC:208-754-4 Index:615-030-00-5	Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Eye Dam. 1, H318; Aquatic Chronic 3, H412, EUH032	01-2119543700-47-XXXX
≥5 - <10 %	2,2'-iminodiethanol; diethanolamine	CAS:111-42-2 EC:203-868-0 Index:603-071-00-1	Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Dam. 1, H318; STOT RE 2, H373	01-2119488930-28-XXXX

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

OBTAIN IMMEDIATE MEDICAL ATTENTION.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose of safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an opthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Give nothing to eat or drink.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

4.2. Most important symptoms and effects, both acute and delayed

Eye irritation

Eye damages

4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

(see paragraph 4.1)

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO_2).

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

5.3. Advice for firefighters

Use suitable breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Limit leakages with earth or sand.

6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Retain contaminated washing water and dispose it.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

List of components with OEL value

Component	OEL Type	Country	Ceiling	Long Term mg/m3	Long Term ppm	Short Term mg/m3	Short Term ppm	Behaviour	Note
sodium thiocyanate	National	LATVIA		10					
	National	LITHUANIA		10					
2,2'-iminodiethanol; diethanolamine	NDS	None		9					
	SUVA	None		1		1			
	ACGIH	None		1					(IFV), Skin, A3 - Liver and kidney dam
	National	SWEDEN		5	3	30	6		SWEDEN, Short-term value, 15 minutes average value
	National	FINLAND		2	0,46				FINLAND, hud
	National	NORWAY		15	3				
	National	NORWAY		2	0,46	4	0,92		
	DFG	GERMANY	C			1			
	ACGIH			1					A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans;Skin - potential significant contribution to overall exposure by the cutaneous route;kidney and liver damage
	National	SWEDEN		15	3				

National	FRANCE		15	3			
National	SPAIN		2	0,46			
National	GREECE		15	3			
National	DENMARK		2	0,46			
National	FINLAND		2	0,46			
National	GERMANY		0,5	0,11			
National	PORTUGAL		2				
National	NORWAY		15	3	22,5	6	
National	BELGIUM		2	0,46			
NDS	POLAND		9				
CHE	SWITZERLAND				1		
National	CZECH REPUBLIC		5				
Malaysia OEL	MALAYSIA		2	0,46			Skin notation
National	ESTONIA		5	3	30	6	
National	CZECH REPUBLIC	C			10		
National	SLOVENIA		15				
National	BULGARIA		10				
National	LITHUANIA		15	3	30	6	
National	CROATIA		15	3			
National	PORTUGAL		1				
National	BELGIUM		1	0,2			
National	SLOVENIA		0,5	0,11	0,5	0,11	

Predicted No Effect Concentration (PNEC) values

Component	CAS-No.	PNEC Limit	Exposure Route	Exposure Frequency	Remark
sodium thiocyanate	540-72-7	0,002950 mg/l	Fresh Water		
		0,027200 mg/l	Intermittent release		
		0,009500 mg/l	Marine water		
		0,543000 mg/kg	Freshwater sediments		
		0,054300 mg/kg	Marine water sediments		
2,2'-iminodiethanol; diethanolamine	111-42-2	0,021 mg/l	Fresh Water		
		0,002 mg/l	Marine water		
		0,092 mg/kg	Freshwater sediments		
		0,009 mg/kg	Marine water sediments		
		1,63 mg/kg	Soil		
		100 mg/l	Microorganisms in sewage treatments		

Derived No Effect Level. (DNEL)

Component	CAS-No.	Worker Industry	Worker Professional	Consumer	Exposure Route	Exposure Frequency	Remark
sodium thiocyanate	540-72-7	3, 000000 mg/m3		1, 100000 mg/m3	Human Inhalation	Long Term, systemic effects	

		4, 300000 mg/kg		Human Dermal	Long Term, systemic effects
			0, 200000 mg/kg	Human Oral	Long Term, systemic effects
2,2'-iminodiethanol; diethanolamine	111-42-2	0,13 mg/kg	0,07 mg/kg	Human Dermal	Long Term, systemic effects
		1 mg/m3	0,25 mg/m3	Human Inhalation	Long Term, local effects
			0,06 mg/kg	Human Oral	Long Term, systemic effects
		0,75 mg/m3	0,125 mg/m3	Human Inhalation	Long Term, systemic effects

8.2. Exposure controls

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Suitable materials for safety gloves; EN ISO 374:

Polychloroprene - CR: thickness >=0,5mm; breakthrough time >=480min.

Nitrile rubber - NBR: thickness >=0,35mm; breakthrough time >=480min.

Butyl rubber - IIR: thickness >=0,5mm; breakthrough time >=480min.

Fluorinated rubber - FKM: thickness >=0,4mm; breakthrough time >=480min.

Neoprene gloves are suggested (0,5 mm) not recommended gloves: not waterproof gloves

Respiratory protection:

Personal Protective Equipment should comply with relevant CE standards (as EN ISO 374 for gloves and EN ISO 166 for goggles), correctly maintained and stored. Consult the supplier to check the suitability of equipment against specific chemicals and for user information.

Respiratory protection must be used where exposure levels exceed workplace exposure limits. Refer to appropriate EN standards, like EN 136, 140, 143, 149, 14387 for information on selection and use of appropriate respiratory protection equipment.

Hygienic and Technical measures

Not available

Appropriate engineering controls:

Not available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Appearance: liquid

Color: Colourless

Odour: ammonia

Odour threshold:

Melting point / freezing point: Not available

Initial boiling point and boiling range: Not available

Flammability: Not available

Upper/lower flammability or explosive limits: Not available

Flash point: Not available

Auto-ignition temperature: Not available

Decomposition temperature: Not available

pH: 11.00

Viscosity: 30.00 cPs

Kinematic viscosity: Not available

Solubility in water: dispersible

Solubility in oil: Not available

Partition coefficient (n-octanol/water): Not available

Vapour pressure: Not available

Relative density: 1.10 g/cm3

Vapour density: Not available

Particle characteristics:

Particle size: Not available

9.2. Other information

Miscibility: Not available

Conductivity: Not available

No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the mixture:

a) acute toxicity	The product is classified: Acute Tox. 4(H302)
	ATEmix - Oral : 1876.39 mg/kg bw
b) skin corrosion/irritation	Not classified
	Based on available data, the classification criteria are not met
c) serious eye damage/irritation	The product is classified: Eye Dam. 1(H318)
d) respiratory or skin sensitisation	Not classified
	Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified
	Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified
	Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified
	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified
	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

sodium thiocyanate	a) acute toxicity	LD50 Oral Rat = 764 mg/kg
		LD50 Oral Mouse = 362,00000 mg/kg
2,2'-iminodiethanol; diethanolamine	a) acute toxicity	LD50 Oral Rat > 1600 mg/kg
		LD50 Skin Rabbit = 8380,00000 mg/kg
		LD50 Skin Rabbit = 11,90000 ml/kg
		LD50 Skin Rabbit = 11,9 ml/kg
		LD50 Oral Rat = 780 mg/kg

11.2 Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration

>= 0.1%

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

List of Eco-Toxicological properties of the product

Not classified for environmental hazards

Based on available data, the classification criteria are not met

List of components with eco-toxicological properties

Component	Ident. Numb.	Ecotox Infos
sodium thiocyanate	CAS: 540-72-7 - EINECS: 208-754-4 - INDEX: 615-030-00-5	a) Aquatic acute toxicity : LC50 Fish = 65,00000 mg/L 96h
		b) Aquatic chronic toxicity : NOEC Fish = 1,84000 mg/L - 4 months
		a) Aquatic acute toxicity : EC50 Daphnia = 3,56000 mg/L 48h
		a) Aquatic acute toxicity : NOEC Daphnia = 2,00000 mg/L 48h
		b) Aquatic chronic toxicity : NOEC Daphnia = 1,25000 mg/L 21d
		a) Aquatic acute toxicity : EC50 Algae = 116,00000 mg/L 72h
2,2'-iminodiethanol; diethanolamine	CAS: 111-42-2 - EINECS: 203-868-0 - INDEX: 603-071-00-1	a) Aquatic acute toxicity : EC50 Daphnia = 89,9 mg/L 48
		a) Aquatic acute toxicity : LC50 Fish = 1480 mg/L 96
		a) Aquatic acute toxicity : EC50 Algae > 100 mg/L 96
		b) Aquatic chronic toxicity : EC50 Daphnia = 171 mg/L 48 - 21 d
		a) Aquatic acute toxicity : LC50 Fish = 1850 mg/L 48
		a) Aquatic acute toxicity : EC50 Algae = 2,2 mg/L 96
		a) Aquatic acute toxicity : EC50 Algae = 7,8 mg/L 72
		a) Aquatic acute toxicity : LC50 Fish Pimephales promelas 4460 mg/L 96h I
		a) Aquatic acute toxicity : LC50 Fish Pimephales promelas 1200 mg/L 96h I
		a) Aquatic acute toxicity : LC50 Fish Lepomis macrochirus 600 mg/L 96h IUCLID
		a) Aquatic acute toxicity : EC50 Daphnia Daphnia magna = 55 mg/L 48h IUCLID
		a) Aquatic acute toxicity : EC50 Algae Desmodesmus subspicatus = 7,8 mg 72h IUCLID
		a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata 2,1 mg/L 96h IUCLID

12.2. Persistence and degradability

Component	Persitence/Degradability:
sodium thiocyanate	Readily biodegradable

12.3. Bioaccumulative potential

Not available

12.4. Mobility in soil

Not available

12.5. Results of PBT and vPvB assessment

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%.

12.6 Endocrine disrupting properties

No endocrine disruptor substances present in concentration >= 0.1%

12.7 Other adverse effects

Not available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Recover if possible.

A waste code (EWC) according to European List of Waste (LoW) cannot be specified, due to dependence on the usage. Contact and send to an authorized waste disposal service.

Methods of disposal:

Disposal of this product, solutions, packaging and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor.

Do not dispose of waste into sewers.

Hazardous waste: Yes

Disposal considerations:

Do not allow to enter drains or watercourses.

Dispose of product according to all federal, state and local applicable regulations.

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.

Dispose of containers contaminated by the product in accordance with local or national legal provisions. For further information, contact your local waste authority.

Special precautions:

This material and its container must be disposed of in a safe way. Care should be taken when handling untreated empty containers.

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty containers or liners may retain some product residues. Do not re-use empty containers.

SECTION 14: Transport information

Not classified as dangerous in the meaning of transport regulations.

14.1. UN number or ID number

Not Applicable

14.2. UN proper shipping name

Not Applicable

14.3. Transport hazard class(es)

Not Applicable

14.4. Packing group

Not Applicable

14.5. Environmental hazards

Not Applicable

14.6. Special precautions for user

Not Applicable

Road and Rail (ADR-RID) :

Not Applicable

Air (IATA) :

Not Applicable

Sea (IMDG) :

Not Applicable

14.7. Maritime transport in bulk according to IMO instruments

Not Applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

VOC (2004/42/EC) : N.A. g/l

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EU) n. 2020/878

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)

Provisions related to directive EU 2012/18 (Seveso III):

Not available

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: 3

Restrictions related to the substances contained: 75

SVHC Substances:

SVHC substances not present in a concentration ≥ 0.1% (w/w)

National regulations

Produktregisteret Norge: 308780

Produktregister Danmark: 4049056

MAL-kode: 1-3 (1993)

German Water Hazard Class (WGK)

Class 1: slightly hazardous for water.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

Code	Description
EUH032	Contact with acids liberates very toxic gas.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
3.1/4/Dermal	Acute Tox. 4	Acute toxicity (dermal), Category 4
3.1/4/Inhal	Acute Tox. 4	Acute toxicity (inhalation), Category 4
3.1/4/Oral	Acute Tox. 4	Acute toxicity (oral), Category 4
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/1	Eye Dam. 1	Serious eye damage, Category 1
3.9/2	STOT RE 2	Specific target organ toxicity — repeated exposure, Category 2
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
3.1/4/Oral	Calculation method
3.3/1	Calculation method

If appropriate, specific provisions in relation to possible training for workers are mentioned in section 2. Any training related to safety in the workplace must in any case refer to a risk assessment that must be carried out by a company safety officer taking into account the specific operating and environmental conditions in which the products are used.

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European

Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This SDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

IC50: half maximal inhibitory concentration

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

IMDG: International Maritime Code for Dangerous Goods.

INCI: International Nomenclature of Cosmetic Ingredients.

IRCCS: Scientific Institute for Research, Hospitalization and Health Care

KSt: Explosion coefficient.

LC50: Lethal concentration, for 50 percent of test population.

LD50: Lethal dose, for 50 percent of test population.

LDLo: Leathal Dose Low

N.A.: Not Applicable

N/A: Not Applicable

N/D: Not defined/ Not available

NA: Not available

NIOSH: National Institute for Occupational Safety and Health

NOAEL: No Observed Adverse Effect Level

OSHA: Occupational Safety and Health Administration.

PBT: Persistent, Bioaccumulative and Toxic

PGK: Packaging Instruction

PNEC: Predicted No Effect Concentration.

PSG: Passengers

RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.

STEL: Short Term Exposure limit.

STOT: Specific Target Organ Toxicity.

TLV: Threshold Limiting Value.

TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

* Sheet model entirely changed in compliance to regulatory update.

SDS no. PID1046
Version 6
Revision date 08-Jun-2022
Supersedes Date: 16-Nov-2018

Safety Data Sheet
MAX GEL*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name MAX GEL*
Product code PID1046

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Viscosifier.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Asia Pacific +65 3158 1074, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, USA +1 281 561 1600, Canada +1 800 579 7421, Argentina: +54 11 5984 3690, Brazil : +55 11 3197 5891

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

–

Contains
Crystalline silica (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Crystalline silica (impurity)	238-878-4	14808-60-7	<5

Comments
Naturally occuring mineral.

The product contains other ingredients which do not contribute to the overall classification.

This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to applicable federal, state and local regulations.

Environmental exposure controls
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water. Avoid generating or breathing dust.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

Chemical Name	Arabic	Australia	Egypt
Crystalline silica (impurity)	0.1 mg/m³ TWA	0.05mg/m³TWArespirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Crystalline silica (impurity)	Not determined	0.025 mg/m³ TWA	0.03 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Crystalline silica (impurity)	1 mg/m³ MAC	0.1 mg/m³ TWA	0.05 mg/m³ TWA Confirmed carcinogen
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Crystalline silica (impurity)	0.1 mg/m³ TWA	Not determined	1 mg/m³ TWA 3 mg/m³ MAC Fibrogenic substance glass;in the form of disintegration aerosol;limit is for total mass of aerosols 1153 Fibrogenic substance containing >70% Silicon dioxide in dust;limit is for total mass of aerosols 1154
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Crystalline silica (impurity)	0.025 mg/m³ TWA	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Tightly fitting safety goggles
Hand protection	Wear chemical resistant gloves such as nitrile or neoprene. Frequent change is advisable
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Suitable mask with particle filter P3 (European Norm 143) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Color	Tan - Gray
Odor	Odorless

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		Not applicable
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	

Specific gravity	2.3 - 2.5	@ 20 °C
Bulk density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	Not determined	
Density and/or Relative Density	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
.

10.4 Conditions to avoid

Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See Section 5.

11. Toxicological information

11.1 Information on toxicological effects
Acute toxicity

Product information This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis.

Respirable quartz <0.3%. Report number: N0600517.

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Crystalline silica (impurity)	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Crystalline silica (impurity)	LC50 Danio rerio (zebra fish) : > 10000 mg/l 96h	EC50: > 1000 mg/l 72h	LC50 Daphnia manga (Water flea): > 10000 mg/l 24h

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
Crystalline silica (impurity)	Inorganic compound

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
Crystalline silica (impurity)	Product/Substance is inorganic

12.4 Mobility

Mobility
Insoluble in water. See component information below.

Chemical Name	Mobility
Crystalline silica (impurity)	Insoluble in water

Mobility in soil
No information available.

Chemical Name	Mobility in soil
Crystalline silica (impurity)	Not expected to adsorb on soil

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classified

HSNO approval no. Not required.

Group number Not required.

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies

China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals)
Supersedes Date:	16-Nov-2018
Revision date	08-Jun-2022
Version	6
This SDS has been revised in the following section(s)	1, 2, 3, 7, 11, 12, 15, 16 No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

Training Advice
Follow general hygiene considerations recognized as common good workplace practices Do not handle until all safety precautions have been read and understood

HMIS classification

Health	1*
Flammability	0
Physical hazard	0
PPE	X

*A mark of M-I L.L.C., a Schlumberger Company

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Safety Data Sheet
M-I BAR* (All Grades)

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name M-I BAR* (All Grades)
Product code PID938

Synonyms M-I BAR*,
M-I BAR* ULTRA FINE

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Weighting agent.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

_

Contains
Barite

Crystalline silica (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Barite	236-664-5	13462-86-7	60 - 100
Crystalline silica (impurity)	238-878-4	14808-60-7	5 - <10

3.2 Mixtures

Not applicable

Comments
This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if irritation persists.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to

hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing agent suitable for type of surrounding fire.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. Do not breathe dust. Material becomes slippery when wet. Use caution if wet.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Material becomes slippery when wet. Use caution if wet.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking. Avoid wet and humid conditions.

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

Chemical Name	Arabic	Australia	Egypt
Barite	Not determined	Not determined	Not determined
Crystalline silica (impurity)	0.1 mg/m³ TWA	0.05mg/m³TWArespirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Barite	Not determined	Not determined	Not determined
Crystalline silica (impurity)	Not determined	0.025 mg/m³ TWA	0.03 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Barite	6 mg/m³ MAC	Not determined	Not determined
Crystalline silica (impurity)	1 mg/m³ MAC	0.1 mg/m³ TWA	0.05 mg/m³ TWA Confirmed carcinogen
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Barite	Not determined	Not determined	6 mg/m³ TWA Fibrogenic substance 0248
Crystalline silica (impurity)	0.1 mg/m³ TWA	Not determined	1 mg/m³ TWA 3 mg/m³ MAC Fibrogenic substance glass;in the form of disintegration aerosol;limit is

			for total mass of aerosols 1153 Fibrogenic substance containing >70% Silicon dioxide in dust;limit is for total mass of aerosols 1154
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Barite	Not determined	Not determined	Not determined
Crystalline silica (impurity)	0.025 mg/m³ TWA	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Use protective gloves made of: Neoprene Nitrile PVC Frequent change is advisable
Respiratory protection	In case of inadequate ventilation wear respiratory protection Suitable mask with particle filter P3 (European Norm 143) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Color	Tan - Gray
Odor	Odorless

Property	Values	Remarks
pH	Not applicable	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	4.2 g/cm³ (minimum)	
Bulk density	1.714-2.162 kg/m³ / 107-135 lb/ft3	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	Not applicable	
Oxidizing properties	No information available	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid dust formation. Avoid wet and humid conditions.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis.

Respirable quartz < 0.3%. Report number: N600517.

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Barite	> 15000 mg/kg (Rat)	No data available	No data available
Crystalline silica (impurity)	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Barite	No information available	No information available	No information available
Crystalline silica (impurity)	LC50 Danio rerio (zebra fish) : > 10000 mg/l 96h	EC50: > 1000 mg/l 72h	LC50 Daphnia manga (Water flea): > 10000 mg/l 24h

12.2 Persistence and degradability

Product is not biodegradable. See component information below.

Chemical Name	Persistence and degradability
Barite	Inorganic compound
Crystalline silica (impurity)	Inorganic compound

12.3 Bioaccumulative potential

Does not bioaccumulate. See component information below.

Chemical Name	Bioaccumulation
Barite	Product/Substance is inorganic
Crystalline silica (impurity)	Product/Substance is inorganic

12.4 Mobility

Mobility
Insoluble in water. See component information below.

Chemical Name	Mobility
Barite	Insoluble in water
Crystalline silica (impurity)	Insoluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Barite	Not expected to adsorb on soil
Crystalline silica (impurity)	Not expected to adsorb on soil

12.5 Other adverse effects

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classified

HSNO approval no.	Not required
Group number	Not required

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	17-Jan-2020
Revision date	28-Jul-2023
Version	13
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1*
Flammability	0
Physical hazard	0
PPE	E

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SDS no. PID971
Version 4
Revision date 17-Feb-2020
Supersedes Date: 01-Feb-2016

Safety Data Sheet
M-I GEL*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name M-I GEL*
Product code PID971

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Viscosifier.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

Contains
Crystalline silica (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Crystalline silica (impurity)	238-878-4	14808-60-7	< 10

3.2 Mixtures

Not applicable

Comments
Naturally occuring mineral.
This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention immediately if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to applicable federal, state and local regulations.

Environmental exposure controls
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits No biological limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
Crystalline silica (impurity)	0.1 mg/m³ TWA	0.1mg/m³TWArespirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Crystalline silica (impurity)	Not determined	0.1 mg/m³ TWA	0.03 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Crystalline silica (impurity)	1 mg/m³ MAC	0.1 mg/m³ TWA	0.1 mg/m³ TWA Confirmed carcinogen
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Crystalline silica (impurity)	0.1 mg/m³ TWA	Not determined	3 mg/m³ STEL 1 mg/m³ TWA Fibrogenic substance 1177, 1178
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Crystalline silica (impurity)	0.025 mg/m³ TWA	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Local exhaust ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Safety glasses with side-shields Tightly fitting safety goggles
Hand protection	Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Neoprene Nitrile Frequent change is advisable
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators Suitable mask with particle filter P3 (European Norm 143) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Provide eyewash station.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odor	Odorless
Color	Cream - Gray
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	9-10	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	2.3 - 2.6	@ 20 °C

Bulk density	48 – 52 lb/ft³ (769 – 833 kg/m³)
Relative density	No information available
Water solubility	Insoluble in water
Solubility in other solvents	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
log Pow	No information available

Explosive properties	Not applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See Section 5.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Product information	This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis.

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Crystalline silica (impurity)	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Crystalline silica (impurity)	LC50 Danio rerio (zebra fish) : > 10000 mg/l 96h	EC50: > 1000 mg/l 72h	LC50 Daphnia manga (Water flea): > 10000 mg/l 24h

12.2 Persistence and degradability

Not Applicable - Inorganic chemical. See component information below.

Chemical Name	Persistence and degradability
Crystalline silica (impurity)	Inorganic compound

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical. See component information below.

Chemical Name	Bioaccumulation
Crystalline silica (impurity)	Product/Substance is inorganic

12.4 Mobility

Mobility
Insoluble in water. See component information below.

Chemical Name	Mobility
Crystalline silica (impurity)	Insoluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Crystalline silica (impurity)	Not expected to adsorb on soil

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information
Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required.
Group number	Not required.

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	01-Feb-2016
Revision date	17-Feb-2020
Version	4
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made. Updated according to GHS/CLP.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1*
Flammability	0
Physical hazard	0
PPE	E

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R&D SOLUTIONS

MET-10 Microbial Mixture
Safety Data Sheet

Version 1.3
Revision Date 10/5/2022
Print Date 10/5/2022

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : **MET-10 Microbial Mixture**

Product Number : MET-10
Brand : BioSqueeze, Inc.
Index-No. : Not available

CAS-No. : Not available

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, synthesis of substances, biomineralization applications

1.3 Details of the supplier of the safety data sheet

Company : R&D Solutions Pty Ltd.
Suite 3, Level 1 610 Murray Street
WEST PERTH WA 6005

Telephone : +61 8 9486 9350
Fax : none
Email : contact@randd-solutions.com

1.4 Emergency telephone number

Emergency Phone # : +61 8 9486 9350

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin irritation (Category 2)	H315	Causes skin irritation
Eye damage/irritation (Category 2A)	H319	Causes serious eye irritation
Acute aquatic toxicity (Category 3)	H402	Harmful to aquatic life

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statements H315 - Causes skin irritation.

H319 - Causes serious eye irritation.
H402 - Harmful to aquatic life.

Precautionary statements

P264 - Wash skin thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/ eye protection/ face protection.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 - If skin irritation occurs: Get medical advice/ attention.
P337 + P313 - If eye irritation persists: Get medical advice/ attention.
P362 - Take off contaminated clothing and wash before reuse.
P501 - Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Product Identifier	Concentration
Water	CAS 7732-18-5	> 90%
Sodium carbonate	CAS-No.: 497-19-8 EC-No.: 207-838-8	3 to 5%
Sodium chloride	CAS-No.: 7647-14-5 EC-No.: 231-598-3	2 to 5%
Ammonium Hydroxide	CAS-No.: 1336-21-6 EC-No.: 215-647-6	< 1%
Urea	CAS-No.: 57-13-6 EC-No.: 200-315-5	< 2%

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician if symptoms persist. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathing, move person into fresh air. If not breathing, give artificial respiration. Consult a physician if breathing difficulties persist.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician if irritation persists.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes. Consult a physician if irritation persists.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Do not induce vomiting. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see Section 2.2) and/or in Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

Refer to Section 4.1.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see Section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Discharge into the environment should be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapors or mist.
For precautions see Section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): 12: Non-Combustible Liquids

7.3 Specific end use(s)
Apart from the uses mentioned in Section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Ammonium Hydroxide, CAS 1336-21-6		
ACGIH	**TWA**	**17 mg/m³**
ACGIH	**STEL**	**24 mg/m³**
OSHA	**PEL (TWA)**	**35 mg/m³**

OSHA	**PEL (TWA)**	**50 ppm**
NIOSH	**REL (TWA)**	**18 mg/m³**
NIOSH	**REL (TWA)**	**25 ppm**
NIOSH	**REL (STEL)**	**27 mg/m³**
NIOSH	**REL (STEL)**	**35 ppm**

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

8.3 Personal protective equipment

Eye/face protection
Wear safety glasses or chemical goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection
Respiratory protection not required in normal conditions.

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Avoid discharge into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Yellowish liquid
b)	Odor	Ammonia odor
c)	Odor Threshold	No data available
d)	pH	7.0 to 8.5
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	Non-flammable
h)	Evaporation range	No data available
i)	Flammability	Non-flammable
j)	Upper/lower flammability or explosive limits	Non-flammable
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	Not applicable
0)	Partition coefficient: n-	No data available

	octanol/water	
p)	Auto-ignition temperature	Non-flammable
q)	Decomposition temperature	No data available
r)	Viscosity	1.05 cp
s)	Explosive properties	Non-explosive
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong acids or bases.

10.6 Hazardous decomposition products
Gaseous ammonia.

11. TOXICOLOGICAL INFORMATION

1.1 Information on toxicological effects: Acute toxicity

Likely routes of exposure: Skin and eye contact, inhalation.

Acute Toxicity: Not classified

Ammonium Hydroxide, CAS 1336-21-6	
LD50 oral rat	350 mg/kg
ATE US (oral)	350 mg/kg body weight
ATE US (dermal)	10000 mg/kg body weight
ATE US (dust, mist)	10.714 mg/l/4h
Urea, CAS 57-13-6	
LD50 oral rat	8471 mg/kg
Water, CAS 7732-18-5	
LD50 oral rat	≥ 90000 mg/kg
ATE US (oral)	90000 mg/kg body weight

Skin corrosion/irritation	Causes skin irritation.
Eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified

Reproductive toxicity	Not classified
Specific target organ toxicity – single exposure	Not classified
Specific target organ toxicity – repeated exposure	Not classified
Aspiration hazard	Not classified
Potential adverse human health effects and symptoms	Based on available data, the classification criteria are not met.
Symptoms/effects after skin contact	Causes skin irritation.
Symptoms/effects after eye contact	Causes serious eye irritation.

Carcina

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Ammonium Hydroxide, ACS 1336-21-6	
LC50 fish 1	7650 mg/l
EC50 Daphnia 1	1000 mg/l

12.2 Persistence and Degradability

Ammonium Hydroxide, ACS 1336-21-6	
Persistence and degradability	Biodegradable in soil. Readily biodegradable in water
Urea, ACS 57-13-6	
Persistence and degradability	Readily biodegradable
Water, ACS 7732-18-5	
Persistence and degradability	Not established.

12.3 Bioaccumulative Potential

Ammonium Hydroxide, ACS 1336-21-6	
Bioaccumulative potential	Does not contain bioaccumulative components.
Urea, ACS 57-13-6	
Bioaccumulative potential	Not established.
Water (7732-18-5)	
Bioaccumulative potential	None

12.4 Mobility in Soil

Ammonium Hydroxide, ACS 1336-21-6	
Ecology - soil	No data on mobility of the components available.
Urea, ACS 57-13-6	
Ecology - soil	Not established.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods

Waste disposal recommendations	Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.
Ecology – waste materials	Avoid releases to the environment

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

15.1 United States Regulations

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

15.2. International regulations

CANADA

Proprietary component	Trade secret per 29 CFR 1910.1200(i)
Listed on the Canadian DSL (Domestic Substances List)	

EU-Regulations
No additional information available

National regulations

Proprietary component	Trade secret per 29 CFR 1910.1200(i)
Not listed on the Canadian IDL (Ingredient Disclosure List)	

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

16. OTHER INFORMATION

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BioSqueeze, Inc. and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

Preparation Information
BioSqueeze, Inc.
1-406-498-8312

Version: 1.3 Revision Date: 10/05/2022 Print Date: 10/052022

HALLIBURTON

SAFETY DATA SHEET

MICROBOND ADDITIVE

Revision Date: 11-Feb-2021 **Revision Number:** 35

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name MICROBOND ADDITIVE

Other means of Identification

Synonyms None

Hazardous Material Number: HM001064

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 1 - H318
Acute Aquatic Toxicity	Category 3 - H402

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H315 - Causes skin irritation
H318 - Causes serious eye damage
H402 - Harmful to aquatic life

Precautionary Statements

Prevention
P264 - Wash face, hands and any exposed skin thoroughly after handling
P273 - Avoid release to the environment
P280 - Wear protective gloves/eye protection/face protection

Response
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash before reuse
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

Storage None

Disposal P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Calcium aluminate	12042-68-1
Calcium hydroxide	1305-62-0

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Calcium aluminate	12042-68-1	10 - 30%	Acute Tox. 4 (H332) Eye Irrit. 2 (H319) Aquatic Acute 2 (H401)
Calcium hydroxide	1305-62-0	10 - 30%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318) STOT SE 3 (H335)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least

	15 minutes. Get medical attention.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes severe eye irritation which may damage tissue. Causes skin irritation.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool, dry location.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA

Calcium aluminate	12042-68-1	Not applicable	TWA: 1 mg/m³
Calcium hydroxide	1305-62-0	TWA: 5 mg/m³	TWA: 5 mg/m³

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid **Color** Light red

Odor: Odorless **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	3.2
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
None known.
10.6. Hazardous decomposition products
Oxides of sulfur. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes severe eye irritation which may damage tissue. Causes skin irritation.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium aluminate	12042-68-1	> 2000 mg/kg (Rat) (similar substance)	> 2000 mg/kg (Rat) (similar substance)	1.9 mg/L air (Rat) 4h (similar substance)
Calcium hydroxide	1305-62-0	7340 mg/kg-bw (rat)	>2500 mg/kg-bw (rabbit)	No data available

Immediate, delayed and chronic health effects from exposure
Inhalation May cause respiratory irritation.
Eye Contact Causes severe eye irritation which may damage tissue.
Skin Contact Causes skin irritation.
Ingestion Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Calcium aluminate	12042-68-1	Contact with moist skin may cause skin burns
Calcium hydroxide	1305-62-0	Causes moderate skin irritation. (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
Calcium aluminate	12042-68-1	Causes moderate eye irritation (Rabbit) (similar substances)
Calcium hydroxide	1305-62-0	Causes severe eye irritation (Rabbit)

Substances	CAS Number	Skin Sensitization
Calcium aluminate	12042-68-1	Did not cause sensitization on laboratory animals (similar substances)
Calcium hydroxide	1305-62-0	Not regarded as a sensitizer.

Substances	CAS Number	Respiratory Sensitization
Calcium aluminate	12042-68-1	No information available
Calcium hydroxide	1305-62-0	No data of sufficient quality are available.

Substances	CAS Number	Mutagenic Effects
Calcium aluminate	12042-68-1	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)
Calcium hydroxide	1305-62-0	In vitro tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Calcium aluminate	12042-68-1	No information available
Calcium hydroxide	1305-62-0	Did not show carcinogenic effects in animal experiments (similar substances)

Substances	CAS Number	Reproductive toxicity
Calcium aluminate	12042-68-1	No information available
Calcium hydroxide	1305-62-0	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Calcium aluminate	12042-68-1	No information available
Calcium hydroxide	1305-62-0	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Calcium aluminate	12042-68-1	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Calcium hydroxide	1305-62-0	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Calcium aluminate	12042-68-1	Not applicable
Calcium hydroxide	1305-62-0	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Calcium aluminate	12042-68-1	EC50 (72h) 3.6 mg/L (Desmodesmus subspicatus) (similar substance) NOEC (72h) 2.6 mg/L (Desmodesmus subspicatus) (similar substance)	LC50 (96h) >100 mg/L (Danio rerio) (similar substance)	EC50 (3h) > 100 mg/L (Activated sludge of a predominantly domestic sewage) (similar substance)	EC50 (48h) 5.4 mg/L (Daphnia magna) (similar substance)
Calcium hydroxide	1305-62-0	No information available	LC50 (96 h) =50.6 mg/L (Oncorhynchus mykiss) LC50 (96 h) =457 mg/L (Gasterosteus aculeatus)	No information available	EC50 (48 h) =49.1 mg/L (Daphnia magna) EC50 (96 h) =158 mg/L (Crangon septemspinosa) NOAEC (14 d) =32 mg/L (Crangon septemspinosa)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Calcium aluminate	12042-68-1	The methods for determining biodegradability are not applicable to inorganic substances.
Calcium hydroxide	1305-62-0	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Calcium aluminate	12042-68-1	No information available
Calcium hydroxide	1305-62-0	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Calcium aluminate	12042-68-1	No information available

Calcium hydroxide	1305-62-0	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or

Chemicals	assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 11-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H401 - Toxic to aquatic life
H402 - Harmful to aquatic life

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

MICROBOND HT CEMENT

Revision Date: 15-Mar-2022 **Revision Number:** 35

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name MICROBOND HT CEMENT

Other means of Identification

Synonyms None

Hazardous Material Number: HM001065

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Not applicable

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store in a cool, dry location. Store in a cool well ventilated area. Product has a shelf life of 36 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	White to Light gray
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	10.5
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	3.46
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	40.32
VOC Content (%)	0%
Bulk Density	100 lbs/ft3

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
None known.
10.6. Hazardous decomposition products
None known.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according	NA	No data available	No data available	No data available

to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory All components are listed on the AIIC or are subject to a relevant exemption, permit, or

	assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 15-Mar-2022

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

MICROBOND M

Revision Date: 04-Feb-2021 **Revision Number:** 47

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name MICROBOND M

Other means of Identification

Synonyms None

Hazardous Material Number: HM001066

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Serious Eye Damage/Irritation	Category 1 - H318
Carcinogenicity	Category 1A - H350
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H318 - Causes serious eye damage
H373 - May cause damage to organs through prolonged or repeated exposure
H350 - May cause cancer by inhalation
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

Precautionary Statements

Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/eye protection/face protection

Response
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P314 - Get medical attention/advice if you feel unwell

Storage
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Calcium oxide	1305-78-8
Crystalline silica, quartz	14808-60-7

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Calcium oxide	1305-78-8	1 - 5%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318) STOT SE 3 (H335)
Crystalline silica, quartz	14808-60-7	1 - 5%	Carc. 1A (H350) STOT RE 1 (H372)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure

Causes severe eye irritation which may damage tissue. Causes mild skin irritation. Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Not applicable

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid creating and breathing dust. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Calcium oxide	1305-78-8	TWA: 2 mg/m³	TWA: 2 mg/m³
Crystalline silica, quartz	14808-60-7	TWA: 0.1 mg/m³	TWA: 0.025 mg/m³

Appropriate engineering controls

Engineering Controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.

Hand Protection Normal work gloves.

Skin Protection Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid

Color Light to medium brown

Odor: Odorless

Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	10.5
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	3.6
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Hydrofluoric acid.

10.6. Hazardous decomposition products

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

Causes severe eye irritation which may damage tissue. Causes mild skin irritation. Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium oxide	1305-78-8	> 2000 mg/kg (Rat)	No data available	No data available
Crystalline silica, quartz	14808-60-7	> 15000 mg/kg (human)	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).

Eye Contact Causes severe eye irritation

Skin Contact Causes mild skin irritation.

Ingestion Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Exposure Levels
No data available

Interactive effects
Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Calcium oxide	1305-78-8	Causes moderate skin irritation. (Rabbit)
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin

Substances	CAS Number	Serious eye damage/irritation
Calcium oxide	1305-78-8	Causes eye burns (Rabbit)
Crystalline silica, quartz	14808-60-7	Non-irritating to the eye No information available

Substances	CAS Number	Skin Sensitization
Calcium oxide	1305-78-8	Patch test on human volunteers did not demonstrate sensitization properties
Crystalline silica, quartz	14808-60-7	No information available.

Substances	CAS Number	Respiratory Sensitization
Calcium oxide	1305-78-8	No information available
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	Mutagenic Effects
Calcium oxide	1305-78-8	In vitro tests did not show mutagenic effects.
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Calcium oxide	1305-78-8	Did not show carcinogenic effects in animal experiments (similar substances)
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

Substances	CAS Number	Reproductive toxicity
Calcium oxide	1305-78-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	STOT - single exposure
Calcium oxide	1305-78-8	May cause respiratory irritation.
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Calcium oxide	1305-78-8	None under normal use conditions
Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Substances	CAS Number	Aspiration hazard
Calcium oxide	1305-78-8	Not applicable
Crystalline silica, quartz	14808-60-7	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Calcium oxide	1305-78-8	No information available	LC50 (96h) 1070 mg/L (Cyprinus carpio) NOEC (46d) 100 mg/L (Tilapia nilotica)	No information available	No information available
Crystalline silica, quartz	14808-60-7	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	No information available	LL50(24 h)>10000 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Calcium oxide	1305-78-8	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Calcium oxide	1305-78-8	No information available
Crystalline silica, quartz	14808-60-7	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Calcium oxide	1305-78-8	No information available
Crystalline silica, quartz	14808-60-7	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number Not restricted

UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 04-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H315 - Causes skin irritation
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H350 - May cause cancer by inhalation
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data

www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

Safety data sheet
Microsilica
Version 2.0
Effective date: 2008-27-02
Revised: 2018-02-08

FloPetrol

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier

Trade name: Microsilica

CAS-no.: 69012-64-2
EC-no.: 273-761-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product use: Professional use.

1.3 Details of the supplier of the safety data sheet

Company: Sandaband Well Plugging AS
Hammaren 15
4056 TANANGER
Tel: +47 47679128

Contact: tf@sandaband.com

Importer Name: Chevron Australia Pty Ltd
Address: 250 St Georges Terrace, Perth, WA, 6000, Australia
Telephone: 08 9216 4000
Fax: 08 9216 4444

1.4 Emergency telephone number:
Use your national or local emergency number.

Emergency contact number available during office hours only: 0427 495 187

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification according to 1272/2008 CLP
Not classified.

2.2 Label elements 1272/2008 CLP:

Not classified.

2.3 Other hazards
-

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

CAS/EC-No.	Name	Content %	Classification
69021-64-2 / 273-761-1	Silica (amorphous)	100	-

3.3 Additional information:
Occupational limits are listed in section 8, if these are available.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General information: Always contact a doctor, if in doubt about the injured person's condition or if the symptoms continue. Remove affected person from source of contamination.

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Get medical attention if irritation persist.

Skin contact: Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.

Eye contact: Immediately rinse with water. Continue to rinse for at least 15 minutes. Hold eyelids apart. If irritation occurs: Get medical advice/attention.

Ingestion: Do not induce vomiting. Immediately give a couple of glasses of water or milk. If continued discomfort, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Dust may irritate respiratory system or lungs. May cause skin irritation. Particles in the eyes may cause irritation and smarting.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media:

None known.

5.2 Special hazards arising from the substance or mixture

Not flammable.
Avoid inhalation of smoke in case of fire.

5.3 Advice for firefighters: Firefighters and others who may be exposed to products of combustion should wear full protective clothing including self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

See section 8 for recommendations on the use of personal protective equipment. Avoid contact with eyes.

6.2 Environmental precautions:

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

6.3 Methods and material for containment and cleaning up:

Collect spilled material using mechanical equipment. Keep container tightly closed. Flush residual spill area with plenty of water.

6.4 Reference to other sections:

See section 8 and 13.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling:

See section 8 for recommendations on the use of personal protective equipment. Avoid contact with eyes. Avoid breathing dust. Avoid handling which leads to dust formation. Keep containers closed when not in use.

7.2 Conditions for safe storage, including any incompatibilities:

Store at moderate temperatures in dry, well-ventilated area.

7.3 Specific end use(s): See Section 1.2.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters - Occupational exposure limits EH40:

CAS-no:	Name:	Limits:
-	Dust - total inhalable - respirable	 Long-term value(TWA): 10 mg/m³ Long-term value(TWA): 4 mg/m³

DNEL/PNEC:
-

8.2 Exposure controls

Appropriate technical measures:

Ensure adequate ventilation of the working area. Use local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

General information: Smoking, consumption of food or liquid, and storage of tobacco, food or liquid, are not allowed in the workroom. Prevent discharge of larger quantity to drain. Ensure eyewash are available. Avoid breathing dust. Avoid contact with eyes.

Personal protective equipment:

Only CE-marked personal protection equipment should be used.

Respiratory protection: If ventilation is insufficient, suitable respiratory protection must be provided. Dust filter P2 (for fine dust).

Hand protection: Use suitable protective gloves if risk of skin contact.

Eye protection: Wear dust resistant safety goggles where there is danger of eye contact.

Body protection: Protective clothing as needed.

Measures to avoid environmental exposure:
Avoid discharge into the environment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	**Odour:**	**Color:**	**PH:**	**Viscosity:**
Solid/powder	None	Grey	-	-
Flash point:	**Boiling point:**	**Vapour pressure:**	**Density g/cm³:**	**Melting point:**
-	-	-	2.2–2.3 - 20°C	-
Ignition temperature:	**Auto-ignition temperature:**	**Molecular weight:**	**Solubility in water 20°C:**	
-	-	60	Insoluble in water	

9.2 Other information:
-

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity: Product is stable under normal, recommended conditions of handling and storage.

10.2 Chemical stability: Product is stable under normal conditions.

10.3 Possibility of hazardous reactions:
Hazardous reactions will not occur under normal transport or storage conditions.

10.4 Conditions to avoid: Contact with hydrofluoric acid (HF).

10.5 Incompatible materials: Hydrofluoric acid (HF).

10.6 Hazardous decomposition products:
The product is not degraded when used as recommended.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity: Not classified.

Skin corrosion/irritation: Not classified.

Serious eye damage/irritation: Not classified.

Respiratory or skin sensitisation:	Not classified.
Germ cell mutagenicity:	Not classified.
Carcinogenicity:	Not classified.
Reproductive toxicity:	Not classified.
Specific target organ toxicity - single exposure:	Not classified.
Specific target organ toxicity – repeated exposure:	Not classified.
Aspiration hazard:	Not classified.
Additional information:	Dust may irritate respiratory system or lungs. May cause irritation in the mouth and to the mucous membranes. May cause skin irritation/eczema. Particles in the eyes may cause irritation and smarting.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity: Not classified as dangerous for the environment.
The product is on the PLONOR-list. The product is not expected to cause danger for the environment.

12.2 Persistence and degradability:
No data available.

12.3 Bioaccumulative potential:
No potential.

12.4 Mobility in soil: Insoluble in water.

12.5 Result of PBT and vPvB assesment:
The substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects: None known.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:
Dispose of unused contents in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate.

Contaminated packing: Packaging which contains leftovers from the product must be disposed of in the same way as the product.

SECTION 14. TRANSPORT INFORMATION

This product is not classified as dangerous of transport.

	ADR/RID	IMDG/IMO
14.1 UN number	-	-
14.2 UN proper shipping name	-	-
14.3 Transport hazard class(es)	-	-
14.4 Packing group	-	-
14.5 Environmental hazards - MP	-	-
Other informations	-	-

14.6 Special precautions for user:

-

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

-

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Sources:

Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended). Personal Protective Equipment Regulations 2002. Personal Protective Equipment at Work Regulations 1992. Hazardous Waste (England and Wales) Regulations 2005(as amended). EC regulation 1907/2006 (REACH) Directive 2000/532/EC. Seveso directive: 96/82/EC. EU 2015/830.

Additional information: None.

15.2 Chemical safety assessment:

Not necessary.

SECTION 16. OTHER INFORMATION

Full text of H-phrases as mentioned in section 3:
-

Additional information:
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Change 2018-02-08 section:
1 – 16.

Validated by:
SRS
www.msds-eu.com

SDS no. PID11307
Version 10
Revision date 12-Dec-2022
Supersedes Date: 08-Jul-2018

Safety Data Sheet
M-I-X* II (All Grades)

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name M-I-X* II (All Grades)
Product code PID11307

Synonyms M-I-X* II FINE, M-I-X* II MEDIUM, M-I-X* II COARSE

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Lost circulation material.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Contains
Cellulose

Crystalline silica (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Combustible dust

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Cellulose	Listed	Proprietary	60-100
Crystalline silica (impurity)	238-878-4	14808-60-7	<1

3.2 Mixtures

Not applicable

Comments
This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to

hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Combustible material. Dust may form explosive mixture in air.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors Silicon oxide, Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Take precautionary measures against static discharges. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Take precautionary measures against static discharges. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Protect from moisture Avoid contact with: Oxidizing agents

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

Chemical Name	Arabic	Australia	Egypt
Cellulose	10 mg/m³ TWA	10mg/m³TWAinhalable dust	Not determined
Crystalline silica (impurity)	0.1 mg/m³ TWA	0.05mg/m³TWArespirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Cellulose	Not determined	10 mg/m³ TWA	Not determined
Crystalline silica (impurity)	Not determined	0.025 mg/m³ TWA	0.03 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Cellulose	10 mg/m³ MAC	Not determined	10 mg/m³ TWA
Crystalline silica (impurity)	1 mg/m³ MAC	0.1 mg/m³ TWA	0.05 mg/m³ TWA Confirmed carcinogen
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Cellulose	10 mg/m³ TWA	Not determined	10 mg/m³ MAC
Crystalline silica (impurity)	0.1 mg/m³ TWA	Not determined	1 mg/m³ TWA 3 mg/m³ MAC Fibrogenic substance glass;in the form of disintegration aerosol;limit is

			for total mass of aerosols 1153 Fibrogenic substance containing >70% Silicon dioxide in dust;limit is for total mass of aerosols 1154
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Cellulose	Not determined	10 mg/m³ TWA 5 mg/m³ TWA 20 mg/m³ STEL	Not determined
Crystalline silica (impurity)	0.025 mg/m³ TWA	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Neoprene Nitrile Frequent change is advisable
Respiratory protection	No protective equipment is needed under normal use conditions In case of insufficient ventilation wear suitable respiratory equipment Suitable mask with particle filter P3 (European Norm 143) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Odor	Odorless
Color	Light brown

Property	Values	Remarks
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.1 - 1.65	@ 20 °C
Bulk density	352-513 kg/m³ / 22-32 lb/ft³	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	

Explosive properties	Suspended dust may present a dust explosion hazard
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Combustible material. Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Avoid dust formation. Take precautionary measures against static charges. Protect from moisture.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis.

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cellulose	> 5 g/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5800 mg/m³ (Rat) 4 h
Crystalline silica (impurity)	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity Contains a known or suspected carcinogen. Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Cellulose	No information available	No information available	No information available
Crystalline silica (impurity)	LC50 Danio rerio (zebra fish) : > 10000 mg/l 96h	EC50: > 1000 mg/l 72h	LC50 Daphnia manga (Water flea): > 10000 mg/l 24h

12.2 Persistence and degradability

This product is expected to be readily biodegradable. See component information below.

Chemical Name	Persistence and degradability
Crystalline silica (impurity)	Inorganic compound

12.3 Bioaccumulative potential

The product does not contain any substances expected to be bioaccumulating. See component information below.

Chemical Name	Bioaccumulation
Crystalline silica (impurity)	Product/Substance is inorganic

12.4 Mobility

Mobility
Insoluble in water. See component information below.

Chemical Name	Mobility
Crystalline silica (impurity)	Insoluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Crystalline silica (impurity)	Not expected to adsorb on soil

12.5 Other adverse effects

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required
Group number	Not required

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	08-Jul-2018
Revision date	12-Dec-2022
Version	10
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3*
Flammability	1
Physical hazard	0
PPE	X

*A mark of M-I L.L.C., a Schlumberger Company

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Mono Propylene Glycol
SAFETY DATA SHEET

According to Model Work Health and Safety Regulations

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product Description: Propylene Glycol
Synonyms: 1,2-Propylene glycol
CAS-No 57-55-6
EC-No. 203-473-3
Molecular Formula C3H8O2
Reach Registration Number 01-2119456816-28

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemical, Industrial use – inactive carrier, coolant, antifreeze.

1.3. Details of the supplier of the safety data sheet
Company: R&D Solutions
Telephone: +61 8 9486 9350
Address: Suite 3, Level 1, 610 Murray St, West Perth WA 6005, Australia
E-mail address: contact@randd-solutions.com

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture
Classification according to Model Work Health and Safety Regulations:
ADG Code: Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code).
SWA Hazard Classification: Non-Hazardous according to the criteria of Safe Work Australia [NOHSC:1008(2004)]
Not classified as hazardous according to the criteria of Hazardous Substances Information System (HSIS), Safe Work Australia.

SECTION 3. Composition/information on ingredients

Chemical Entity	CAS Number	Proportion
Propane-1,2-Diol	57-55-6	100.0 %

SECTION 4: First aid measures

4.1. Description of first aid measures

Swallowed: No treatment necessary unless large quantities are swallowed. Rinse mouth with water. Give water to drink. Do NOT induce vomiting. If symptoms develop, seek medical attention.
Eye: Immediately flush eyes with plenty of water for 15 minutes, holding eyelids open. If irritation persists, seek medical attention.
Skin: Remove contaminated clothing. Wash affected area with soap and plenty of water. If irritation persists, seek medical advice
Inhaled: Remove victim from exposure to fresh air. If rapid recovery does not occur, seek medical advice.
Advice to Doctor: Treat symptomatically based on judgement of doctor and individual reactions of patient. Following cases of gross over-exposure, investigation of liver, kidney and eye function may be advisable. Records of such incidents should be maintained for future reference
Medical Conditions Aggravated by Exposure:
No information available on medical conditions which are aggravated from exposure to this product

SECTION 5. Fire-fighting measures

General Measures: If safe to do so, remove containers from the path of fire.
Flammability Conditions: Will only burn if enveloped in a pre-existing fire. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Extinguishing Media: Large fires should only be fought by properly trained fire fighters. Use dry chemical powder, carbon dioxide or protein based foam. If water is to be used, it must only be sprayed in large quantities. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do NOT use water in a jet.
Fire and Explosion Hazard: Non-flammable liquid.
Hazardous Products of Combustion: Hazardous decomposition products may include noxious and toxic fumes of carbon monoxide and carbon dioxide.
Special Fire Fighting Instructions: Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment: Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit.

Flash Point:	99°C
Lower Explosion Limit:	2.6 %
Upper Explosion Limit:	12.6 %
Auto Ignition Temperature:	421°C
Hazchem Code:	No Data Available

SECTION 6: Accidental release measures

General Response Procedure: Eliminate all sources of ignition. Increase ventilation. Avoid walking through spilled product as it may be slippery. Use clean, non-sparking tools and equipment.
Clean Up Procedures: For large spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with absorbent material and dispose of promptly as hazardous waste. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of promptly as Hazardous waste.
Containment: Stop leak if safe to do so.
Environmental Precautionary Measures: Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.
Evacuation Criteria: Evacuate all unnecessary personnel.
Personal Precautionary Measures: Personnel involved in the clean up should wear full protective clothing as listed in section 8.

SECTION 7. Handling and storage

Handling: Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Avoid prolonged or repeated exposure. Use local exhaust extraction over processing area.
For lines and fittings, avoid copper, copper alloys, zinc. Air-dry contaminated clothing in a well-ventilated area before laundering. Handling Temperature: Ambient.
Prevent all contact with water and moist atmosphere. Drums should be stacked to a maximum of 3 high. Lines should be purged with nitrogen before and after product transfer. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.
Storage: Store in a cool, dry, diked (bunded), well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Protect from direct sunlight, moisture, heat and static discharges. Prevent all contact with water and moist atmosphere. Prevent ingress of water. Nitrogen blanket recommended for large tanks (capacity 100m3 or higher). Storage temperature: 40 Deg C Maximum. This product is classified as a 'C1' Combustible Liquid for the purpose of storage and handling in accordance with the requirements of AS1940.
Container: Store in original packaging as approved by manufacturer

SECTION 8. Exposure controls/personal protection

General: The following exposure standard has been established by the Safe Work Australia (SWA);
Propane-1,2-diol: Total (vapour and particulates) CAS 57-55-6: TWA = 150 ppm (474 mg/m3)
NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.

These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
Exposure Limits: No Data Available
Biological Limits: No information available on biological limit values for this product.
Engineering Measures: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded.
Personal Protection Equipment: RESPIRATOR: No respiratory protection is ordinarily required under normal conditions of use (AS1715/1716).
EYES: Chemical splash goggles (AS1336/1337).
HANDS: Use gloves approve to relevant standard made from neoprene, PVC (AS2161).
CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).
Work Hygienic Practices: Wash hands before eating, drinking, smoking and using the toilet.

SECTION 9. Physical and chemical properties

Physical State	Liquid
Appearance	Liquid
Odour	Odourless
Colour	Colourless
pH	7
Vapour Pressure	10 Pa (@20°C)
Relative Vapour Density	2.5 Air = 1
Boiling/Melting Point	186-189 °C
Solubility	Miscible
Freezing Point	-59 °C
Specific Gravity	1.04
Flash Point	99 °C
Auto Ignition Temp	421 °C
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1036 kg/cm3
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	ca. -1
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	20 °C
Viscosity	55 mPa.s (@21 °C)
Volatile Percent	No Data Available

SECTION 10. Stability and reactivity

General Information: Combustible liquid. Hygroscopic.
Chemical Stability: Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid: Avoid excessive heat, flame, sparks and temperatures above 40 Deg C.
Materials to Avoid: Incompatible materials include strong oxidising agents, strong acids, moisture, and all sources of ignition.
Hazardous Decomposition Products: Hazardous decomposition products may include noxious and toxic fumes of oxides of carbon, carbonyl and dioxolane derivatives may also be formed.
Hazardous Polymerisation: Hazardous polymerization has not been reported.

SECTION 11. Toxicological information

General Information: Information given is based on product testing, and/or similar products, and/or components:
Oral LD50 Rat: >2000mg/Kg
Dermal LD50 Rabbit : >2000mg/Kg
Inhalation Toxicity: LC50 greater than near saturated vapour concentration.
SKIN: Not Irritating to skin.
EYES: Essentially non-irritating to eyes.
RESPIRATORY: Not expected to be a respiratory irritant.
SENSITISATION: Not a skin sensitiser.
REPEATED DOSE: Low systemic toxicity on repeated exposure. Cats given high doses of MPG in diet showed a decrease in red blood cell survival.
MUTAGENICITY: Not mutagenic.
CARCINOGENICITY: Not carcinogenic in animal studies.
REPRODUCTIVE/DEVELOPMENTAL: Not a developmental toxicant.
Carcinogen Category: 0

SECTION 12. Ecological information

Ecotoxicity
Acute Toxicity:
Fish: Low toxicity: LC/EC/IC50 >100 mg/L
Aquatic Invertebrates: Low toxicity: LC/EC/IC50 >100 mg/L
Algae: Low toxicity: LC/EC/IC50 >100 mg/L
Microorganisms: Expected to have low toxicity: LC/EC/IC50 >100 mg/L
Persistence/Degradability: Readily biodegradable.
Mobility: If the product enters soil, it will be highly mobile and may contaminate ground water.
Environmental Fate: Avoid contaminating waterways, drains and sewers.
Bioaccumulation Potential: Does not bioaccumulate significantly.
Environmental Impact: No Data Available

SECTION 13. Disposal considerations

General Information: Recover or recycle if possible. Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility. Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Send to drum recoverer or metal reclaimer.
Special Precautions for Land Fill: Contact a specialist disposal company or the local waste regulator for advice

SECTION 14. Transport information

Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code)

Land transport (ADG): Proper Shipping Name PROPYLENE GLYCOL
Class: No Data Available
Subsidiary Risk(s): No Data Available
UN Number: No Data Available
Hazchem: No Data Available
Pack Group: No Data Available
Special Provision: No Data Available

Sea transport (IMDG): Proper Shipping Name PROPYLENE GLYCOL
Class: No Data Available
Subsidiary Risk(s): No Data Available
UN Number: No Data Available
Hazchem: No Data Available
Pack Group: No Data Available
Special Provision: No Data Available
EMS: No Data Available
Marine Pollutant: No

Air transport (IATA): Proper Shipping Name PROPYLENE GLYCOL
Class: No Data Available
Subsidiary Risk(s): No Data Available
UN Number: No Data Available
Hazchem: No Data Available
Pack Group: No Data Available
Special Provision: No Data Available

SECTION 15. Regulatory information

Information on the product as supplied:
Regulatory Information: Listed in the Australian Inventory of Chemical Substances (AICS). Not listed under WHS Regulation

2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule: Not Scheduled

SECTION 16. Other information

This SDS was prepared in accordance with the following:
Model Work Health and Safety Regulations & Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals.
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

HALLIBURTON

SAFETY DATA SHEET

MUSOL E SOLVENT

Revision Date: 25-Feb-2019 **Revision Number:** 23

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name MUSOL E SOLVENT

Other means of Identification

Synonyms None

Hazardous Material Number: HM001096

Recommended use of the chemical and restrictions on use

Recommended Use Surfactant; Solvent

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier

Multi-Chem Mintech
1 Ward Road
East Rockingham
WA 6168
Australia

Telephone Number: 61 (08) 9419 5300
Fax Number: 61 (08) 9439 1055
Emergency Telephone Number: + 61 1 800 686 951

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Reproductive Toxicity	Category 1B - H360
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H336
Flammable liquids.	Category 3 - H226

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H226 - Flammable liquid and vapor
H336 - May cause drowsiness or dizziness
H360 - May damage fertility or the unborn child

Precautionary Statements

Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting/equipment
P242 - Use only non-sparking tools
P243 - Take action to prevent static discharges.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P281 - Use personal protective equipment as required

Response
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P370 + P378 - In case of fire: Use water spray for extinction

Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P403 + P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
1-Methoxy-2-propanol	107-98-2
2-Methoxy-1-propanol	1589-47-5

Other hazards which do not result in classification
None known

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
1-Methoxy-2-propanol	107-98-2	60 - 100%	STOT SE 3 (H336) Flam. Liq. 3 (H226)
2-Methoxy-1-propanol	1589-47-5	0.1 - 1%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Repr. 1B (H360) STOT SE 3 (H335) Flam. Liq. 3 (H226)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed. Potential reproductive hazard. May cause birth defects.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

May be ignited by heat, sparks or flames Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. May discolor mild steel. Product has a shelf life of 36 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
1-Methoxy-2-propanol	107-98-2	TWA: 100 ppm TWA: 369 mg/m³ STEL: 150 ppm STEL: 553 mg/m³	TWA: 50 ppm STEL: 100 ppm
2-Methoxy-1-propanol	1589-47-5	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Organic vapor respirator.

Hand Protection Impervious rubber gloves.

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions None known.

Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid **Color** Colorless

Odor: Ether **Odor Threshold:** No information available

Property	Values

Remarks/ - Method

pH:	No data available
Freezing Point / Range	-95 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	117 °C / 243 °F
Flash Point	31 °C / 89 °F (PMCC)
Upper flammability limit	12%
Lower flammability limit	3%
Evaporation rate	No data available
Vapor Pressure	10.9 mmHg
Vapor Density	No data available
Specific Gravity	0.92
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	0.01
Autoignition Temperature	277 °C / 532 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed. Potential reproductive hazard. May cause birth defects.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
1-Methoxy-2-propanol	107-98-2	5200 mg/kg (Rat) 3739 mg/kg (Rat) 4016 mg/kg (Rat)	13000 mg/kg (Rabbit) > 2000 mg/kg (Rat)	54.6 mg/L (Rat) 4h 24 mg/L (Rat) 1h 27.8 mg/L (Rat) 6h
2-Methoxy-1-propanol	1589-47-5	5710 mg/kg (Rat)	5660 mg/kg (Rabbit)	>6.0 mg/L (Rat) 4h >36.9 mg/L (Rat) 4h 553 mg/L (Rat) 4h

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Eye Contact May cause mild eye irritation.

Skin Contact May cause mild skin irritation.

Ingestion May be harmful if swallowed. May cause abdominal pain, vomiting, nausea, and diarrhea. May produce nervous system effects such as feeling of weakness, unsteady walk, and dilation of blood vessels.

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may cause reproductive system damage. Prolonged or repeated exposure may cause embryo and fetus toxicity.

Exposure Levels
No data available

Interactive effects
Skin disorders. Eye ailments.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
1-Methoxy-2-propanol	107-98-2	Not irritating to skin in rabbits. (Rabbit)
2-Methoxy-1-propanol	1589-47-5	No data of sufficient quality are available.

Substances	CAS Number	Serious eye damage/irritation
1-Methoxy-2-propanol	107-98-2	Non-irritating to rabbit's eye
2-Methoxy-1-propanol	1589-47-5	No data of sufficient quality are available.

Substances	CAS Number	Skin Sensitization
1-Methoxy-2-propanol	107-98-2	Did not cause sensitization on laboratory animals (guinea pig)
2-Methoxy-1-propanol	1589-47-5	No information available.

Substances	CAS Number	Respiratory Sensitization
1-Methoxy-2-propanol	107-98-2	No information available
2-Methoxy-1-propanol	1589-47-5	No information available.

Substances	CAS Number	Mutagenic Effects
1-Methoxy-2-propanol	107-98-2	Not regarded as mutagenic.
2-Methoxy-1-propanol	1589-47-5	Not mutagenic in AMES Test.

Substances	CAS Number	Carcinogenic Effects
1-Methoxy-2-propanol	107-98-2	Did not show carcinogenic effects in animal experiments
2-Methoxy-1-propanol	1589-47-5	No information available

Substances	CAS Number	Reproductive toxicity
1-Methoxy-2-propanol	107-98-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
2-Methoxy-1-propanol	1589-47-5	Fetotoxic and teratogenic effects observed in experimental animals at concentrations that did not produce maternal toxicity.

Substances	CAS Number	STOT - single exposure
1-Methoxy-2-propanol	107-98-2	May cause disorder and damage to the Central Nervous System (CNS)
2-Methoxy-1-propanol	1589-47-5	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
1-Methoxy-2-propanol	107-98-2	No significant toxicity observed in animal studies at concentration requiring classification.
2-Methoxy-1-propanol	1589-47-5	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
1-Methoxy-2-propanol	107-98-2	No information available
2-Methoxy-1-propanol	1589-47-5	No information available.

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
1-Methoxy-2-propanol	107-98-2	EC50 (96h) > 1000 mg/L (Desmodesmus subspicatus)	LC50 (96h) 6812 mg/L (Leuciscius idus)	No information available	LC50 (48h) > 23300 mg/L (Daphnia magna)
2-Methoxy-1-propanol	1589-47-5	EC50 (96h) 7153 mg/L (Green algae)	LC50 (96h) 16,500 mg/L (Pimephales promelas) LC50 (96h) 4998 mg/L (Pimephales promelas)	No information available	EC50 (48h) 19,000 mg/L (Daphnia magna) LC50 (96h) 24,965 mg/L (Mysid shrimp) LC50 (16d) 228 mg/L (Daphnid)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
1-Methoxy-2-propanol	107-98-2	(96% @ 28d)
2-Methoxy-1-propanol	1589-47-5	Readily biodegradable (similar substances)

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
1-Methoxy-2-propanol	107-98-2	-0.437 BCF = 3.16
2-Methoxy-1-propanol	1589-47-5	Log Kow = -0.45 BCF = 10

12.4. Mobility in soil

Substances	CAS Number	Mobility
1-Methoxy-2-propanol	107-98-2	No information available
2-Methoxy-1-propanol	1589-47-5	No information available.

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number UN3092
UN proper shipping name: 1-Methoxy-2-Propanol Solution
Transport Hazard Class(es): 3

Packing Group: III
Environmental Hazards: Not applicable

IMDG/IMO

UN Number UN3092
UN proper shipping name: 1-Methoxy-2-Propanol Solution
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards: Not applicable
EMS: EmS F-A, S-D

IATA/ICAO

UN Number UN3092
UN proper shipping name: 1-Methoxy-2-Propanol Solution
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards: Not applicable

Special precautions during transport
None

HazChem Code
•2Y

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 25-Feb-2019

Revision Note
SDS sections updated:
14

Full text of H-Statements referred to under sections 2 and 3
H226 - Flammable liquid and vapor
H315 - Causes skin irritation
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

H336 - May cause drowsiness or dizziness
H360 - May damage fertility or the unborn child

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data

www.ChemADVISOR.com/
ECHA C&L
NZ CCID
OSHA

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

NF-6

Revision Date: 11-Feb-2021 **Revision Number:** 41

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name NF-6

Other means of Identification

Synonyms None

Hazardous Material Number: HM001971

Recommended use of the chemical and restrictions on use

Recommended Use Defoamer

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Carbon dioxide, dry chemical, foam.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Use water spray to cool fire exposed surfaces. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Keep container closed when not in use.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Organic vapor respirator with a dust/mist filter. (A2P2/P3)
Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Polyvinylchloride gloves. (>= 8 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in

	practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.
Skin Protection	Normal work coveralls.
Eye Protection	Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions	None known.
Environmental Exposure Controls	Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Yellow
Odor:	Mild	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	182 °C / 360 °F
Flash Point	> 170 °C / > 340 °F
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	0.93
Water Solubility	Dispersible
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	385 °C / 725 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
Liquid Density	7.70 lbs/gal

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Hydrocarbons. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.

Eye Contact None known.

Skin Contact None known.

Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels

No data available

Interactive effects

None known.

Data limitations

No data available

12. Ecological Information

Ecotoxicity

Product Ecotoxicity Data

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Dispose in accordance with local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 11-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit

PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID
Cosmetic Ingredient Review

Disclaimer Statement
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End of Safety Data Sheet

SAFETY DATA SHEET

NUOSEPT 78

Section 1. Identification

Product identifier : NUOSEPT 78

Product code : 83256

Chemical identity : 2,2',2"-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol

Other means of identification : Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine

Product type : Liquid.

Material uses : Preservative.

Supplier's details : IMCD AUSTRALIA LIMITED
1st Floor 372 Wellington Rd.
Mulgrave VIC 3170
Phone: (03) 8544 3118
Fax: (03) 8544 3218

Manufacturer : Troy Siam Company Limited
616/1 Moo. 9 Kabinburi Industrial Zone,
Kabinburi-Korat Road, T, Nongki,
A. Kabinburi, Prachinburi 25110
Thailand
Phone: +66-37-204-243/250
Fax: +66-37-204 268

Emergency telephone number (with hours of operation) : CHEMTREC - Tel: +1-703-741-5970 (24/7)

Section 2. Hazard(s) identification

Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 4
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1

GHS label elements

Hazard pictograms :



Signal word : **WARNING**

Hazard statements : **Harmful if swallowed.**
Causes serious eye irritation.
May cause an allergic skin reaction.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection: Recommended: chemical splash goggles and/or face shield.. Avoid breathing vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Section 2. Hazard(s) identification

Response : IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Not applicable.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : Not applicable.

Other hazards which do not result in classification : None known.

Section 3. Composition and ingredient information

Substance/mixture : Substance

Chemical identity : 2,2',2"-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol

Other means of identification : Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine

CAS number/other identifiers

CAS number : Not available.

EC number : Not available.

Product code : 83256

Ingredient name	% (w/w)	CAS number
2,2',2"-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	78	4719-04-4
2-aminoethanol	1-3	141-43-5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : May cause an allergic skin reaction.

Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Section 5. Fire-fighting measures

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : Excessive heat >147°C (>297°F) will result in decomposition to formaldehyde.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store between the following temperatures: -5 to 30°C (23 to 86°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
2,2',2"-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol 2-aminoethanol	**DFG MAC-values list (Germany, 7/2018).** **Skin sensitizer.** **Safe Work Australia (Australia, 4/2018).** STEL: 15 mg/m³ 15 minutes. STEL: 6 ppm 15 minutes. TWA: 7.5 mg/m³ 8 hours. TWA: 3 ppm 8 hours.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Recommended: chemical splash goggles and/or face shield.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls and personal protection

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Clear. Colorless. Yellowish.

Odor : Characteristic. [Slight]

Odor threshold : Not available.

pH : 9 to 12

Melting point/freezing point : Not available.

Boiling point : 110.5°C (230.9°F)

Flash point : Closed cup: Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Excessive heat >147°C (>297°F) will result in decomposition to formaldehyde.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : 1.3 to 2.4 kPa (10 to 18 mm Hg) [room temperature]

Vapor density : >1 [Air = 1]

Relative density : 1.145 to 1.175

Solubility : Soluble in the following materials: cold water and hot water.

Partition coefficient: n-octanol/water : -1.3

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Dynamic (room temperature): 60 to 100 mPa·s (60 to 100 cP)
Kinematic (room temperature): 0.6 to 1 cm^2/s (60 to 100 cSt)

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
NUOSEPT 78	LD50 Dermal LD50 Oral	Rat Rat - Female	>2000 mg/kg 1009 to 3950 mg/kg	- -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
NUOSEPT 78	Eyes - Cornea opacity Skin - Mild irritant	Rabbit Rabbit	59 -	- -	21 days -

Sensitization

Product/ingredient name	Route of exposure	Species	Result
NUOSEPT 78	skin	Mouse	Sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
NUOSEPT 78	-	Experiment: In vivo Subject: Mammalian-Animal	Negative

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Not available.				

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : May cause an allergic skin reaction.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Section 11. Toxicological information

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	500 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
NUOSEPT 78	Acute EC50 10 to 100 mg/l Acute LC50 10 to 100 mg/l	Daphnia Fish	48 hours 96 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2-aminoethanol	-	>90 % - Readily - 21 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
NUOSEPT 78	-	-	Readily

Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
NUOSEPT 78	-1.3	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	ADG	ADR/RID	IMDG	IATA/ICAO
UN number	Not regulated	Not regulated	Not regulated	Not regulated
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

Standard Uniform Schedule of Medicine and Poisons

Not regulated

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

Australia inventory (AICS) : All components are listed or exempted.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: **Japan inventory (ENCS)**: All components are listed or exempted. **Japan inventory (ISHL)**: All components are listed or exempted.
Malaysia	: Not determined
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
United States	: All components are listed or exempted.

Section 16. Any other relevant information

History

Date of printing	: 7/30/2019
Date of issue/Date of revision	: 7/26/2019
Date of previous issue	: 3/16/2016
Version	: 1.01
Key to abbreviations	: ADG = Australian Dangerous Goods ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) NOHSC = National Occupational Health and Safety Commission

Section 16. Any other relevant information

SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
Acute Tox. 4, H302 Eye Irrit. 2A, H319 Skin Sens. 1, H317	Expert judgment Expert judgment Expert judgment

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Section 1. Identification

Product identifier : OMYACARB 10

Product code : OMYACARB 10

ADG : -

Product type : Solid.

Identified uses : Calcium carbonate

Supplier's details :
Baker Hughes
Level 14, 216 St Georges Terrace
Perth
Western Australia 6000

Tel: +618 9215 0601
Fax: +618 9215 0698

Emergency telephone number :
CHEMTREC Emergency Telephone Numbers (Asia Pacific Region):
- Australia: (02) 9037 2994
- Brunei: +(65)-31581349 (Mandarin/English)
- China: 4001-204937 (Mandarin) *
- Hong Kong: 800-968-793 (Cantonese) *
- Indonesia: 001-803-017-9114 (Bahasa Indonesian) *
- Japan: +(81)-345209637 (Japanese)
- Malaysia: 1-800-815-308 (Bahasa Malay) *
- New Zealand: 9801 0034
- Philippines: 1-800-1-116-1020 (Tagalog) *
- PNG: +(61) 2 9037 2994
- Singapore: 800-101-2201 (Mandarin) *
- South Korea: 00-308-13-2549 (Korean) *
- Taiwan: 00801-14-8954 (Mandarin) *
- Thailand: 001-800-13-203-9987 (Thai) *
- Vietnam: +(84)-838012436 (Vietnamese)

- UK: +(44) 870-820-0418
- USA: +(1) 703-527-3887 (CHEMTREC International 24 hour)

* Number can only be dialled in-country

Section 2. Hazard(s) identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Precautionary statements (Code) :

Supplemental label elements : Not applicable.

Other hazards which do not result in classification : None known.

Section 3. Composition and ingredient information

Substance/mixture : Substance

Ingredient name	% (w/w)	CAS number
Limestone	60 - 100	1317-65-3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Section 5. Firefighting measures

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide,metal oxide/oxides

Hazchem code : -

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Limestone	**EH40/2005 WELs (United Kingdom (UK), 8/2018).** TWA: 10 mg/m³ 8 hours. Form: inhalable dust TWA: 4 mg/m³ 8 hours. Form: respirable dust

Section 8. Exposure controls and personal protection

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid.

Colour : White.

Odour : Odourless.

Odour threshold : Not available.

pH : Not available.

Melting point : 825°C (1517°F)

Boiling point : Not available.

Flash point : Closed cup: Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapour pressure : Not available.

Vapour density : Not available.

Relative density : 2.7 (20°C)

Solubility : Very slightly soluble in the following materials: cold water.

Solubility in water : 0.013 g/l

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Not available.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Irritation/Corrosion

Skin : No known significant effects or critical hazards.

Eyes : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Sensitisation

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Not available.			

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Not available.			

Aspiration hazard

Name	Result
Not available.	

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

No specific data.

Section 11. Toxicological information

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity : No known significant effects or critical hazards.

Persistence and degradability

Not available.

Section 13. Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Transport hazard class(es)	PG*	Label
ADR/RID	Not regulated.	-	-	-	
ADG	Not regulated.	-	-	-	
IMDG	Not regulated.	-	-	-	
IATA	Not regulated.	-	-	-	

PG* : Packing group

Regulatory information	Environmental hazards	Additional information
ADR/RID Class	No.	Hazchem code -
ADG Class	No.	Hazchem code -

Section 14. Transport information

IMDG Class	No.	-
IATA Class	No.	-

Additional information**: A • in the Hazchem code indicates that Alcohol Resistant Foam is the preferred extinguishing medium. If not available, use the extinguishing medium indicated by the number in the Hazchem code.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

Section 15. Regulatory information

Standard Uniform Schedule of Medicine and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

Australia inventory (AICS) : All components are listed or exempted.

References : **National Code of Practice for the Control of Workplace Hazardous Substances.**

National Code of Practice for the Labelling of Workplace Substances.
National Code of Practice for the Preparation of Material Safety Data Sheets.
Approved Criteria for Classifying Hazardous Substances.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Any other relevant information

History

Date of printing : 5 August 2020.

Date of issue/Date of revision : 5 August 2020

Date of previous issue : 14 February 2017

Version : 1.01

Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient

Section 16. Any other relevant information

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
NOHSC = National Occupational Health and Safety Commission
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
Not classified.	

References : Not available.

Indicates information that has changed from previously issued version.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

SAFETY DATA SHEET

Cleansorb
A NEWPARK Company

ORCA™ FG3

Issue Date 17-Dec-2019 **Revision date** 18-Dec-2023 **Version** 1.2
EN

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

0

Product identifier

Product Name ORCA™ FG3

Product Code NDF00660

Other means of identification

Pure substance/mixture Substance

Recommended use of the chemical and restrictions on use

Recommended Use Organic acid precursor

Uses advised against No information available

Details of manufacturer or importer

Supplier
Newpark Drilling Fluids (Australia) LTD
11 Alacrity Place
Henderson, WA, 6166
Australia

For further information, please contact

Contact Point Telephone: +61 8 9410 8200
Fax: +61 8 9410 8299
Website: www.newpark.com

Emergency telephone number

Emergency telephone number +(61)-290372994 (Australia); +(64)-98010034 (New Zealand); 1-800-424-9300 (International Number);

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Serious eye damage/eye irritation	Category 2A - (H319)

Label elements

Exclamation mark



Signal word
Warning

Hazard statements
H319 - Causes serious eye irritation

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Other hazards which do not result in classification
General Hazards
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Chemical name	CAS No	Weight-%	REACH registration number
Organic esters	-	>98	No data available

Section 4: FIRST AID MEASURES

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Emergency telephone number Poisons Information Center, Australia: 13 11 26
Poisons Information Center, New Zealand: 0800 764 766

Inhalation Remove to fresh air.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

Skin contact Wash skin with soap and water.

Ingestion Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Alcohol resistant foam. Dry chemical or CO2. Water spray (fog).

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous combustion products Carbon monoxide. Carbon dioxide (CO2). Nitrogen oxides (NOx).

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Hazchem code Not Listed.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wash thoroughly after handling.

Other Information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Place in appropriate chemical waste container.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Wash contaminated clothing before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Use personal protection recommended in Section 8. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from sunlight.

Incompatible materials Strong oxidizing agents Strong reducing agents Stong alkaline agents

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing. Long sleeved clothing.

Hand protection Wear suitable gloves. Impervious gloves. Nitrile rubber.

Respiratory protection In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	liquid	**Odor**	Mild.
Color	colorless to Pale yellow	**Odor threshold**	No information available

Property	**Values**	**Remarks • Method**
pH	2.8	10% solution
Melting point / freezing point	< -20 °C	
Boiling point / boiling range	132 °C	
Flash point	> 150 °C	Seta Closed Cup
Evaporation rate		No information available
Flammability (solid, gas)		Not applicable
Flammability Limit in Air		No information available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available

Vapor density		No data available
Relative density	1.293	
Water solubility	Soluble in water	
Solubility(ies)		No information available
Partition coefficient		No information available
Autoignition temperature	430 °C	
Hyphen		No information available
Kinematic viscosity		
Dynamic viscosity		

Other information

Softening point	No information available
Molecular weight	No information available
VOC content	No information available
Liquid Density	No information available
Bulk density	1293 kg/m^3
Particle Size	No information available
Particle Size Distribution	No information available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity Stable under normal conditions.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Heat. Humidity.

Incompatible materials

Incompatible materials Strong oxidizing agents. Strong reducing agents. Stong alkaline agents.

Hazardous decomposition products

Hazardous Decomposition Products Carbon monoxide. Carbon dioxide (CO2).

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Skin contact Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

Ingestion Specific test data for the substance or mixture is not available Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

Symptoms May cause redness and tearing of the eyes.

Numerical measures of toxicity - Product Information

Unknown acute toxicity 100 % of the mixture consists of ingredient(s) of unknown toxicity
100 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
100 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation MAY CAUSE SKIN IRRITATION.

Serious eye damage/eye irritation Classification based on data available for ingredients. Irritating to eyes.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity The environmental impact of this product has not been fully investigated.

Unknown aquatic toxicity 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Organic esters	-	96H LC50 74.31 mg/l, Sheepshead minnow	-	96H LC50 215.65 mg/l, Acartia tonsa

Persistence and degradability

Persistence and degradability Readily biodegradable.

Bioaccumulative potential

Bioaccumulation None known.

Mobility

Mobility in soil Soluble in water. Readily absorbed in soil.

Mobility No information available.

Other adverse effects

Other adverse effects No information available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of waste in accordance with environmental legislation. Dispose of in accordance with local regulations.

Contaminated packaging Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

ADG Not regulated

IATA Not Regulated

IMDG Not Regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Does not comply
ENCS	Does not comply

IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Complies
NZIoC	Does not comply

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Brunei Poison List Not applicable.

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 17-Dec-2019

Revision date 18-Dec-2023

Revision Note
No information available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

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End of Safety Data Sheet

SAFETY DATA SHEET

Cleansorb
A NEWPARK Company

ORCA™ HA

Issue Date 17-Dec-2019 **Revision date** 18-Dec-2023 **Version** 1.3
EN

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

Product identifier

Product Name ORCA™ HA

Product Code NDF00658

Other means of identification

Pure substance/mixture Substance

Recommended use of the chemical and restrictions on use

Recommended Use Organic acid precursor

Uses advised against No information available

Details of manufacturer or importer

Supplier
Newpark Drilling Fluids (Australia) LTD
11 Alacrity Place
Henderson, WA, 6166
Australia

For further information, please contact

Contact Point Telephone: +61 8 9410 8200
Fax: +61 8 9410 8299
Website: www.newpark.com

Emergency telephone number

Emergency telephone number +(61)-290372994 (Australia); +(64)-98010034 (New Zealand); 1-800-424-9300 (International Number);

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Hazard statements
Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Other hazards which do not result in classification

General Hazards

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Chemical name	CAS No	Weight-%
Non-hazardous ingredients	-	100

Section 4: FIRST AID MEASURES

Description of first aid measures

Emergency telephone number Poisons Information Center, Australia: 13 11 26
Poisons Information Center, New Zealand: 0800 764 766

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media Dry chemical, CO2, water spray or regular foam.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous combustion products Carbon monoxide. Carbon dioxide (CO2). Nitrogen oxides (NOx).

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Hazchem code Not Listed.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Soak up with inert absorbent material.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Wash contaminated clothing before reuse.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Long sleeved clothing.

Hand protection Protective gloves.

Respiratory protection In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls Do not allow into any sewer, on the ground or into any body of water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	liquid	**Odor**	Mild.
Color	colorless to Pale yellow	**Odor threshold**	No information available

Property	**Values**	**Remarks • Method**
pH		No information available
Melting point / freezing point	-78 °C	
Boiling point / boiling range	280 °C	
Flash point	95 °C	
Evaporation rate		No information available
Flammability (solid, gas)		No information available
Flammability Limit in Air		No information available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available
Vapor density		No data available
Relative density	1.18	
Water solubility	Soluble in water	
Solubility(ies)		No information available
Partition coefficient		No information available
Autoignition temperature	430 °C	
Hyphen	250-280 deg C	
Kinematic viscosity	17mPas@25 deg C	
Dynamic viscosity		

Other information

Softening point	No information available
Molecular weight	No information available
VOC content	No information available
Liquid Density	No information available
Bulk density	1180 kg/m^3
Particle Size	No information available
Particle Size Distribution	No information available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity Not reactive under normal conditions.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials None known based on information supplied.

Hazardous decomposition products

Hazardous Decomposition Products None known based on information supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information .

Inhalation Specific test data for the substance or mixture is not available.
Prolonged exposure may cause chronic effects

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

Symptoms No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity 100 % of the mixture consists of ingredient(s) of unknown toxicity
100 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
100 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Oral LD50 LD_{50} 4000 mg/kg, Oral, Rat Based on available data the classification criteria are not met
Dermal LD50 LD_{50} > 2000 mg/kg, Dermal, Rabbit Based on available data the classification criteria are notmet.

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity	The environmental impact of this product has not been fully investigated.
Unknown aquatic toxicity	0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Persistence and degradability

Persistence and degradability	The product is expected to be biodegradable.

Bioaccumulative potential

Bioaccumulation	The product does not contain any substances expected to be bioaccumulating. BCF: 0.04.

Mobility

Mobility in soil	No information available.
Mobility	The product is water-soluble and may spread in water systems.

Other adverse effects

Other adverse effects	No information available.
Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products	Dispose of waste in accordance with environmental legislation. Dispose of in accordance with local regulations.
Contaminated packaging	Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

ADG	Not regulated
IATA	Not Regulated

IMDG Not Regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Brunei Poison List Not applicable.

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 17-Dec-2019

Revision date 18-Dec-2023

Revision Note
No information available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

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End of Safety Data Sheet

SDS no. 141381
Version 4
Revision date 28-Nov-2022
Supersedes Date: 26-Nov-2018

Safety Data Sheet
POLYPAC* (All Grades)

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name POLYPAC* (All Grades)
Product code 141381

Synonyms POLYPAC* ELV, POLYPAC* R, POLYPAC* UL

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Fluid loss reducer. Viscosifier.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Contains
Polyanionic cellulose

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Suspended dust may present a dust explosion hazard

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Polyanionic cellulose	Listed	Proprietary	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing agent suitable for type of surrounding fire.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Sodium oxides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to applicable federal, state and local regulations.

Environmental exposure controls
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Take precautionary measures against static

discharges. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. Do not eat, drink or smoke when using this product Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits. Take precautionary measures against static discharges.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Protect from moisture Avoid contact with: Strong oxidizing agents

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, TWA 4mg/m³ Respirable Dust, 10mg/m³ Total Dust.

Component Information

Chemical Name	Arabic	Australia	Egypt
Polyanionic cellulose	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Polyanionic cellulose	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Polyanionic cellulose	10 mg/m³ MAC	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Polyanionic cellulose	Not determined	Not determined	10 mg/m³ MAC
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Polyanionic cellulose	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Safety glasses with side-shields Tightly fitting safety goggles
Hand protection	Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Nitrile Neoprene Frequent change is advisable
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Granules Powder
Odor	Odorless
Color	White

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution	6.0 - 8.5	@ 1% solution
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.5 - 1.7	@ 25 °C
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	

Kinematic viscosity	No information available
Dynamic viscosity	No information available
Partition Coefficient (n-octanol/water)	Not determined
Density and/or Relative Density	No information available
Explosive properties	Suspended dust may present a dust explosion hazard
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Combustible material. Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static charges. Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.
Eye contact	Dust may cause mechanical irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Polyanionic cellulose	= 27000 mg/kg (Rat)	No data available	> 5800 mg/m³ (Rat) 4 h

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Polyanionic cellulose	No information available	No information available	No information available

12.2 Persistence and degradability

Product is biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required.
Group number	Not required.

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	26-Nov-2018
Revision date	28-Nov-2022
Version	4
This SDS has been revised in the	All sections No changes with regard to classification have been made.

following section(s)

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	1
Physical hazard	0
PPE	E

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SAFETY DATA SHEET

POTASSIUM CHLORIDE (KCL)

Version 1

Section 1. Identification

Product identifier : POTASSIUM CHLORIDE (KCL)

Product code : 100114

ADG : -

Product type : Powder.

Identified uses : Clay control

Supplier's details : Baker Hughes, Australia
108 Poole Street,
Welshpool,
Western Australia 6106,
Australia

Tel: +618 9350 3800
Fax: +618 9350 5453

Emergency telephone number : CHEMTREC Emergency Telephone Numbers (Asia Pacific Region):
- Australia: (02) 9037 2994
- Brunei: +(65)-31581349 (Mandarin/English)
- China: 4001-204937 (Mandarin) *
- Hong Kong: 800-968-793 (Cantonese) *
- Indonesia: 001-803-017-9114 (Bahasa Indonesian) *
- Japan: 0800-300-5842 (Japanese)
- Malaysia: 1-800-815-308 (Bahasa Malay) *
- New Zealand: 9801 0034
- Philippines: 1-800-1-116-1020 (Tagalog) *
- PNG: +(61) 2 9037 2994
- Singapore: 800-101-2201 (Mandarin) *
- South Korea: 00-308-13-2549 (Korean) *
- Taiwan: 00801-14-8954 (Mandarin) *
- Thailand: 001-800-13-203-9987 (Thai) *
- Vietnam: +(84)-838012436 (Vietnamese)

- UK: +(44) 870-820-0418
- USA: +(1) 703-527-3887 (CHEMTREC International 24 hour)

* Number can only be dialled in-country

Section 2. Hazard(s) identification

Classification of the substance or mixture : SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A

GHS label elements

Hazard pictograms :



GHS07

Signal word : WARNING

Hazard statements : H319 - Causes serious eye irritation.

Precautionary statements

Section 2. Hazard(s) identification

Prevention : Wear eye or face protection.

Response : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage : Not applicable.

Disposal : Not applicable.

Precautionary statements (Code) : -, P280, P305 + P351 + P338, P337 + P313, -, -

Supplemental label elements : Not applicable.

Other hazards which do not result in classification : None known.

Additional information

Mixing of chemicals may create a reaction hazardous to one's health, to the environment, or a potential fire hazard.

Section 3. Composition and ingredient information

Substance/mixture : Substance

Ingredient name	% (w/w)	CAS number
potassium chloride	60 - 100	7447-40-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 15 minutes. Check for and remove any contact lenses. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Section 4. First aid measures

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:,pain or irritation,watering,redness

Inhalation : respiratory tract irritation,coughing

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : halogenated compounds,metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Section 6. Accidental release measures

Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

Control parameters

Occupational exposure limits

None.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls and personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. Recommended: > 8 hours (breakthrough time): neoprene rubber Gloves

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: No personal respiratory protective equipment normally required.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Information on basic physical and chemical properties

Appearance

Physical state : Solid. [Granular. / Powder.]

Colour : Reddish-white.

Odour : Odourless.

Odour threshold : Not available.

pH : 9.2

Melting point/freezing point : 768 to 776°C

Boiling point, initial boiling point, and boiling range : 1413 to 1500°C (2575.4 to 2732°F)

Flash point : Closed cup: Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : May be combustible at high temperature.

Lower and upper explosion limit/ flammability limit : Not applicable.

Vapour pressure : Not available.

Section 9. Physical and chemical properties and safety characteristics

Relative vapour density : Not applicable.

Relative density : 1.98 to 1.99

Solubility(ies) :

Media	Result
cold water hot water	Easily soluble Easily soluble

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : Not applicable.

Decomposition temperature : Not available.

Viscosity : Not available.

Explosive properties : Not available.

Oxidising properties : Not available.

Other information

Pour point : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Reactive or incompatible with the following materials: oxidising materials.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
potassium chloride	LD50 Oral	Rat	2600 mg/kg	-

Conclusion/Summary : No known significant effects or critical hazards.

Irritation/Corrosion

Skin : No known significant effects or critical hazards.

Eyes : May cause eye irritation.

Respiratory : No known significant effects or critical hazards.

Sensitisation

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Section 11. Toxicological information

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:,pain or irritation,watering,redness

Inhalation : respiratory tract irritation,coughing

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity : No known significant effects or critical hazards.

Persistence and degradability

Not available.

Section 13. Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Transport hazard class(es)	PG*	Label
ADR/RID	Not regulated.	-	-	-	
ADG	Not regulated.	-	-	-	
IMDG	Not regulated.	-	-	-	
IATA	Not regulated.	-	-	-	

PG* : Packing group

Regulatory information	Environmental hazards	Additional information
ADR/RID Class	No.	-
ADG Class	No.	-
IMDG Class	No.	-
IATA Class	No.	-

Additional information**: A • in the Hazchem code indicates that Alcohol Resistant Foam is the preferred extinguishing medium. If not available, use the extinguishing medium indicated by the number in the Hazchem code.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

Australia inventory (AIIC) : All components are listed or exempted.

References : **National Code of Practice for the Control of Workplace Hazardous Substances.**

National Code of Practice for the Labelling of Workplace Substances.
National Code of Practice for the Preparation of Material Safety Data Sheets.
Approved Criteria for Classifying Hazardous Substances.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Any other relevant information

History

Date of printing : 29 January 2024.

Date of issue/Date of revision : 29 January 2024

Date of previous issue : No previous validation

Version : 1

Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A	Calculation method

Section 16. Any other relevant information

References : Not available.

Indicates information that has changed from previously issued version.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

Safety Data Sheet
POTASSIUM FORMATE BRINE

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name POTASSIUM FORMATE BRINE
Product code PID1305

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Clear-brine workover and completion fluid.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

–

Contains
Potassium formate

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Potassium formate	209-677-9	590-29-4	60-100

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact Wash skin thoroughly with soap and water. Get medical attention if irritation persists.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Potassium oxides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. Do not eat, drink or smoke when using this product Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Avoid contact with: Strong oxidizing agents Nitric acid Hydrogen peroxide Sulfuric acid.

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Contains no substances with occupational exposure limit values

Component Information

Chemical Name	Arabic	Australia	Egypt
Potassium formate	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Potassium formate	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Potassium formate	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Potassium formate	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Potassium formate	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls

Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Butyl rubber Break through time >480 minutes Glove thickness 0.7 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear appropriate personal protective clothing to prevent skin contact Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	Odorless
Color	Clear

Property	**Values**	**Remarks**
pH	9-10	
pH @ dilution	8.5	@10%
Melting / freezing point	-15°C - -4°C / 5 - 24.8 °F	
Boiling point/range	135 - 153 °C / 275 -307.4 °F	
Flash point	> 100 °C / > 212 °F	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	10 - 41 mmHg	@ 20 °C
Relative Vapor Density	No information available	
Specific gravity	1.01 - 1.58	@ 20 °C
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	

Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	13 cps	@ 25 °C
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

Strong oxidizing agents. Nitric acid. Hydrogen peroxide. Sulfuric acid.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Potassium formate	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Potassium formate	LC50 > 1000 mg/l 96h Oncorhynchus mykiss ECHA data	EC50 1000 mg/l 96h freshwater algae ECHA data	EC50 > 100 mg/l 48h Daphnia magna EHCA data

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
Potassium formate	Readily biodegradable

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
Potassium formate	No information available

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated
IMDG/ANTAQ Hazard class Not regulated
ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group
ADR/RID/ADN/ADG Packing group Not regulated
IMDG/ANTAQ Packing group Not regulated
ICAO/ANAC Packing group Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
The product has been assessed and contained in Chapters 17/18 of the IBC Code and the latest MEPC.2/Circular and is permitted to be carried under Annex II of MARPOL and resolution A.673 (16) Offshore Supply Vessel Code. Ship Type:- 3. Pollution Category:- Z. Proper Shipping Name: Potassium formate solution

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required.
Group number	Not required.

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code) with amendments.MARPOL 73/78; Marine Environmental Protection Committee (MEPC) Circulars.

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Does not comply
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam

Supersedes Date:	03-Aug-2017
Revision date	02-Sep-2022
Version	3
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	0
Flammability	1
Physical hazard	0
PPE	E

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HALLIBURTON

SAFETY DATA SHEET

POZMIX® A

Revision date: 10-Jan-2024 **Revision Number:** 22

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name POZMIX® A

Product Code(s) HM001204

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended use Cement Additive
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

GHS Classification

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 2

Label elements



Signal word
DANGER

Hazard statements
Causes skin irritation.
Causes serious eye damage.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements - Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/clothing and eye/face protection.
Wash face, hands and any exposed skin thoroughly after handling.
Do not breathe dust/fume/gas/mist/vapors/spray.
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention.
IF ON SKIN: Wash with plenty of water and soap.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.
Precautionary Statements - Storage
Store locked up.
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification
No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Calcium oxide	1305-78-8	10 - 30%
Crystalline silica, quartz	14808-60-7	1 - 5%

Section 4: First aid measures

Description of first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Skin contact Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical

attention if irritation develops and persists.

Ingestion Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media None - does not burn.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical No information available.

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Ensure adequate ventilation. Take off contaminated clothing and wash before reuse.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store in a cool, dry location. Store in a well ventilated area. Store locked up. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Product has a shelf life of 36 months. Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Incompatible materials Hydrofluoric acid.
Strong acids. Strong bases. Strong oxidizing agents.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Australia	New Zealand	ACGIH TLV
Calcium oxide 1305-78-8	TWA: 2 mg/m³	TWA: 2 mg/m³	TWA: 2 mg/m³
Crystalline silica, quartz 14808-60-7	TWA: 0.05 mg/m³	TWA: 0.05 mg/m³	-

Chemical name	OSHA PEL	NIOSH
Calcium oxide 1305-78-8	TWA: 5 mg/m³ (vacated) TWA: 5 mg/m³ not in effect as a result of reconsideration	IDLH: 25 mg/m³ TWA: 2 mg/m³
Crystalline silica, quartz 14808-60-7	TWA: 50 µg/m³ (vacated) TWA: 0.1 mg/m³ respirable dust : (250)/(%SiO2 + 5) mppcf TWA respirable fraction : (10)/(%SiO2 + 2) mg/m³ TWA respirable fraction	IDLH: 50 mg/m³ respirable dust TWA: 0.05 mg/m³ respirable dust

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses or goggles to protect against exposure. Tight sealing safety goggles.

Skin and body protection	Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact. Wear suitable protective clothing. Long sleeved clothing.
Hand protection	Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace. Wear suitable gloves. Impervious gloves.
Respiratory protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.
Environmental exposure controls	No information available.
Other protective equipment	Eyewash fountains and safety showers must be easily accessible.
Thermal hazards	No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Color	Gray to black
Odor	Odorless.
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH		None known
Melting point / freezing point	No data available	
Initial boiling point and boiling range		
Flash point	No data available	None known
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	
Relative vapor density	No data available	
Relative density	2.3	
Water solubility	Insoluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity	No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data
Sensitivity to mechanical impact None.
Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Hydrofluoric acid.
Strong acids. Strong bases. Strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Section 11: Toxicological information

Information on likely routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Ingestion Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms Redness. Burning. May cause blindness. May cause redness and tearing of the eyes.

Acute toxicity .

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	99,999.00	mg/kg
ATEmix (dermal)	99,999.00	mg/kg
ATEmix (inhalation-gas)	99,999.00	ppm
ATEmix (inhalation-vapor)	99,999.00	mg/l
ATEmix (inhalation-dust/mist)	99,999.00	mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Calcium oxide	> 2000 mg/kg (Rat)	-	> 6.04 mg/L (Rat) 4 h
Crystalline silica, quartz	> 15000 mg/kg (human)	-	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes skin irritation. No information available.

Chemical name	Skin corrosion/irritation
Calcium oxide 1305-78-8	Causes moderate skin irritation. (Rabbit)
Crystalline silica, quartz 14808-60-7	Non-irritating to the skin

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes burns. Causes serious eye damage. No information available.

Chemical name	Serious eye damage/eye irritation
Calcium oxide 1305-78-8	Causes eye burns (Rabbit)
Crystalline silica, quartz 14808-60-7	Non-irritating to the eye No information available

Respiratory or skin sensitization No information available.

Chemical name	Respiratory sensitization
Calcium oxide 1305-78-8	No information available
Crystalline silica, quartz 14808-60-7	No information available
Chemical name	**Skin sensitization**
Calcium oxide 1305-78-8	Patch test on human volunteers did not demonstrate sensitization properties
Crystalline silica, quartz 14808-60-7	No information available

Germ cell mutagenicity No information available.

Chemical name	Germ cell mutagenicity
Calcium oxide 1305-78-8	In vitro tests did not show mutagenic effects.
Crystalline silica, quartz 14808-60-7	Not regarded as mutagenic.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer. No information available.

Chemical name	Carcinogenicity
Calcium oxide 1305-78-8	Did not show carcinogenic effects in animal experiments (similar substances)
Crystalline silica, quartz 14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	Australia	European Union	IARC
Crystalline silica, quartz - 14808-60-7	Carc. 1A	-	Group 1

Legend

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

Reproductive toxicity No information available.

Chemical name	Reproductive toxicity
Calcium oxide 1305-78-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Crystalline silica, quartz 14808-60-7	No information available

STOT - single exposure No information available.

Chemical name	STOT - single exposure
Calcium oxide 1305-78-8	May cause respiratory irritation.
Crystalline silica, quartz 14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure. No information available.

Chemical name	STOT - repeated exposure
Calcium oxide 1305-78-8	None under normal use conditions
Crystalline silica, quartz 14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Aspiration hazard No information available.

Chemical name	Aspiration hazard
Calcium oxide 1305-78-8	Not applicable
Crystalline silica, quartz 14808-60-7	No information available

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Unknown aquatic toxicity 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Calcium oxide	-	LC50 (96h) 1070 mg/L (Cyprinus carpio) NOEC (46d) 100 mg/L (Tilapia nilotica)	-	-
Crystalline silica, quartz	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	-	LL50(24 h)>10000 mg/L (Daphnia magna)

Terrestrial ecotoxicty There is no data for this product.

Persistence and degradability No information available

Chemical name	Persistence and degradability
Calcium oxide 1305-78-8	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, quartz 14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation No information available.

Mobility No information available

Chemical name	Mobility
Calcium oxide 1305-78-8	No information available
Crystalline silica, quartz 14808-60-7	No information available

Other adverse effects

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
Poison Schedule Number 4 2 6 5

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	Calcium oxide - 1305-78-8
Present	-	Crystalline silica, quartz - 14808-60-7	Contact supplier for inventory compliance status
-			

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

National pollutant inventory
Subject to reporting requirement

International Inventories

AIIC	Contact supplier for inventory compliance status.
NZIoC	Contact supplier for inventory compliance status.
TSCA	Contact supplier for inventory compliance status.
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.

Legend:
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Section 16: Any other relevant information

Revision date 10-Jan-2024

Reason for revision Update to Format

Key or legend to abbreviations and acronyms used in the safety data sheet

ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

Mono Propylene Glycol
SAFETY DATA SHEET

According to Model Work Health and Safety Regulations

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product Description: Propylene Glycol
Synonyms: 1,2-Propylene glycol
CAS-No 57-55-6
EC-No. 203-473-3
Molecular Formula C3H8O2
Reach Registration Number 01-2119456816-28

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemical, Industrial use – inactive carrier, coolant, antifreeze.

1.3. Details of the supplier of the safety data sheet
Company: R&D Solutions
Telephone: +61 8 9486 9350
Address: Suite 3, Level 1, 610 Murray St, West Perth WA 6005, Australia
E-mail address: contact@randd-solutions.com

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture
Classification according to Model Work Health and Safety Regulations:
ADG Code: Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code).
SWA Hazard Classification: Non-Hazardous according to the criteria of Safe Work Australia [NOHSC:1008(2004)]
Not classified as hazardous according to the criteria of Hazardous Substances Information System (HSIS), Safe Work Australia.

SECTION 3. Composition/information on ingredients

Chemical Entity	CAS Number	Proportion
Propane-1,2-Diol	57-55-6	100.0 %

SECTION 4: First aid measures

4.1. Description of first aid measures

Swallowed: No treatment necessary unless large quantities are swallowed. Rinse mouth with water. Give water to drink. Do NOT induce vomiting. If symptoms develop, seek medical attention.
Eye: Immediately flush eyes with plenty of water for 15 minutes, holding eyelids open. If irritation persists, seek medical attention.
Skin: Remove contaminated clothing. Wash affected area with soap and plenty of water. If irritation persists, seek medical advice
Inhaled: Remove victim from exposure to fresh air. If rapid recovery does not occur, seek medical advice.
Advice to Doctor: Treat symptomatically based on judgement of doctor and individual reactions of patient. Following cases of gross over-exposure, investigation of liver, kidney and eye function may be advisable. Records of such incidents should be maintained for future reference
Medical Conditions Aggravated by Exposure:
No information available on medical conditions which are aggravated from exposure to this product

SECTION 5. Fire-fighting measures

General Measures: If safe to do so, remove containers from the path of fire.
Flammability Conditions: Will only burn if enveloped in a pre-existing fire. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Extinguishing Media: Large fires should only be fought by properly trained fire fighters. Use dry chemical powder, carbon dioxide or protein based foam. If water is to be used, it must only be sprayed in large quantities. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do NOT use water in a jet.
Fire and Explosion Hazard: Non-flammable liquid.
Hazardous Products of Combustion: Hazardous decomposition products may include noxious and toxic fumes of carbon monoxide and carbon dioxide.
Special Fire Fighting Instructions: Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment: Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit.

Flash Point:	99°C
Lower Explosion Limit:	2.6 %
Upper Explosion Limit:	12.6 %
Auto Ignition Temperature:	421°C
Hazchem Code:	No Data Available

SECTION 6: Accidental release measures

General Response Procedure: Eliminate all sources of ignition. Increase ventilation. Avoid walking through spilled product as it may be slippery. Use clean, non-sparking tools and equipment.
Clean Up Procedures: For large spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with absorbent material and dispose of promptly as hazardous waste. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of promptly as Hazardous waste.
Containment: Stop leak if safe to do so.
Environmental Precautionary Measures: Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.
Evacuation Criteria: Evacuate all unnecessary personnel.
Personal Precautionary Measures: Personnel involved in the clean up should wear full protective clothing as listed in section 8.

SECTION 7. Handling and storage

Handling: Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Avoid prolonged or repeated exposure. Use local exhaust extraction over processing area.
For lines and fittings, avoid copper, copper alloys, zinc. Air-dry contaminated clothing in a well-ventilated area before laundering. Handling Temperature: Ambient.
Prevent all contact with water and moist atmosphere. Drums should be stacked to a maximum of 3 high. Lines should be purged with nitrogen before and after product transfer. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.
Storage: Store in a cool, dry, diked (bunded), well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Protect from direct sunlight, moisture, heat and static discharges. Prevent all contact with water and moist atmosphere. Prevent ingress of water. Nitrogen blanket recommended for large tanks (capacity 100m3 or higher). Storage temperature: 40 Deg C Maximum. This product is classified as a 'C1' Combustible Liquid for the purpose of storage and handling in accordance with the requirements of AS1940.
Container: Store in original packaging as approved by manufacturer

SECTION 8. Exposure controls/personal protection

General: The following exposure standard has been established by the Safe Work Australia (SWA);
Propane-1,2-diol: Total (vapour and particulates) CAS 57-55-6: TWA = 150 ppm (474 mg/m3)
NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.

These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
Exposure Limits: No Data Available
Biological Limits: No information available on biological limit values for this product.
Engineering Measures: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded.
Personal Protection Equipment: RESPIRATOR: No respiratory protection is ordinarily required under normal conditions of use (AS1715/1716).
EYES: Chemical splash goggles (AS1336/1337).
HANDS: Use gloves approve to relevant standard made from neoprene, PVC (AS2161).
CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).
Work Hygienic Practices: Wash hands before eating, drinking, smoking and using the toilet.

SECTION 9. Physical and chemical properties

Physical State	Liquid
Appearance	Liquid
Odour	Odourless
Colour	Colourless
pH	7
Vapour Pressure	10 Pa (@20°C)
Relative Vapour Density	2.5 Air = 1
Boiling/Melting Point	186-189 °C
Solubility	Miscible
Freezing Point	-59 °C
Specific Gravity	1.04
Flash Point	99 °C
Auto Ignition Temp	421 °C
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1036 kg/cm3
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	ca. -1
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	20 °C
Viscosity	55 mPa.s (@21 °C)
Volatile Percent	No Data Available

SECTION 10. Stability and reactivity

General Information: Combustible liquid. Hygroscopic.
Chemical Stability: Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid: Avoid excessive heat, flame, sparks and temperatures above 40 Deg C.
Materials to Avoid: Incompatible materials include strong oxidising agents, strong acids, moisture, and all sources of ignition.
Hazardous Decomposition Products: Hazardous decomposition products may include noxious and toxic fumes of oxides of carbon, carbonyl and dioxolane derivatives may also be formed.
Hazardous Polymerisation: Hazardous polymerization has not been reported.

SECTION 11. Toxicological information

General Information: Information given is based on product testing, and/or similar products, and/or components:
Oral LD50 Rat: >2000mg/Kg
Dermal LD50 Rabbit : >2000mg/Kg
Inhalation Toxicity: LC50 greater than near saturated vapour concentration.
SKIN: Not Irritating to skin.
EYES: Essentially non-irritating to eyes.
RESPIRATORY: Not expected to be a respiratory irritant.
SENSITISATION: Not a skin sensitiser.
REPEATED DOSE: Low systemic toxicity on repeated exposure. Cats given high doses of MPG in diet showed a decrease in red blood cell survival.
MUTAGENICITY: Not mutagenic.
CARCINOGENICITY: Not carcinogenic in animal studies.
REPRODUCTIVE/DEVELOPMENTAL: Not a developmental toxicant.
Carcinogen Category: 0

SECTION 12. Ecological information

Ecotoxicity
Acute Toxicity:
Fish: Low toxicity: LC/EC/IC50 >100 mg/L
Aquatic Invertebrates: Low toxicity: LC/EC/IC50 >100 mg/L
Algae: Low toxicity: LC/EC/IC50 >100 mg/L
Microorganisms: Expected to have low toxicity: LC/EC/IC50 >100 mg/L
Persistence/Degradability: Readily biodegradable.
Mobility: If the product enters soil, it will be highly mobile and may contaminate ground water.
Environmental Fate: Avoid contaminating waterways, drains and sewers.
Bioaccumulation Potential: Does not bioaccumulate significantly.
Environmental Impact: No Data Available

SECTION 13. Disposal considerations

General Information: Recover or recycle if possible. Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility. Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Send to drum recoverer or metal reclaimer.
Special Precautions for Land Fill: Contact a specialist disposal company or the local waste regulator for advice

SECTION 14. Transport information

Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code)

Land transport (ADG): Proper Shipping Name PROPYLENE GLYCOL
Class: No Data Available
Subsidiary Risk(s): No Data Available
UN Number: No Data Available
Hazchem: No Data Available
Pack Group: No Data Available
Special Provision: No Data Available

Sea transport (IMDG): Proper Shipping Name PROPYLENE GLYCOL
Class: No Data Available
Subsidiary Risk(s): No Data Available
UN Number: No Data Available
Hazchem: No Data Available
Pack Group: No Data Available
Special Provision: No Data Available
EMS: No Data Available
Marine Pollutant: No

Air transport (IATA): Proper Shipping Name PROPYLENE GLYCOL
Class: No Data Available
Subsidiary Risk(s): No Data Available
UN Number: No Data Available
Hazchem: No Data Available
Pack Group: No Data Available
Special Provision: No Data Available

SECTION 15. Regulatory information

Information on the product as supplied:
Regulatory Information: Listed in the Australian Inventory of Chemical Substances (AICS). Not listed under WHS Regulation

2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule: Not Scheduled

SECTION 16. Other information

This SDS was prepared in accordance with the following:
Model Work Health and Safety Regulations & Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals.
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

HALLIBURTON

SAFETY DATA SHEET

R-TEK

Revision Date: 07-May-2019 **Revision Number:** 25

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name R-TEK

Other means of Identification

Synonyms None

Hazardous Material Number: HM005267

Recommended use of the chemical and restrictions on use

Recommended Use THERMATEK Retarder

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Serious Eye Damage/Irritation	Category 2 - H319

Label elements, including precautionary statements

Hazard Pictograms



Signal Word WARNING

Hazard Statements: H319 - Causes serious eye irritation

Precautionary Statements

Prevention
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear eye protection/face protection

Response
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

Storage None

Disposal None

Contains

Substances	**CAS Number**
Metaphosphoric acid hexasodium salt	10124-56-8

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Metaphosphoric acid hexasodium salt	10124-56-8	60 - 100%	Eye Irrit. 2 (H319)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
Causes eye irritation. May be harmful if swallowed.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid creating and breathing dust. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a dry location. Keep container closed when not in use. Product has a shelf life of 24 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Metaphosphoric acid hexasodium salt	10124-56-8	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be

	performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection	Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.
Environmental Exposure Controls	No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Flake	**Color**	White
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	8
Freezing Point / Range	600 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.62
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
None known.
10.6. Hazardous decomposition products
Oxides of phosphorus. Sodium oxides.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects

Causes eye irritation. May be harmful if swallowed.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Metaphosphoric acid hexasodium salt	10124-56-8	6200 mg/kg (Rat)	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact Causes eye irritation.
Skin Contact Not irritating to skin in rabbits.
Ingestion May be harmful if swallowed. May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Eye ailments. Skin disorders.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Metaphosphoric acid hexasodium salt	10124-56-8	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Metaphosphoric acid hexasodium salt	10124-56-8	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Metaphosphoric acid hexasodium salt	10124-56-8	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Metaphosphoric acid hexasodium salt	10124-56-8	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 07-May-2019

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H319 - Causes serious eye irritation

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
NZ CCID
OSHA
CCRIS
www.ChemADVISOR.com/

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all

conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

SA-541

Revision Date: 16-Mar-2020 **Revision Number:** 26

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SA-541

Other means of Identification

Synonyms None

Hazardous Material Number: HM001226

Recommended use of the chemical and restrictions on use

Recommended Use Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Flush skin with large amounts of water. If irritation persists, get medical attention.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust. Slippery when wet. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Slippery when wet. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 24 months. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)
Hand Protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.
Skin Protection Wear protective clothing appropriate for the work environment.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid
Color White to light straw
Odor: Mild
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	10.1
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	> 93 °C / > 200 °F
Lower flammability limit	0.29 oz./ft3
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.4
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	510 °C / 950 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
Bulk Density	36 lbs/gallon

10. Stability and Reactivity

10.1. Reactivity
May form combustible dust concentrations in air.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous	NA	No data available	No data available	No data available

substances in concentrations above cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mild eye irritation.
Skin Contact May cause mild skin irritation.
Ingestion Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory All components are listed on the AICS or are subject to a relevant exemption, permit, or

	assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 16-Mar-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

SA-1015

Revision Date: 28-Jan-2020 **Revision Number:** 24

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SA-1015

Other means of Identification

Synonyms None

Hazardous Material Number: HM007221

Recommended use of the chemical and restrictions on use

Recommended Use Suspending Agent

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
Dust can form an explosive mixture in air
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation Move person to fresh air.
Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin Wash with soap and water. Get medical attention if irritation persists.
Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Scoop up and remove. Do NOT spread spilled product with water.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Avoid dust accumulations. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment. Slippery when wet.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Keep container closed when not in use. Store in a dry location.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.
Hand Protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.
Skin Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Powder
Color White to tan
Odor: Slight
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	7 (1%)
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	> 93 °C / > 200 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	No data available
Water Solubility	Forms gel
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	204 °C / 400 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
Keep away from heat, sparks and flame.
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye and skin contact.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous	NA	No data available	No data available	No data available

substances in concentrations above cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mechanical irritation to eye.
Skin Contact Not irritating to skin in rabbits.
Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.
Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number

None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 28-Jan-2020

Revision Note

SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3

None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data

www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

SDS no. PID1361
Version 11
Revision date 10-May-2023
Supersedes Date: 09-Feb-2019

Safety Data Sheet
SAFE-CARB* (All Grades)

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SAFE-CARB* (All Grades)
Product code PID1361

Synonyms SAFE-CARB* 2, 10, 20, 40, 140, 250, 500, 600, 750, 1400, 2500

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Lost circulation material. Weighting agent. Bridging material.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

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Contains
Calcium carbonate

Crystalline silica (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Calcium carbonate	207-439-9	471-34-1	60-100
Crystalline silica (impurity)	238-878-4	14808-60-7	< 1

3.2 Mixtures

Not applicable

Comments
Naturally occuring mineral.

This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if irritation persists.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the

length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing agent suitable for type of surrounding fire.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Component Information

Chemical Name	Arabic	Australia	Egypt
Calcium carbonate	Not determined	10mg/m³TWAinhalable dust	Not determined
Crystalline silica (impurity)	0.1 mg/m³ TWA	0.05mg/m³TWArespirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Calcium carbonate	Not determined	Not determined	Not determined
Crystalline silica (impurity)	Not determined	0.025 mg/m³ TWA	0.03 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Calcium carbonate	Not determined	Not determined	10 mg/m³ TWA
Crystalline silica (impurity)	1 mg/m³ MAC	0.1 mg/m³ TWA	0.05 mg/m³ TWA Confirmed carcinogen
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Calcium carbonate	Not determined	Not determined	Not determined
Crystalline silica (impurity)	0.1 mg/m³ TWA	Not determined	1 mg/m³ TWA 3 mg/m³ MAC Fibrogenic substance glass;in the form of disintegration aerosol;limit is for total mass of aerosols 1153 Fibrogenic substance containing >70% Silicon dioxide in dust;limit is for total mass of aerosols 1154

Chemical Name	Thailand	Vietnam	Turkey
Calcium carbonate	Not determined	10 mg/m³ TWA	Not determined
Crystalline silica (impurity)	0.025 mg/m³ TWA	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required. Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against powders and dusts
Safety glasses with side-shields Tightly fitting safety goggles

Hand protection
Repeated or prolonged contact
Use protective gloves made of: Nitrile Neoprene
Frequent change is advisable

Respiratory protection
No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Suitable mask with particle filter P3 (European Norm 143) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure
Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Odor	Odorless
Color	White

Property	Values	Remarks
pH	Not applicable	
pH @ dilution	8.5 - 9.5	@ 100 g/l

Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	2.6 - 2.8	@ 20 °C
Bulk density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	825 °C / 1517°F	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid dust formation. Protect from moisture.

10.5 Incompatible materials

No materials to be especially mentioned.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis.

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium carbonate	= 6450 mg/kg (Rat)	> 2000 mg/kg (Rat)	> 3 mg/L (Rat) 4 h
Crystalline silica (impurity)	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Target organ effects Respiratory system. Lungs.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that

large or frequent spills can have a harmful or damaging effect on the environment.
Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Calcium carbonate	No information available	No information available	No information available
Crystalline silica (impurity)	LC50 Danio rerio (zebra fish) : > 10000 mg/l 96h	EC50: > 1000 mg/l 72h	LC50 Daphnia manga (Water flea): > 10000 mg/l 24h

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
Calcium carbonate	Not Applicable - Inorganic chemical.
Crystalline silica (impurity)	Inorganic compound

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
Calcium carbonate	Product/Substance is inorganic
Crystalline silica (impurity)	Product/Substance is inorganic

12.4 Mobility

Mobility
Insoluble in water. See component information below.

Chemical Name	Mobility
Calcium carbonate	Insoluble in water
Crystalline silica (impurity)	Insoluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Calcium carbonate	Not expected to adsorb on soil
Crystalline silica (impurity)	Not expected to adsorb on soil

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required.
Group number	Not required.

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	09-Feb-2019
Revision date	10-May-2023
Version	11
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1*
Flammability	1
Physical hazard	0
PPE	E

*A mark of M-I L.L.C., a Schlumberger Company

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SDS no. PID1370
Version 12
Revision date 14-Nov-2019
Supersedes Date: 11-Jan-2017

Safety Data Sheet
SAFE-COR*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SAFE-COR*
Product code PID1370

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Corrosion inhibitor

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards

Chronic aquatic toxicity	Category 3

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

-

Contains
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Thermal decomposition can lead to release of irritating gases and vapors

Australian statement of hazardous/dangerous nature

Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues	272-712-1	68909-77-3	30-60

Comments
Based on test data – Skin corrosion/irritation (OECD 404 Skin Rabbit), this product is not corrosive or irritant.
Based on test data – Serious eye damage/irritation (EPA OPPTS: 870.2400 Eye Rabbit), this product is irritant.

The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact — Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation persists.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact — Please see Section 11. Toxicological Information for further information.

Eye contact — Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician — Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Avoid frost. Store at room temperature Avoid contact with: Acids Nitrites
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	Contains no substances with occupational exposure limit values No biological limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Local exhaust ventilation

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields

Hand protection
Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training
Impervious gloves made of: Neoprene PVC Nitrile
Break through time >480 minutes
Glove thickness 0.4 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection
No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before eating, drinking or smoking Remove and wash contaminated clothing and gloves, including the inside, before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	Slight
Color	Dark amber
Odor threshold	Not applicable

Property	Values	Remarks
pH	~ 11.5	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	> 100 °C / > 212 °F	
Flash point	151.6 °C / 305 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.10	
Bulk density	No information available	
Relative density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	4 cP	@ 25 °C
log Pow	No information available	

Explosive properties	Not applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	-12°C (<11°F)
Molecular weight	No information available
VOC content(%)	None
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Store at room temperature. Avoid frost.

10.5 Incompatible materials

Acids. Do not add nitrites or other nitrosating agents to this product. May cause formation of nitrosamine.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues	5000 mg/kg (Rat)	>2000 mg/kg (Rat)	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact.

Routes of entry None known.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Not classified.

Repeated exposure

Aspiration hazard Not applicable.

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

Harmful to aquatic life with long lasting effects

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivs. residues	OECD; Acute LC50; 96 hours Semi-static; Fish > 45 g/l	OECD; Acute ErC50 (growth rate); 72 hours Static; Algae; 45 mg/kg OECD 201 Algae, Growth Inhibitor Test; Chronic NOECr; 72 hours Static; Algae; 3.2 mg/l	OECD; Acute EC50; 48 hours Static, Daphnia; > 100 g/l

12.2 Persistence and degradability

Not readily biodegradable.

12.3 Bioaccumulative potential

No bioaccumulation expected due to high molecular weight.

12.4 Mobility

Mobility
The product is water soluble, and may spread in water systems.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information
Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Classified
HSNO approval no.	HSR003599
Group number	Not required

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

ADG Code – Australian Dangerous Goods Code

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Does not comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Does not comply
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	11-Jan-2017
Revision date	14-Nov-2019
Version	12
This SDS has been revised in the following section(s)	1, 2, 7, 8, 9, 15, 16 No changes with regard to classification have been made. Updated according to GHS/CLP.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier

National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3
Flammability	1
Physical hazard	0
PPE	J

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SDS no. PID2290
Version 8
Revision date 01-Feb-2023
Supersedes Date: 20-Sep-2019

Safety Data Sheet
SAFE-LUBE*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SAFE-LUBE*
Product code PID2290

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Lubricant

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger New Zealand Limited
94 Paraite Road,
Bell Block
New Plymouth
New Zealand
T = +64 769 8900

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards

Acute aquatic toxicity	Category 2

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation
H401 - Toxic to aquatic life

Precautionary statements
P273 - Avoid release to the environment
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Contains
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	280-518-3	83682-78-4	5-<10

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if symptoms occur.
Eye Contact	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Nitrogen oxides (NOx), Hydrogen chloride gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Protect from freezing Avoid contact with: Strong acids Strong bases Strong oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits The product does not contain any hazardous materials with occupational exposure limits established.

Component Information

Chemical Name	Arabic	Australia	Egypt
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields

Hand protection
Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training
Impervious gloves made of: Nitrile rubber
Break through time >480 minutes
Glove thickness 0.6 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection
No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before eating, drinking or smoking Remove and wash contaminated clothing

before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Odor	No information available
Color	Yellow

Property	**Values**	**Remarks**
pH	6.5	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	> 93 °C / > 200 °F	
Flash point	> 93 °C / > 200 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.01	@ 16 °C
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	

Explosive properties	Not applicable
Oxidizing properties	Not applicable

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from freezing.

10.5 Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
1-Propanaminium, 3,3',3"-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N"-tri-C6-18 acyl derivs, trichlorides	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact.

Routes of entry Eye contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

Toxic to aquatic life

Toxicity to algae
EC50 0.11mg/l Skeletonema costatum (72h) - SLB Product level Data.

Toxicity to fish
LC50 > 0.24mg/l Scophthalmus maximus (96h) - SLB Product level Data.

Toxicity to daphnia and other aquatic invertebrates
LC50 1.9 mg/l Acartia tonsa (48h) - SLB Product level Data.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	LC50 2 mg/l 96h Turbot ECHA Data	EC50 0.37 mg/l 72h Pseudokirchneriella subcapitata ECHA Data	EC50 3.0 mg/l 48h Daphnia Magna ECHA Data

12.2 Persistence and degradability

This product is expected to be readily biodegradable. See component information below.

Chemical Name	Persistence and degradability
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Readily biodegradable

12.3 Bioaccumulative potential

Bioaccumulation is unlikely. See component information below.

Chemical Name	Bioaccumulation
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	No information available

12.4 Mobility

Mobility
Soluble in water. See component information below.

Chemical Name	Mobility
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	Soluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
1-Propanaminium, 3,3',3''-[phosphinylidynetris(oxy)]tris[N-(3-aminopropyl)-2-hydroxy-N,Ndimethyl-, N,N',N''-tri-C6-18 acyl derivs, trichlorides	No data available

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated
IMDG/ANTAQ Hazard class Not regulated
ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group
ADR/RID/ADN/ADG Packing group Not regulated
IMDG/ANTAQ Packing group Not regulated
ICAO/ANAC Packing group Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Lubricants (Low Hazard) Group Standard 2020
HSNO approval no.	HSR002605
Group number	6.4A

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Does not comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	20-Sep-2019
Revision date	01-Feb-2023
Version	8
This SDS has been revised in the	All sections No changes with regard to classification have been made.

following section(s)

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2
Flammability	1
Physical hazard	0
PPE	X

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SDS no. PID1387
Version 9
Revision date 24-Oct-2019
Supersedes Date: 23-Nov-2016

Safety Data Sheet
SAFE-SCAV* CA

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SAFE-SCAV* CA
Product code PID1387

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Oxygen Scavenger.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Contains No hazardous components

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Suspended dust may present a dust explosion hazard

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

This product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits.

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash skin thoroughly with soap and water. Get medical attention if irritation persists.
Eye Contact	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8. Material becomes slippery when wet. Use caution if wet.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Take precautionary measures against static discharges. After cleaning,

flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation. Material becomes slippery when wet. Use caution if wet.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Take precautionary measures against static discharges.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Avoid heat, flames and other sources of ignition. Avoid contact with: Strong oxidizing agents Strong bases Metals
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	The product does not contain any hazardous materials with occupational exposure limits established. No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear gloves according to EN 374 to protect against skin effects from powders Repeated or prolonged contact Use protective gloves made of: Nitrile Butyl Frequent change is advisable
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European

	Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Crystalline
Odor	Odorless
Color	White
Odor threshold	Not applicable

Property	Values	Remarks
pH	No information available	
pH @ dilution	5.5 - 8.0	@ 10%
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.65	20 °C
Bulk density	No information available	
Relative density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
log Pow	No information available	

Explosive properties	Suspended dust may present a dust explosion hazard
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available

Molecular weight	No information available
VOC content(%)	None
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid dust formation. Avoid heat, flames and other sources of ignition. Take precautionary measures against static charges.

10.5 Incompatible materials

Metals. Strong bases. Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.
Eye contact	Dust may cause mechanical irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	None known.
Routes of entry	No route of entry noted.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.
Other information	Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

Not readily biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

Not regulated

14.2. UN proper shipping name

The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard

No

14.6 Special precautions

Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required
Group number	Not required

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	23-Nov-2016
Revision date	24-Oct-2019
Version	9

This SDS has been revised in the following section(s) 4, 6, 7, 8, 15, 16 No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	1
Physical hazard	0
PPE	E

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Safety Data Sheet
SAFE-SCAV* HSB

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SAFE-SCAV* HSB
Product code PID16244

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Hydrogen Sulphide Scavenger.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Vapors)	Category 3
Serious eye damage/eye irritation	Category 2
Skin sensitization	Category 1
Specific target organ toxicity - Repeated exposure	Category 1

Environmental hazards

Acute aquatic toxicity	Category 2

Physical Hazards Not classified

2.2 Label elements



Signal word
DANGER

Hazard Statements
H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H331 - Toxic if inhaled
H372 - Causes damage to organs through prolonged or repeated exposure
H401 - Toxic to aquatic life

Precautionary statements
P260 - Do not breathe vapor or mist
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Supplementary precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing and eye/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330 - Rinse mouth
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P337 + P313 - If eye irritation persists: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash it before reuse
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Contains
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol

Formaldehyde (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
H330 classification is applied due to Inhalation Acute Toxicity studies carried out in Aerosol form
Prevent the formation of aerosols.

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	225-208-0	4719-04-4	30-60
Formaldehyde (impurity)	200-001-8	50-00-0	0-0.1

Comments
The product contains other ingredients which do not contribute to the overall classification.
Formaldehyde is not present as a substance. It is formed during decomposition.

Note B: Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations.
Note D: Certain substances which are susceptible to spontaneous polymerisation or decomposition are generallyplaced on the market in a stabilised form. It is in this form that they are listed in Part 3.

4. First Aid Measures

4.1 First aid measures

Inhalation Call a physician or poison control center immediately. Move the exposed person to fresh air at once. Keep at rest. If breathing is difficult, (trained personnel should) give oxygen.

Ingestion Rinse mouth. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Seek medical attention at once.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek medical attention at once.

Eye Contact Remove contact lenses, if worn. Immediately flush eyes with water for 15 minutes while holding eyelids open. Seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
Do not use halon type extinguisher.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Heating of containers may cause pressure rise, with risk of bursting.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Nitrogen oxides (NOx), Formaldehyde.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

Hazchem code ADG 2X

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Do not get on skin or clothing. Wash thoroughly after handling. Do not breathe vapors or spray mist. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see Section 13).

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Do not breathe vapors or spray mist. Avoid contact with skin and eyes. Avoid spills and splashing during use. Persons susceptible to allergic reactions should not handle this product. Prevent the formation of vapors, mists and aerosols.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Avoid heat, flames and other sources of ignition. Avoid contact with: Strong acids Strong oxidizing agents

Storage class Toxic storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Formaldehyde is not present as a substance. It is formed during decomposition.

Component Information

Chemical Name	Arabic	Australia	Egypt
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	Not determined	Not determined	Not determined
Formaldehyde (impurity)	0.3 ppm STEL 0.4 mg/m³ STEL	2ppmSTEL 2.5mg/m³STEL 1ppmTWA 1.2mg/m³TWA	0.3 ppm Ceiling 0.37 mg/m³ Ceiling Suspected Human Carcinogen 0.3 ppm TWA
Chemical Name	**India**	**Indonesian**	**Japan**
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	Not determined	Not determined	Group 1 skin sensitizer
Formaldehyde (impurity)	2 ppm STEL 3 mg/m³ STEL 1.0 ppm TWA 1.5 mg/m³ TWA	0.3 ppm STEL	0.2 ppm Ceiling 0.24 mg/m³ Ceiling Group 2 airway sensitizer Group 1 skin sensitizer 0.1 ppm ACL 0.1 ppm OEL 0.12 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	Not determined	Not determined	Not determined
Formaldehyde (impurity)	0.5 mg/m³ MAC	0.75 ppm TWA 2.0 ppm STEL	0.6 ppm STEL 0.3 ppm TWA dermal sensitiser Confirmed carcinogen
Chemical Name	**Malaysia**	**Philippines**	**Russia**
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	Not determined	Not determined	Not determined
Formaldehyde (impurity)	0.3 ppm Ceiling 0.37 mg/m³ Ceiling	Not determined	0.5 mg/m³ MAC (vapor)
Chemical Name	**Thailand**	**Vietnam**	**Turkey**

2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	Not determined	Not determined	Not determined
Formaldehyde (impurity)	2 ppm STEL 0.75 ppm TWA	0.5 mg/m³ TWA 1.0 mg/m³ STEL	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment

Personal protective equipment

Eye protection — Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemical splash goggles and face shield

Hand protection — Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Nitrile
Break through time >480 minutes
Glove thickness >=0.4 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection — Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) If there are conditions in which this triazine containing product produces a vapor, a chemical respirator with A1 + Formaldehyde and P3 particulate pre-filter combination would be required.

Skin and body protection — Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures — Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure — Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Amber
Odor	Amine

Property	Values	Remarks
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	< -20 °C / <-4 °F	
Boiling point/range	No information available	
Flash point	> 101 °C / > 213.8 °F	Closed cup
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	<10 cst	@ 40 °C
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	1.065 - 1.135 @ 16°C	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Contact with strong acids develops formaldehyde.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition.

10.5 Incompatible materials

Strong oxidizing agents. Strong acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information This product may contain or release trace amounts of formaldehyde. The International Agency for Research on Cancer (IARC) has classified formaldehyde as a Group 1carcinogen (limited evidence in humans, sufficient evidence in animals). Exposure to formaldehyde has been linked to adverse reproductive effects in some human and animal studies. In other reproductive studies, however, no adverse effects were noted. (Meditext). Formaldehyde may also cause skin sensitisation (allergic reaction).

Inhalation Toxic if inhaled. Causes damage to organs through prolonged or repeated exposure.

Eye contact Causes serious eye irritation.

Skin contact May cause irritation. May cause an allergic skin reaction.

Ingestion Harmful if swallowed. May cause additional affects as listed under "Inhalation".

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
2,2',2"-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	1000 mg/kg (Rat) (BASF AG, 1997)	> 4000 mg/kg (Rat) (BASF AG,1997)	0.371 mg/L (Aerosol) (Rat) (Triazine Taskforce, 2011)
Formaldehyde (impurity)	= 100 mg/kg (Rat)	> 2000 mg/kg (Rat)	< 463 ppm (Rat) 4 h

Sensitization May cause allergic skin reaction.

Mutagenic effects Contains an known or suspected mutagen.

Carcinogenicity Formaldehyde is listed by IARC in Group 1 as carcinogenic to humans.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation (Aerosol). Skin contact. Eye contact. Ingestion.

Routes of entry Inhalation. Skin contact. Ingestion. Eye contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Category 1.

Target organ effects Respiratory system.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

Toxic to aquatic life

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	> 300 mg/l LC50 96h Scophthalmus maximus (SLB data)	2.9 mg/l EC50 72h Skeletonema costatum (SLB data)	178 mg/l LC50 48h Acartia tonsa (SLB data)
Formaldehyde (impurity)	22.6 - 25.7 mg/L LC50 Pimephales promelas 96 h 23.2 - 29.7 mg/L LC50 Pimephales promelas 96 h 100 - 136 mg/L LC50 Oncorhynchus mykiss 96 h 0.032 - 0.226 mL/L LC50 Oncorhynchus mykiss 96 h = 41 mg/L LC50 Brachydanio rerio 96 h = 1510 µg/L LC50 Lepomis macrochirus 96 h	No information available	= 2 mg/L LC50 Daphnia magna 48 h 11.3 - 18 mg/L EC50 Daphnia magna 48 h

12.2 Persistence and degradability

See component information below.

Chemical Name	Persistence and degradability
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	Readily biodegradable
Formaldehyde (impurity)	Rapidly biodegradable

12.3 Bioaccumulative potential

See component information below.

Chemical Name	Bioaccumulation
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	No bioaccumulation potential
Formaldehyde (impurity)	Does not bioaccumulate log Pow =0.35

12.4 Mobility

Mobility
Soluble in water. See component information below.

Chemical Name	Mobility
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)tr	Soluble in water

iethanol	
Formaldehyde (impurity)	Miscible in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol	Study does not need to be conducted because the substance is readily biodegradable
Formaldehyde (impurity)	Henry's Law Constant 0.034 (in Pa m³/mol) @ 25 °C

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

UN/ID No. (ADR/RID/ADN/ADG) UN2810
UN No. (IMDG/ANTAQ) UN2810
UN No. (ICAO/ANAC) UN2810

14.2. UN proper shipping name

TOXIC LIQUID, ORGANIC, N.O.S. (2, 2', 2''-(hexahydro-1, 3, 5-triazine -1, 3, 5-triyl) triethanol)

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class 6.1
IMDG/ANTAQ Hazard class 6.1
ICAO/ANAC Hazard class/division 6.1

14.4 Packing group

ADR/RID/ADN/ADG Packing group II
IMDG/ANTAQ Packing group II
ICAO/ANAC Packing group II



14.5 Environmental hazard

No

14.6 Special precautions

Hazard identification no (ADR)	60
EmS (IMDG)	F-A, S-A
Emergency Action Code (EAC)	2X
Tunnel restriction code	(D/E)
Hazchem code ADG	2X

14.7 Maritime transport in bulk according to IMO instruments

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Formaldehyde (impurity)
Schedule 6

New Zealand Hazard Classification Additives, Process Chemicals and Raw Materials (Acutely Toxic) Group Standard2020

HSNO approval no. HSR002508

Group number 6.1B, 6.1D, 6.4A, 6.5B, 6.9A

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

ADG Code – Australian Dangerous Goods Code

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam

Supersedes Date:	10-Jul-2018
Revision date	31-Jul-2023
Version	6
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3*
Flammability	1
Physical hazard	0
PPE	X

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SDS no. PID1392
Version 11
Revision date 14-Mar-2019
Supersedes Date: 09-Jul-2018

Safety Data Sheet
SAFE-SCAV* NA

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SAFE-SCAV* NA
Product code PID1392

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Oxygen Scavenger.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

-

Contains
Water

Ammonium hydrogensulfite

Sulphur Dioxide (Impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Water	231-791-2	7732-18-5	30-60
Ammonium hydrogensulfite	233-469-7	10192-30-0	30-60
Sulphur Dioxide (Impurity)	231-195-2	7446-09-5	<1

Comments
Sulfur dioxide is not present as a substance. It is formed during decomposition.

4. First Aid Measures

4.1 First aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye Contact	Remove contact lenses, if worn. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Heating or fire can release toxic gas Sulphur oxides, Nitrogen oxides (NOx), Oxides of:, Ammonia, Amines.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures

Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
This product slowly releases sulphur dioxide in contact with air. Use only in well-ventilated areas. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands before eating, drinking or smoking Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Avoid contact with: Strong oxidizing agents Acids Alkalis Keep at 5-30°C
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	Exposure limit noted is for decomposition product Sulfur dioxide. No biological limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
Water	Not determined	Not determined	Not determined
Ammonium hydrogensulfite	Not determined	Not determined	Not determined
Sulphur Dioxide (Impurity)	5 ppm STEL 13 mg/m³ STEL 2 ppm TWA 5.2 mg/m³ TWA	5ppmSTEL 13mg/m³STEL 2ppmTWA 5.2mg/m³TWA	5 ppm STEL 13 mg/m³ STEL 2 ppm TWA 5.2 mg/m³ TWA
Chemical Name	**India**	**Indonesian**	**Japan**
Water	Not determined	Not determined	Not determined
Ammonium hydrogensulfite	Not determined	Not determined	Not determined
Sulphur Dioxide (Impurity)	5 ppm STEL; 10 mg/m³ STEL 2 ppm TWA 5 mg/m³ TWA	0.25 mg/m³ STEL	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Water	Not determined	Not determined	Not determined
Ammonium hydrogensulfite	Not determined	Not determined	Not determined
Sulphur Dioxide (Impurity)	10 mg/m³ MAC	13.0 mg/m³ STEL 5.0 ppm STEL	5 ppm STEL 13 mg/m³ STEL 2 ppm TWA 5.2 mg/m³ TWA
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Water	Not determined	Not determined	Not determined
Ammonium hydrogensulfite	Not determined	Not determined	Not determined
Sulphur Dioxide (Impurity)	2 ppm TWA 5.2 mg/m³ TWA	5 ppm TWA 13 mg/m³ TWA	Skin notation 10 mg/m³ MAC Skin
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Water	Not determined	Not determined	Not determined
Ammonium hydrogensulfite	Not determined	Not determined	Not determined
Sulphur Dioxide (Impurity)	5 ppm TWA	5 mg/m³ TWA 10 mg/m³ STEL	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields

Hand protection
Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Neoprene Nitrile PVC
Break through time >480 minutes
Glove thickness >=0.4 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators Respirator with combination filter for vapour/particulate (EN 141) Chemical respirator with ammonia and amines cartridge (K/P2, green filter). At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before eating, drinking or smoking Remove and wash contaminated clothing

before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	Pungent Sulfur
Color	Straw - Yellow
Odor threshold	Not applicable

Property	Values	Remarks
pH	No information available	
pH @ dilution	4.9 - 5-5	1% solution
Melting / freezing point	No information available	
Boiling point/range	105 °C / 221 °F	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	18 mmHg	@ 20 °C
Vapor density	<1	(Air = 1.0)
Specific gravity	1.3	
Bulk density	No information available	
Relative density	1.27 - 1.39	@ 20°C.
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
log Pow	No information available	

Explosive properties	Not applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Reacts violently with oxidizers. Liberates poisonous sulfur dioxide gas on contact with acid.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition. Keep at temperatures between 5-30°C.

10.5 Incompatible materials

Strong oxidizing agents. Acids. Alkalis.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Product information Bisulfites may cause skin sensitization in sulfite sensitive persons. Bisulfites may also cause respiratory sensitization in asthmatics and sulfite sensitive persons.

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	> 90 mL/kg (Rat)	No data available	No data available
Ammonium hydrogensulfite	LD50= 2746 mg/kg - source: By analogy to product with similar composition. Notes: Related to male LD50> 2150 mg/kg By analogy to product with similar composition.	LD50> 2000 mg/kg - Duration: 24h. Source: By analogy to product with similar composition	LC50 > 5.5 mg/l - Duration: 4h. Source: By analogy to product with similar composition.

	Notes: Related to female		
Sulphur Dioxide (Impurity)	No data available	No data available	= 2500 ppm (Rat) 1 h

Sensitization Repeated or prolonged contact may cause allergic reactions in very susceptible persons.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact. Inhalation.

Routes of entry Eye contact. Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Water	No information available	No information available	No information available
Ammonium hydrogensulfite	OECD 203 Fish LC50 > 464 mg/l - Duration h: 96 - Notes: By analogy to product with similar composition	Algae EC50 = 43.8 mg/l - Duration h: 72 - Notes: By analogy to product with similar composition.	Daphnia magna EC50 = 89 mg/l - Duration h: 48 - Notes: By analogy to product with similar composition
Sulphur Dioxide (Impurity)	No information available	No information available	No information available

12.2 Persistence and degradability

Not Applicable - Inorganic chemical. See component information below.

Chemical Name	Persistence and degradability

Ammonium hydrogensulfite	Not applicable

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical. See component information below.

Chemical Name	Bioaccumulation
Ammonium hydrogensulfite	No data available

12.4 Mobility

Mobility
The product is miscible with water. May spread in water systems.

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Ammonium hydrogensulfite	No data available

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

Not regulated

14.2. UN proper shipping name

The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Classified
HSNO approval no.	HSR002503
Group number	6.4A

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies

Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	09-Jul-2018
Revision date	14-Mar-2019
Version	11
This SDS has been revised in the following section(s)	1, 2, 3, 15, 16 No changes with regard to classification have been made. Updated according to GHS/CLP.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

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Safety Data Sheet

SAFE-SOLV* E

Revision date 26-Mar-2024 **Supersedes Date:** 13-Sep-2019 **Version** 8

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SAFE-SOLV* E
Product code PID12078

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Solvent

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Aspiration toxicity	Category 1
Skin corrosion/irritation	Category 2
Skin sensitization	Category 1

Environmental hazards

Chronic aquatic toxicity	Category 3

Physical Hazards

Flammable Liquids	Category 4

2.2 Label elements



Signal word
DANGER

Hazard Statements
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H412 - Harmful to aquatic life with long lasting effects
H227 - Combustible liquid

Precautionary statements
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves and eye/face protection
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P331 - Do NOT induce vomiting

Supplementary precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash it before reuse
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P403 + P235 - Store in a well-ventilated place. Keep cool
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Contains
Distillates, petroleum, hydrotreated light

Orange, sweet, extract

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Vapors may form explosive mixtures with air

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Distillates, petroleum, hydrotreated light	265-149-8	64742-47-8	60-100
Orange, sweet, extract	232-433-8	8028-48-6	10-30

Comments
Terpenes and Terpenoids, sweet orange oil can also use CAS 68647-72-3.

4. First Aid Measures

4.1 First aid measures

Inhalation Move the exposed person to fresh air at once. If breathing has stopped, begin artificial respiration. Seek medical attention at once.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, minimize the risk of aspiration by properly positioning the affected person. Risk of product entering the lungs on vomiting after ingestion. Seek medical attention at once.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek medical attention.

Eye Contact Remove contact lenses, if worn. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
combustible liquid. Vapors may form explosive mixture with air. Vapors are heavier than air and may spread along floors. Vapors may travel considerable distance to source of ignition and flash back.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Take precautionary measures against static discharges. Ground and bond containers when transferring material. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or

spray mist. Avoid spills and splashing during use. Persons susceptible to allergic reactions should not handle this product.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Take precautionary measures against static discharges. Ensure all equipment is electrically grounded before beginning transfer operations. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Avoid contact with: Strong oxidizing agents Strong acids

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Oil mist (mineral) workplace exposure limits are currently under review by legislative authorities. This workplace exposure limit (WEL) standard is applicable to highly refined mineral oils and is provided as a guidance limit only LT. EXP = 5mg/m^3 and ST. EXP = 10mg/m^3.

Component Information

Chemical Name	Arabic	Australia	Egypt
Distillates, petroleum, hydrotreated light	Not determined	Not determined	Not determined
Orange, sweet, extract	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Distillates, petroleum, hydrotreated light	Not determined	Not determined	Not determined
Orange, sweet, extract	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Distillates, petroleum, hydrotreated light	Not determined	Not determined	Not determined
Orange, sweet, extract	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Distillates, petroleum, hydrotreated light	Not determined	Not determined	100 mg/m^3 TWA 300 mg/m^3 MAC
Orange, sweet, extract	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Distillates, petroleum, hydrotreated light	Not determined	Not determined	Not determined
Orange, sweet, extract	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Nitrile Neoprene Break through time >480 minutes Glove thickness >=0.4 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of inadequate ventilation wear respiratory protection Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Colorless
Odor	Mild Citrus

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	62 °C / 144 °F	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		

Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	0.785 - 0.825	
Bulk density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	Soluble organic solvents	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	<20.5 mm2/s	@ 40 °C
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	Vapours may form explosive mixtures with air	
Oxidizing properties	No information available	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Combustible liquid. Vapours may form explosive mixtures with air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Not known.

10.4 Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static charges.

10.5 Incompatible materials

Strong oxidizing agents. Strong acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system. May cause additional affects as listed under "Ingestion".

Eye contact May cause slight irritation.

Skin contact Causes skin irritation. May cause an allergic skin reaction. Repeated exposure may cause skin dryness or cracking.

Ingestion May be fatal if swallowed and enters airways. Potential for aspiration if swallowed. Aspiration may cause pulmonary edema and pneumonitis.

Unknown acute toxicity Not Applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Distillates, petroleum, hydrotreated light	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Orange, sweet, extract	No data available	> 5000 mg/kg (Rabbit)	No data available

Sensitization May cause allergic skin reaction.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation. Ingestion. Skin contact. Eye contact.

Routes of entry Inhalation. Skin contact. Ingestion.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

Harmful to aquatic life with long lasting effects

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Distillates, petroleum, hydrotreated light	= 45 mg/L LC50 Pimephales promelas 96 h = 2.4 mg/L LC50 Oncorhynchus mykiss 96 h = 2.2 mg/L LC50 Lepomis macrochirus 96 h	No information available	No information available
Orange, sweet, extract	> 1000 mg/l (Scophthalmus Maximus), 96h	No information available	451 mg/l (Acartia Tonsa), 48h

12.2 Persistence and degradability

Product is biodegradable.

12.3 Bioaccumulative potential

The product does not contain any substances expected to be bioaccumulating.

12.4 Mobility

Mobility
Insoluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Do not burn, or use a cutting torch on, the empty drum. Empty containers may contain flammable or explosive vapors. Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Distillates, petroleum, hydrotreated light
Schedule 5

New Zealand Hazard Classification	ClassifiedAdditives, Process Chemicals and Raw Materials (Combustible) Group Standard 2020
HSNO approval no.	HSR002490
Group number	6.1E, 6.3A, 6.5B, 9.1C, 3.1D

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Does not comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	13-Sep-2019
Revision date	26-Mar-2024
Version	8
This SDS has been revised in the following section(s)	All sections There have been changes with regard to classification.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2*
Flammability	2
Physical hazard	0
PPE	J

*A mark of M-I L.L.C., a Schlumberger Company

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maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.
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Safety Data Sheet
SAFE-VIS* E

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	SAFE-VIS* E
Product code	PID1413
Country Limitations	This SDS is not for use in the European Union (EU).

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Completion fluid additive. Viscosifier.
Uses advised against	Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards	Not classified
Environmental hazards	Not classified
Physical Hazards	Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

Contains
Tetradec-1-ene

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Tetradec-1-ene	214-306-9	1120-36-1	30-60

Comments
The viscosity of this product is high enough that it is not an aspiration risk and the H304 phrase does not apply

The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash contaminated clothing before re-use. Wash skin thoroughly with soap and water. Get medical attention if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Avoid contact with: Strong oxidizing agents Strong acids

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Contains no substances with occupational exposure limit values

Component Information

Chemical Name	Arabic	Australia	Egypt
Tetradec-1-ene	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Tetradec-1-ene	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Tetradec-1-ene	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Tetradec-1-ene	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Tetradec-1-ene	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical

hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Nitrile Neoprene Break through time >480 minutes Glove thickness =>0.4 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Very viscous
Odor	Mild
Color	Tan - White

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	-20 °C / -4 °F	
Boiling point/range	115.6 °C / 240.0 °F	
Flash point	> 107.2 °C / > 225.0 °F	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	

Specific gravity	0.96	15.6 °C
Bulk density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	> 20.5 mm2/s	@ 40 °C
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

Strong oxidizing agents. Strong acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.

Skin contact Repeated exposure may cause skin dryness or cracking.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetradec-1-ene	> 10000 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Skin contact.

Routes of entry Skin contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard The viscosity of this product is high enough that it is not an aspiration risk and the H304 phrase does not apply.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Tetradec-1-ene	1 - 3.2 mg/L LC50 Brachydanio rerio 96 h = 1.06 mg/L LC50 Pimephales promelas 96 h	22 - 24 mg/L EC50 Pseudokirchneriella subcapitata 96 h	= 0.74 mg/L EC50 Daphnia magna 48 h

	10.0 - 32.0 mg/L LC50 Poecilia reticulata 96 h = 0.39 mg/L LC50 Oncorhynchus mykiss 96 h		

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility

Mobility
Insoluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated
IMDG/ANTAQ Hazard class Not regulated
ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group
ADR/RID/ADN/ADG Packing group Not regulated

IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required.
Group number	Not required.

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

This SDS is not for use in the European Union (EU).

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	03-Sep-2014
Revision date	05-Apr-2022
Version	3
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

Training Advice
Follow general hygiene considerations recognized as common good workplace practices
Do not handle until all safety precautions have been read and understood

HMIS classification

Health	0
Flammability	1
Physical hazard	0
PPE	E

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SDS no. PID1436
Version 3
Revision date 26-Sep-2022
Supersedes Date: 06-Jul-2017

Safety Data Sheet
SAPP

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SAPP
Product code PID1436

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use SAPP dispersant. Thinner.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

_

Contains
Disodium dihydrogen diphosphate

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Disodium dihydrogen diphosphate	231-835-0	7758-16-9	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye Contact Remove contact lenses, if worn. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Oxides of phosphorus.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover powder spill with plastic sheet or tarp to minimize spreading. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Avoid excessive heat for prolonged periods of time. Protect from moisture Avoid contact with: Acids

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, TWA 4mg/m³ Respirable Dust, 10mg/m³ Total Dust.

Component Information

Chemical Name	Arabic	Australia	Egypt
Disodium dihydrogen diphosphate	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Disodium dihydrogen diphosphate	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Disodium dihydrogen diphosphate	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Disodium dihydrogen diphosphate	Not determined	Not determined	10 mg/m³ MAC
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Disodium dihydrogen diphosphate	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Repeated or prolonged contact Use protective gloves made of: Nitrile Neoprene PVC Frequent change is advisable
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Crystalline Powder
Odor	Odorless
Color	White

Property	Values	Remarks
pH	No information available	
pH @ dilution	3.5 - 4.5	@ 1% sol.
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	

Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.8 - 1.9	20 °C
Bulk density	1000-1200 kg/m³	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from moisture. Avoid excessive heat for prolonged periods of time.

10.5 Incompatible materials

Acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.

Eye contact Causes serious eye irritation.

Skin contact Prolonged skin contact may cause skin irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Disodium dihydrogen diphosphate	= 1800 mg/kg (Rat)	> 2000 mg/kg (Rat)	> 0.58 mg/L (Rat) 4 h

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact.

Routes of entry Eye contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Listed on PLONOR list of OSPAR

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Disodium dihydrogen diphosphate	No information available	No information available	No information available

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated
IMDG/ANTAQ Hazard class Not regulated
ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group
ADR/RID/ADN/ADG Packing group Not regulated
IMDG/ANTAQ Packing group Not regulated

ICAO/ANAC Packing group Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020
HSNO approval no.	HSR002503
Group number	6.4A

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	06-Jul-2017
Revision date	26-Sep-2022
Version	3
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2
Flammability	1
Physical hazard	0
PPE	E

Disclaimer
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HALLIBURTON

SAFETY DATA SHEET

SCR-100L

Revision Date: 28-Jan-2020 **Revision Number:** 43

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SCR-100L

Other means of Identification

Synonyms None

Hazardous Material Number: HM001254

Recommended use of the chemical and restrictions on use

Recommended Use Retarder

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Store in a dry location. Keep container closed when not in use.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Blue
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	3 - 4 (28%)
Freezing Point / Range	-4 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	> 93 °C / > 200 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.16
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	520 °C
Decomposition Temperature	No data available
Viscosity	15-30 cP @ 25°C
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	~60%
Liquid Density	9.66

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Oxides of nitrogen. Oxides of sulfur. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according	NA	No data available	No data available	No data available

to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Skin disorders.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill or burn in an approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or

Chemicals	assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 28-Jan-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

SAFETY DATA SHEET

JET-LUBE SEAL GUARD ECF

Product classified as non-hazardous according to NOHSC classification

1. Identification of the substance/preparation and of the company/undertaking

Identification of the substance or preparation

Product Name: JET-LUBE SEAL GUARD ECF

Use of the substance/preparation: Thread lubricant and sealant

Company/undertaking identification

Manufacturer:
Jet-Lube, Inc.
4849 Homestead Rd., Suite 232
Houston, TX 77028
Email: doldiges@jetlube.com USA Coprorate phone: (713) 670-5700

Australian Contact:
Xtex Pty. Ltd
ABN 40 121 722 236
80 Daly Street
Ascot, WA 6104 1300-00-9839 phone 0437-272-490 mobile

Emergency telephone numbers: Australian Poison Information Centre 13-11-26

2. Hazards identification

The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification: Not classified

Physical/chemical hazards: Not applicable

Human health hazards Not applicable

Environmental hazards: Not applicable

See section 11 for more detailed information on health effects and symptoms.

3. Composition /information on ingredients

Substance/preparation: Preparation

Ingredient name	CAS Number	EC Number	%	Classification
Lubricating grease (synthetic base)	Mixture	Mixture	60 - 70	Not classified
Calcium fluoride	7789-75-5	232-188-7	25 - 35	Not classified
pulp, cellulose	65996-61-4	265-995-8	0 - 2.5	Not classified
graphite (synthetic)	7440-44-0	231-153-3	0 - 2.5	Not classified
The Petroleum Oils and additives do not require carcinogic listing.				
See section 16 for the full test of the R Phrases declared above.				

*** Occupational Exposure Limit(s), if available, are listed in Section 8**

The quantities of potential carcinogenic compounds detected in the oil are below the regulatory levels beyond which listing as carcinogenic material is required.

4. First aid measures

Effects and symptoms

Inhalation: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Skin Contact: No known significant effects or critical hazards.

Eye contact: No known significant effects or critical hazards.

First aid measures

Inhalation:
Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Obtain medical attention if symptoms occur. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion:
Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Obtain medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen thigh clothing such as a collar, tie, belt or waistband.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Obtain medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

Extinguishing media: Use an extinguishing agent suitable for the surrounding fire. Do not use water jet.

Special exposures hazards: No specific hazard.

Hazardous thermal decomposition products: These products are carbon, sulfur & nitrogen oxides, Some metallic oxides.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions: Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up: If emergency personnel are unavailable, contain spilt material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dyke spilt material or otherwise contain material to ensure runoff does not reach a waterway. Place spilt material in an appropriate container for disposal.

7. Handling and storage

Handling: Wash thoroughly after handling.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Packaging materials

Recommended: Use original container.

Specific uses: Not available.

8. Exposure controls/personal protection

Ingredient Name:	Occupational exposure limits
calcium fluoride	**EH40-WEL (United Kingdom (UK), 9/2006). Notes: As F** TWA: 2,5 mg/m^3 65534 times per shift, 8 hour/hours.

Exposure controls

Occupational exposure controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection: No respiratory equipment is required for normal use. In the case of extreme temperatures, a dry residue will result when the grease & oils burn off. Where workers may be exposed to the dust during removal of the film use of air-purifying respirators or dust masks is suggested.

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

9. Physical and chemical properties

Physical state: Solid (paste)

Color: Black

Odor: Rapeseed oil smell (slight)

pH: Neutral

Boiling point: Not available

Melting point: >204ºC (399.2ºF)

Flash point: Open cup: 221ºC (429.8ºF)

Flammability (solid, gas): Not applicable

Explosive properties: Not applicable

Explosive limits: Lower: 0.9% Upper: 7%

Oxidizing properties: Not available

Vapor pressure: <0.01 kPa (<0.08 mm Hg) (at 20ºC)

Specific gravity: Not available

Density: 1.28 g/cm^3

Solubility: Insoluble in cold water, hot water

Octanol/water partition coefficient: Not available

Viscosity: Not available

Vapor density: >5 (Air = 1)

Evaporation rate (butyl acetate = 1): <0.01 compared with Butyl acetate

Auto-ignition temperature: >260ºC (500ºF)

10. Stability and reactivity

Stability: The product is stable

Conditions to avoid: Keep away from sources of ignition. Keep away from heat.

Materials to avoid: Not available

Hazardous Decomposition products: Some metallic oxides.

Hazardous polymerization: Not available

11. Toxicological information

Potential acute health effects

Inhalation: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Skin contact: No known significant effects or critical hazards.

Eye contact: No known significant effects or critical hazards.

Acute toxicity

Ingredient name	Test	Result	Route	Species
calcium fluoride	LD50	4250 mg/kg	Oral	Rat
	LD50	4417 mg/kg	Oral	Rat
carbon	LD50	10000 mg/kg	Oral	Rat

Potential chronic health effects

Carcinogenicity: No known significant effects or critical hazards.

California Prop 65: None

Australian National Health & Safety Commission (NOSC): None

Mutagenicity: No known significant effects or critical hazards.

Reproductive toxicity: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation: No known significant effects or critical hazards as high viscosity makes inhalation unlikely.

Ingestion: No known significant effects or critical hazards as grease results in gastric distress negating bioaccumulation concerns.

Skin: No known significant effects or critical hazards.

Target organs: No known significant effects or critical hazards.

Other adverse effects: Not available

12. Ecological information

Ecotoxicity data

Ingredient name	Species	Period	Result
calcium fluoride	Fish (LC50)	96 hr/hrs	>1800 mg/l
	Algae (EC50)	72 hr/hrs	>1000 mg/l
calcium fluoride	Corophium volutator (LC50)	10 days	>12075 mg/kg
carbon	Fish (LC50)	96 hr/hrs	>1800 mg/l
	Algae (EC50)	72 hr/hrs	>1000 mg/l
Lubricating grease, biosulfonate	Fish (LC50)	96 hr/hrs	>1800 mg/l
	Algae (EC50)	72 hr/hrs	>1000 mg/l

Other ecological information

Persistance/degradability:

Ingredient name	BOD	COD	ThOD
Lubricating grease, biosulfonate	Not available	1.457 - 2.062mg O_2/mg	Not available

Ingredient name	Aquatic half-life	Photolysis	Biodegradability
Lubricating grease, biosulfonate	Not available	Not available	61% mineralisation in 28 days (BODIS)

Mobility: Not available

Other adverse effects: No known significant effects or critical hazards.

13. Disposal consideration

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Hazardous waste: Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

14. Transport information

Hazchem code 1Z

International transport regulations

Regulatory information	UN Number	Proper shipping name	Class	Packing group	Label	Additional information
US Dept. of Transportation	Not regulated	-	-	-	-	-
ADR/RID Class	Not regulated	-	-	-	-	-
ADNR Class	Not regulated	-	-	-	-	-
IMDG Class	Not regulated	-	-	-	-	-
IATA-DGR Class	Not regulated	-	-	-	-	-
Canada - TDG	Not regulated	-	-	-	-	-
Australia ADG Code	Not regulated		-	-	-	Reference SP-AU01

15. Regulatory information

Poison Schedule Not scheduled

EU Regulations

Risk Phrases: This product is not classified according to EU legislation.

Safety Phrases: S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Product use: Classification and labeling have been performed according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and the intended use. Industrial applications.

Other EU regulations

Additional warning phrases: Safety data sheet available for professional user on request.

Restrictions on the marketing and use directive: Not applicable.

National regulations United Kingdom (UK)

COSHH: The use of this chemical product must be in compliance with provisions included in COSHH (1999) and COSHH Essentials (1999).

US Regulations: **TSCA:** All components are listed. (See Section 3). **TSCA 12B Components:** None

SARA 313 (40 CFR Part 372): None above reportable limits

SARA 311/312: None

CERCLA RQ: N/A **OZONE DEPLETING CHEMICALS:** None

TSCA REGULATORY: This material or its components are listed in the TSCA inventory.

RCRA Hazard class: N/A

Clean Air Act Sect 112 Hazardous Air Pollutants (HAPs): None **Volatile Organic Chemicals (VOCs):** Nil

State Right to Know:

New Jersey:	7789-75-5
Pennsylvania:	7789-75-5
Massachusetts:	7789-75-5
Rhode Island :	7789-75-5

Canadian Regulations: **DSL:** All components are listed. (See Section 3)

WHMIS: CLASS B-2: Not regulated

RoHs Compliance This product is compliant with Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003. This product does not contain any of the restricted substances as listed in Article 4(1) of the RoHS Directive.

16. Other information

History

Date of printing: January 1, 2014

Date of issue: January 1, 2014

Date of previous issue: No previous validation

Version: 1

Prepared by:



Name & Title Donald Oldiges, VP of Research & Development

Notice to reader:

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SAFETY DATA SHEET
JET-LUBE SEAL GUARD

1. Identification of the substance/preparation and of the company/undertaking

Identification of the substance or preparation

Product Name: **JET-LUBE SEAL GUARD**

Use of the substance/preparation: Lubricant and Sealant grease (petroleum based)

Company/undertaking identification

Manufacturer:
Jet-Lube, Inc.
4849 Homestead Rd., Suite 232
Houston, TX 77028
Email: doldiges@jetlube.com USA Coprorate phone: (713) 670-5700

Australian Contact:
Xtex Pty. Ltd
ABN 40 121 722 236
80 Daly Street
Ascot, WA 6104 1300-00-9839 phone 0437-272-490 mobile

Emergency telephone numbers: Australian Poison Information Centre 13-11-26

2. Hazards identification

The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification: Not classified

Physical/chemical hazards: Not applicable

Human health hazards Not applicable

Environmental hazards: Not applicable

See section 11 for more detailed information on health effects and symptoms.

3. Composition /information on ingredients

Substance/preparation: Preparation

Ingredient name	CAS Number	EC Number	%	Classification
Lubricating grease (petroleum base)	74869-21-9	278-011-7	50 -70	Not classified
graphite, synthetic	7782-42-5	231-95-3	5 -10	Not classified
Calcium fluoride	7789-75-5	232-188-7	20 - 25	Not classified
pulp, cellulose	65996-61-4	265-995-8	0 - 2.5	Not classified
PTFE	9002-84-0	Polymer	2 - 5	

The full refining history of the lubricating grease is known for this product and it can be shown that the substance from which it is produced is not a carcinogen. Lubricating grease is not listed on the TSCA inventory but each component from which the grease is comprised is on the TSCA Inventory list.

4. First aid measures

Effects and symptoms

Inhalation: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Skin Contact: No known significant effects or critical hazards.

Eye contact: No known significant effects or critical hazards.

First aid measures

Inhalation:
Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Obtain medical attention if symptoms occur. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion: Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Obtain medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen thigh clothing such as a collar, tie, belt or waistband.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Obtain medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

Extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Special exposures hazards: No specific hazard.

Hazardous thermal decomposition products: These products are carbon oxides (CO, CO2), sulphur oxides (SO2, SO3, etc.), nitrogen oxides (NO2,NO3, etc.) some metallic or mineral oxides and halogenated gases which may be toxic or corrosive.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions: Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up: If emergency personnel are unavailable, contain spilt material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dyke spilt material or otherwise contain material to ensure runoff does not reach a waterway. Place spilt material in an appropriate container for disposal.

7. Handling and storage

Handling: Wash thoroughly after handling.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Packaging materials

Recommended: Use original container.

Specific uses: Not available.

8. Exposure controls/personal protection

Ingredient Name:	Occupational exposure limits
graphite, natural	**EH40-WEL (United Kingdom (UK), 1/2005)** TWA: 10 mg/m^3 8 hour/hours. Form: Inhalable fraction STEL: 4 mg/m^3 15 minute/minutes. Form: Respirable fraction
calcium fluoride	**EH40-WEL (United Kingdom (UK), 9/2006). Notes: As F** TWA: 2,5 mg/m^3 65534 times per shift, 8 hour/hours.
pulp, cellulose	
PTFE	**EH40-WEL (United Kingdom (UK), 9/2006)** TWA: 10 mg/m3 65534 times per shift, 8 hour/hours. Form: Inhalable fraction PEL: 4 mg/m3 65534 times per shift, 8 hour/hours. Form: Respirable fraction

Exposure controls

Occupational exposure controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection:	No respiratory equipment is required for normal use. In the case of extreme temperatures, a dry residue will result when the grease & oils burn off. Where workers may be exposed to the dust during removal of the film use of air-purifying respirators or dust masks is suggested.
Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eye protection:	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Skin protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

9. Physical and chemical properties

Physical state:	Liquid (gel)
Color:	Black
Odor:	Petroleum pungent
pH:	Neutral
Boiling point:	<316ºC (600.8ºF)
Melting point:	260ºC (500ºF)
Flash point:	Open cup: 221ºC (429.8ºF)
Flammability (solid, gas):	Not applicable
Explosive properties:	Not applicable
Explosive limits:	Lower: 0.9% Upper: 7%
Oxidizing properties:	Not available
Vapor pressure:	<0.01 kPa (<0.08 mm Hg) (at 20ºC)
Specific gravity:	Not available
Density:	1.24 - 1.28 g/cm^3
Solubility:	Insoluble in cold water, hot water
Octanol/water partition coefficient:	Not available
Viscosity:	Not available
Vapor density:	>5 (Air = 1)
Evaporation rate (butyl acetate = 1):	<0.01 compared with Butyl acetate
Auto-ignition temperature:	>260ºC (500ºF)

10. Stability and reactivity

Stability:	The product is stable
Conditions to avoid:	Keep away from sources of ignition. Keep away from heat.
Materials to avoid:	Not available
Hazardous Decomposition products:	These products are carbon oxides (CO, CO2), sulphur oxides (SO2, SO3, etc.),HF and other halo carbons.
Hazardous polymerization:	Will not occur.

11. Toxicological information

Potential acute health effects

Inhalation:	No known significant effects or critical hazards as high viscosity makes inhalation unlikely.
Ingestion:	No known significant effects or critical hazards as grease results in gastric distress negating bioaccumulation concerns.
Skin contact:	No known significant effects or critical hazards.
Eye contact:	No known significant effects or critical hazards.

Potential chronic health effects

Carcinogenicity:	No known significant effects or critical hazards.
California Prop 65:	None
Australian National Health & Safety Commission (NOSC):	None
Mutagenicity:	No known significant effects or critical hazards.
Reproductive toxicity:	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation:	No known significant effects or critical hazards.
Ingestion:	No known significant effects or critical hazards.
Skin:	No known significant effects or critical hazards.
Target organs:	No known significant effects or critical hazards.
Other adverse effects:	Not available

12. Ecological information

Ecotoxicity data

Ingredient name	Species	Period	Result
calcium fluoride	Fish (LC50)	96 hr/hrs	>1800 mg/l
	Algae (EC50)	72 hr/hrs	>1000 mg/l
Graphite	Fish (LC50)	96 hr/hrs	>1800 mg/l
	Algae (EC50)	72 hr/hrs	>1000 mg/l
Lubricating grease, petroleum based	Fish (LC50)	96 hr/hrs	>1800 mg/l
	Algae (EC50) ,biomass	72 hr/hrs	11 mg/l
	Algae (EC50) ,growth rate	72 hr/hrs	14 mg/l

Other ecological information

Persistance/degradability:

Ingredient name	BOD	COD	ThOD
Lubricating grease, petroleum based	Not available	Not available	2.99 mg O_2/mg

Ingredient name	Aquatic half-life	Photolysis	Biodegradability
Lubricating grease, petroleum based	Not available	Not available	15 % mineralisation in 28 days (BODIS)

Other ecological information

Mobility: Not available

Other adverse effects: No known significant effects or critical hazards.

13. Disposal consideration

Methods of disposal: The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Hazardous waste: Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

14. Transport information

International transport regulations

Regulatory information	UN Number	Proper shipping name	Class	Packing group	Label	Additional information
US Dept. of Transportation	Not regulated	-	-	-	-	-
ADR/RID Class	Not regulated	-	-	-	-	-
ADNR Class	Not regulated	-	-	-	-	-
IMDG Class	Not regulated	-	-	-	-	-
IATA-DGR Class	Not regulated	-	-	-	-	-
Canada - TDG	Not regulated	-	-	-	-	-

15. Regulatory information

EU Regulations

Risk Phrases: This product is not classified according to EU legislation.

Safety Phrases:
S20/21 - When using do not eat, drink or smoke
S28 - After contact with skin, wash immediately with plenty of water.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
S61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.

Product use: Classification and labeling have been performed according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and the intended use. Industrial applications.

Other EU regulations

Additional warning phrases: Safety data sheet available for professional user on request.

Restrictions on the marketing and use directive: Not applicable.

National regulations United Kingdom (UK)

COSHH: The use of this chemical product must be in compliance with provisions included in COSHH (1999) and COSHH Essentials (1999).

US Regulations: **TSCA:** All components are listed. (See Section 3). **TSCA 12B Components:** None

SARA 313 (40 CFR Part 372): None above reportable limits

SARA 311/312: None

CERCLA RQ: N/A **OZONE DEPLETING CHEMICALS:** None
TSCA REGULATORY: This material or its components are listed in the TSCA inventory.
RCRA Hazard class: N/A
Clean Air Act Sect 112 Hazardous Air Pollutants (HAPs): None **Volatile Organic Chemicals (VOCs):** Nil

State Right to Know:	New Jersey:	64742-52-5, 7782-42-5, 7789-75-5, 1317-33-5, 9002-84-0
	Pennsylvania:	64742-52-5, 7782-42-5, 7789-75-5, 1317-33-5, 9002-84-0
	Massachusetts:	64742-52-5, 7782-42-5, 7789-75-5, 1317-33-5, 9002-84-0
	Rhode Island :	64742-52-5, 7782-42-5, 7789-75-5, 1317-33-5, 9002-84-0

Canadian Regulations: **DSL:** All components are listed. (See Section 3)
WHMIS: CLASS B-2: Not regulated

RoHs Compliance This product is compliant with Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003. This product does not contain any of the restricted substances as listed in Article 4(1) of the RoHS Directive.

16. Other information

Full text of R phrases referred to in sections 2 and 3 - United Kingdom (UK): R Phrases: R22 Harmful if swallowed

Full text of classifications referred to in sections 2 and 3 - United Kingdom (UK):

History

Date of printing: January 1, 2014
Date of issue: January 1, 2014
Date of previous issue: No previous validation
Version: 1
Prepared by: **Donald Oldiges**

NFPA:	Health: 1	Flammability: 1	Reactivity: 0	
HMIS:	Health: 1	Flammability: 1	Reactivity: 0	PPE: B

Notice to reader:

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HALLIBURTON

SAFETY DATA SHEET

SEM-8™ EMULSIFIER

Revision Date: 04-Feb-2021 **Revision Number:** 53

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SEM-8™ EMULSIFIER

Other means of Identification

Synonyms None

Hazardous Material Number: HM003938

Recommended use of the chemical and restrictions on use

Recommended Use Emulsifier

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 1 - H318
Acute Aquatic Toxicity	Category 2 - H401
Chronic Aquatic Toxicity	Category 3 - H412
Flammable liquids.	Category 3 - H226

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H226 - Flammable liquid and vapor
H315 - Causes skin irritation
H318 - Causes serious eye damage
H401 - Toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements

Prevention
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting/equipment
P242 - Use only non-sparking tools
P243 - Take action to prevent static discharges.
P264 - Wash face, hands and any exposed skin thoroughly after handling
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P280 - Wear protective gloves.
P280 - Wear eye protection/face protection

Response
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash before reuse
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P370 + P378 - In case of fire: Use water spray for extinction
P391 - Collect spillage
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

Storage
P403 + P235 - Store in a well-ventilated place. Keep cool

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	60 - 100%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Aquatic Acute 2 (H401) Aquatic Chronic 3 (H412)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes severe eye irritation which may damage tissue. Causes skin irritation. May be harmful if swallowed.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove sources of ignition. Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Remove sources of ignition. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. Store in a dry location. Store in a cool well ventilated area. Product has a shelf life of 36 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Organic vapor respirator.

In high concentrations, supplied air respirator or a self-contained breathing apparatus.

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. (>= 8 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Clear light yellow
Odor:	Alcohol	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	7.0-8.5 @ 5%
Freezing Point / Range	-29 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	33.9 °C / 93 °F Seta closed cup
Evaporation rate	< 1 (BuAc = 1)
Vapor Pressure	15.7 mmHg @ 20C
Vapor Density	< 1 (Air=1)
Specific Gravity	1.054
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

Keep away from heat, sparks and flame.

10.5. Incompatible materials

Strong oxidizers. Strong alkalis.

10.6. Hazardous decomposition products

Oxides of nitrogen. Oxides of sulfur. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

Causes severe eye irritation which may damage tissue. Causes skin irritation. May be harmful if swallowed.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	4100 mg/kg (Rat) (Similar substance)	>5000 mg/kg (Rabbit (Similar substance)	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Eye Contact Causes severe eye irritation which may damage tissue.

Skin Contact Causes skin irritation. May cause skin defatting with prolonged exposure.

Ingestion May be harmful if swallowed. Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions. May affect the heart and cardiovascular system.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Skin disorders. Eye ailments.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Causes moderate skin irritation. (Rabbit) (similar substances)

Substances	CAS Number	Serious eye damage/irritation
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Causes severe eye irritation (Rabbit) (similar substances)

Substances	CAS Number	Skin Sensitization
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Did not cause sensitization on laboratory animals (guinea pig) (similar substances)

Substances	CAS Number	Respiratory Sensitization
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	No information available

Substances	CAS Number	Mutagenic Effects
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)

Substances	CAS Number	Carcinogenic Effects
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Did not show carcinogenic effects in animal experiments (similar substances)

Substances	CAS Number	Reproductive toxicity
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	STOT - repeated exposure

Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	Aspiration hazard
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	EC50 (72h) 73.52 mg/L (Skeletonema costatum) ErC50 (72h) 32 mg/L (Selenstrum capriconutum) (similar substance) NOErC (72h) 9 mg/L (Selenastrum capricornutum) NOEC (72h) 32 mg/L (Skeletonema costatum)	LC50 (96h) 1 - 2.5 mg/L (Salmo trutta) (similar substance) LC50 (96h) 350 mg/L (Scophthalmus maximus) NOEC (30d) 0.88 mg/L (Pimephales promelas) (similar substance)	No information available	EC50 (48h) 1.17 mg/L (Daphnia magna) (similar substance) LC50 (96h) 232.5 mg/L (Acartia tonsa) NOEC (21d) 0.37 mg/L (Daphnia magna) (similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Readily biodegradable

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	Log Pow = 0.7

12.4. Mobility in soil

Substances	CAS Number	Mobility
Polyethylene glycol (C6-C10) alkyl ether, sulfate ammonium salt	68037-05-8	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	UN1993
UN proper shipping name:	Flammable Liquid, N.O.S. (Contains Isopropanol)
Transport Hazard Class(es):	3
Packing Group:	III
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	UN1993
UN proper shipping name:	Flammable Liquid, N.O.S. (Contains Isopropanol)
Transport Hazard Class(es):	3
Packing Group:	III
Environmental Hazards:	Not applicable
EMS:	EmS F-E, S-E

IATA/ICAO

UN Number	UN1993
UN proper shipping name:	Flammable Liquid, N.O.S. (Contains Isopropanol)
Transport Hazard Class(es):	3
Packing Group:	III
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport

None

HazChem Code

•3Y

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number

None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 04-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H225 - Highly flammable liquid and vapor
H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H400 - Very toxic to aquatic life
H401 - Toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID
HERA
OSHA

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End of Safety Data Sheet

Safety data sheet
Silica sand
Version 2.0
Effective date: 2008-27-02
Revised: 2018-02-08

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier

Trade name: Silica sand

CAS-no.: 14808-60-7
EC-no.: 238-878-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product use: Professional use.

1.3 Details of the supplier of the safety data sheet

Company: Sandaband Well Plugging AS
Hammaren 15
4056 TANANGER
Tel: +47 47679128

Contact: tf@sandaband.com

Importer Name: Chevron Australia Pty Ltd
Address: 250 St Georges Terrace, Perth, WA, 6000, Australia
Telephone: 08 9216 4000
Fax: 08 9216 4444

1.4 Emergency telephone number:
Use your national or local emergency number.

Emergency contact number available during office hours only: 0427 495 187

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification according to 1272/2008 CLP
Carc. 2; H351.

2.2 Label elements 1272/2008 CLP:

Hazard pictograms:



Signal word:
Warning

Contains: Quartz (SiO2).

Hazard statements:
H351 Suspected of causing cancer.

Precautionary statements:
Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

Response:
P308 + 313 IF exposed or concerned: Get medical advice/attention.

Storage:
-

Disposal:
-

2.3 Other hazards
-

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

CAS/EC-No.	Name	Content %	Classification
14808-60-7 / 238-878-4	Quartz (SiO2)	100	Carc. 2; H351.

3.3 Additional information:
See full text of H-phrases in section 16. Occupational limits are listed in section 8, if these are available.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General information: Always contact a doctor, if in doubt about the injured person's condition or if the symptoms continue. Remove affected person from source of contamination.

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Get medical attention if irritation persist.

Skin contact: Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.

Eye contact: Immediately rinse with water. Continue to rinse for at least 15 minutes. Hold eyelids apart. If irritation occurs: Get medical advice/attention.

Ingestion: Do not induce vomiting. Immediately give a couple of glasses of water or milk. If continued discomfort, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed
Dust may irritate respiratory system or lungs. May cause skin irritation. Particles in the eyes may cause irritation and smarting.

4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media:
None known.

5.2 Special hazards arising from the substance or mixture
Not flammable.
Avoid inhalation of smoke in case of fire.

5.3 Advice for firefighters: Firefighters and others who may be exposed to products of combustion should wear full protective clothing including self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
See section 8 for recommendations on the use of personal protective equipment. Avoid contact with eyes.

6.2 Environmental precautions:
Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

6.3 Methods and material for containment and cleaning up:
Collect spilled material using mechanical equipment. Keep container tightly closed. Flush residual spill area with plenty of water.

6.4 Reference to other sections:
See section 8 and 13.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling:
See section 8 for recommendations on the use of personal protective equipment. Avoid contact with eyes. Avoid breathing dust. Avoid handling which leads to dust formation. Keep containers closed when not in use.

7.2 Conditions for safe storage, including any incompatibilities:
Store at moderate temperatures in dry, well-ventilated area.

7.3 Specific end use(s): See Section 1.2.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters - Occupational exposure limits EH40:

CAS-no:	Name:	Limits:
14808-60-7	Quartz (SiO2) - total inhalable - respirable	 Long-term value(TWA): 0,3 mg/m³ Long-term value(TWA): 0,1 mg/m³

DNEL/PNEC:
-

8.2 Exposure controls

Appropriate technical measures:
Ensure adequate ventilation of the working area. Use local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

General information: Smoking, consumption of food or liquid, and storage of tobacco, food or liquid, are not allowed in the workroom. Prevent discharge of larger quantity to drain. Ensure eyewash are available. Avoid breathing dust. Avoid contact with eyes.

Personal protective equipment:
Only CE-marked personal protection equipment should be used.

Respiratory protection: Dust filter P3 (for especially fine dust/powder).

Hand protection: Use suitable protective gloves if risk of skin contact.

Eye protection: Wear dust resistant safety goggles where there is danger of eye contact.

Body protection: Protective clothing as needed.

Measures to avoid environmental exposure:
Avoid discharge into the environment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Odour:	Color:	PH:	Viscosity:
Solid/powder	None	-	-	-
Flash point:	**Boiling point:**	**Vapour pressure:**	**Density g/cm³:**	**Melting point:**
-	-	-	2.65-2.75 - 20°C	-
Ignition temperature:	**Auto-ignition temperature:**	**Molecular weight:**	**Solubility in water 20°C:**	
-	-	60.1	Insoluble in water.	

9.2 Other information:
-

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity: Product is stable under normal, recommended conditions of handling and storage.

10.2 Chemical stability: Product is stable under normal conditions.

10.3 Possibility of hazardous reactions:
Hazardous reactions will not occur under normal transport or storage conditions.

10.4 Conditions to avoid: Avoid contact with strong oxidizing agents.

10.5 Incompatible materials: Strong oxidizing agents.

10.6 Hazardous decomposition products:
The product is not degraded when used as recommended.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

The inhalation of quartz containing dust, in particular the fine dust fraction (respirable size), in high concentrations or over repeated or prolonged periods of time can be hazardous to health and may lead to chronic lung disease and an increased risk of lung cancer. This risk will be minimal if correct working practices are observed and applied. According to the International Agency for Research on Cancer (IARC Monograph Volume 100C - 2012) "Crystalline silica inhaled in the form of quartz or cristobalite is carcinogenic to humans(Group 1).

Acute toxicity: Not classified.

Skin corrosion/irritation: Not classified.

Serious eye damage/irritation: Not classified.

Respiratory or skin sensitisation: Not classified.

Germ cell mutagenicity: Not classified.

Carcinogenicity: Suspected of causing cancer.

Reproductive toxicity: Not classified.

Specific target organ toxicity - single exposure: Not classified.

Specific target organ toxicity – repeated exposure:
Not classified.

Aspiration hazard: Not classified.

Additional information: Dust may irritate respiratory system or lungs.
May cause irritation in the mouth and to the mucous membranes.
May cause skin irritation/eczema.
Particles in the eyes may cause irritation and smarting.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity: Not classified as dangerous for the environment.
The product is on the PLONOR-list. The product is not expected to cause danger for the environment.

12.2 Persistence and degradability:
No data available.

12.3 Bioaccumulative potential:
No potential.

12.4 Mobility in soil: Insoluble in water.

12.5 Result of PBT and vPvB assesment:
The substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects: None known.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:
Dispose of unused contents in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate.

Contaminated packing: Packaging which contains leftovers from the product must be disposed of in the same way as the product.

SECTION 14. TRANSPORT INFORMATION

This product is not classified as dangerous of transport.

	ADR/RID	IMDG/IMO
14.1 UN number	-	-
14.2 UN proper shipping name	-	-
14.3 Transport hazard class(es)	-	-
14.4 Packing group	-	-
14.5 Environmental hazards - MP	-	-

Other informations	-	-

14.6 Special precautions for user:

-

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

-

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Sources:
Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended). Personal Protective Equipment Regulations 2002. Personal Protective Equipment at Work Regulations 1992. Hazardous Waste (England and Wales) Regulations 2005(as amended). EC regulation 1907/2006 (REACH) Directive 2000/532/EC. Seveso directive: 96/82/EC. EU 2015/830.

Additional information: None.

15.2 Chemical safety assessment:

Not necessary.

SECTION 16. OTHER INFORMATION

Full text of H-phrases as mentioned in section 3:
H351 Suspected of causing cancer.

Additional information:
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Change 2018-02-08 section:
1 – 16.

Validated by:
SRS
www.msds-eu.com

HALLIBURTON

SAFETY DATA SHEET

SILICALITE LIQUID

Revision Date: 30-Apr-2020 **Revision Number:** 26

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SILICALITE LIQUID

Other means of Identification

Synonyms None

Hazardous Material Number: HM001274

Recommended use of the chemical and restrictions on use

Recommended Use Light Weight Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Flush skin with large amounts of water. If irritation persists, get medical attention.

Ingestion Rinse mouth with water many times. Get medical attention, if symptoms occur

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Not applicable

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions
None known. Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Keep container closed when not in use. Product has a shelf life of 24 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally necessary.

Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Dark gray
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	6- 8
Freezing Point / Range	0 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	100 °C / 212 °F
Flash Point	100 °C / > 212 °F
Evaporation rate	No data available
Vapor Pressure	22.9
Vapor Density	No data available
Specific Gravity	1.37
Water Solubility	Miscible with water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
Liquid Density	11.64 lbs/gal

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
None known.
10.6. Hazardous decomposition products
Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye and skin contact.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Apr-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

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End of Safety Data Sheet

SDS no. M003
Version 6
Revision date 05-May-2022
Supersedes Date: 18-Sep-2018

Safety Data Sheet
Soda Ash M3

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Soda Ash M3
Product code M003

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Buffer in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
Level 5, 10 Telethon Avenue
Perth WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518, Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 2A

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
WARNING

Hazard Statements
H319 - Causes serious eye irritation

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

–

Contains
Sodium carbonate

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Sodium carbonate	207-838-8	497-19-8	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek medical attention if irritation occurs.

Eye Contact Remove contact lenses, if worn. Promptly wash eyes with lots of water while lifting eye lids.

Continue to rinse for at least 15 minutes. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Sodium oxides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. Avoid dust formation.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.

Methods for cleaning up
Avoid dust formation. Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. Do not eat, drink or smoke when using this product Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture Avoid contact with water and moist air - product is hygroscopic. Store away from incompatibles, Powdered aluminum Strong acids

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Component Information

Chemical Name	Arabic	Australia	Egypt
Sodium carbonate	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Sodium carbonate	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Sodium carbonate	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Sodium carbonate	Not determined	Not determined	Skin notation 2 mg/m^3 MAC

			Skin
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Sodium carbonate	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against powders and dusts Safety glasses with side-shields Tightly fitting safety goggles

Hand protection
Wear gloves according to EN 374 to protect against skin effects from powders Impervious gloves made of: Nitrile rubber Frequent change is advisable

Respiratory protection
No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear appropriate personal protective clothing to prevent skin contact Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before breaks and immediately after handling the product Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure
Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder Dust
Odor	Odorless
Color	White

Property	**Values**	**Remarks**
pH	11	
pH @ dilution	No information available	
Melting / freezing point	851 °C / 1564 °F	
Boiling point/range	Not applicable	

Flash point	Not applicable	
Evaporation rate (BuAc =1)	Not applicable	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	Not applicable	
Relative Vapor Density	Not applicable	
Specific gravity	2.5	@20 °C
Bulk density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	>400◦C/ 752◦F	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	No information available	
Density and/or Relative Density	No information available	
Explosive properties	Not applicable	
Oxidizing properties	None known.	

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Decomposes by reaction with strong acids.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from moisture. Avoid contact with water and moist air - product is hygroscopic.

10.5 Incompatible materials

Powdered aluminum. Strong acids.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.

Eye contact Causes serious eye irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium carbonate	= 4090 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 2300 mg/m³ (Rat) 2 h

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact. Inhalation.

Routes of entry Eye contact. Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Large amounts will affect pH and harm aquatic organisms
Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Sodium carbonate	310 - 1220 mg/L LC50 Pimephales promelas 96 h = 300 mg/L LC50 Lepomis macrochirus 96 h	No information available	= 265 mg/L EC50 Daphnia magna 48 h

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated

IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Sodium carbonate
Schedule 6
Schedule 5

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Sandra McWilliam
Supersedes Date:	18-Sep-2018
Revision date	05-May-2022
Version	6
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2
Flammability	0
Physical hazard	0
PPE	E

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NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **SODIUM BICARBONATE**

Synonyms BAKING SODA ● BICARBONATE OF SODA ● CARBONIC ACID, MONOSODIUM SALT ● MONOSODIUM CARBONATE ● SODIUM ACID CARBONATE ● SODIUM HYDROGEN CARBONATE

1.2 Uses and uses advised against

Uses PH CONTROL

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website http://www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
SODIUM BICARBONATE	144-55-8	205-633-8	>99%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

No adverse health effects expected if the product is handled in accordance with the SDS and the product label.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve carbon oxides and hydrocarbons when heated to decomposition.

5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure packages are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Sodium Bicarbonate (total dust)	SWA [AUS]	--	10	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	When using large quantities or where heavy contamination is likely, wear dust-proof goggles.
Hands	When using large quantities or where heavy contamination is likely, wear PVC or rubber gloves.
Body	Not required under normal conditions of use.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	854°C
Evaporation rate	NOT AVAILABLE
pH	8 (1% Solution)
Vapour density	NOT AVAILABLE
Relative density	2.533
Solubility (water)	170 g/L @ 25°C
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated. Sodium bicarbonate can neutralise the gastric juices in the stomach. During neutralisation, carbon dioxide gas is evolved and may cause stretching of the stomach, and with very large doses possible damage or rupture.

LD50 (Ingestion): 3360 mg/kg (mouse)
LC50 (inhalation): 4.74 mg/L (rat)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
SODIUM BICARBONATE	> 4000 mg/kg (rat)	--	> 4.74 mg/L/4.5hrs (rat)

Skin Not classified as a skin irritant. Prolonged or repeated contact may result in mild irritation.

Eye Not classified as an eye irritant. Contact may result in mild irritation, lacrimation and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Not classified as causing organ damage from single exposure.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not relevant.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

LC50 (Oncorhynchus mykiss) = 7.700 mg/l/96hrs.
LC50 (Lepomis macrochirus) = 7.100 mg/l/96hrs.
EC50 (Crustaceans, Daphnia magna) = 4.100 mg/l/48hrs
LOEC (Crustaceans, Daphnia magna) = 3.100 mg/l/48hrs.

12.2 Persistence and degradability

Biodegradability does not pertain to inorganic substances.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

High mobility in water and soil/sediments.

12.5 Other adverse effects

This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Dispose of to an approved landfill or waste processing site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).

Inventory listings **AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)**
All components are listed on AIIC, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

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[End of SDS]

SDS no. PID1490
Version 7
Revision date 23-May-2023
Supersedes Date: 31-Jan-2019

Safety Data Sheet
SODIUM BROMIDE BRINE

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name SODIUM BROMIDE BRINE
Product code PID1490

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Clear-brine workover and completion fluid.

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

–

Contains
Sodium bromide

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Sodium bromide	231-599-9	7647-15-6	30-60

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Bromine, bromine oxides and hydrogen bromide, Sodium oxides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away

traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Avoid contact with: Acids Metals Bromine trifluoride.

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Because this product is a liquid, the dust-related Workplace Exposure Limits for the components do not apply.

Component Information

Chemical Name	Arabic	Australia	Egypt
Sodium bromide	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Sodium bromide	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Sodium bromide	3 mg/m³ MAC	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Sodium bromide	Not determined	Not determined	3 mg/m³ MAC
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Sodium bromide	Not determined	Not determined	Not determined

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Safety glasses with side-shields Tightly fitting safety goggles
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Nitrile Neoprene PVC Break through time >240 minutes Glove thickness =0.10 - 0.20 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Chemical respirator with inorganic vapour cartridge (Grey B). At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Aqueous solution
Odor	Odorless
Color	Clear

Property	**Values**	**Remarks**
pH	No information available	
pH @ dilution	7-9	@ 10% sol.
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.078 - 1.508	@ 20 °C
Bulk density	No information available	
Water solubility	Soluble in water	

Solubility in other solvents	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Partition Coefficient (n-octanol/water)	Not determined
Density and/or Relative Density	No information available
Explosive properties	Not applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

Acids. Metals. Bromine trifluoride.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium bromide	= 3500 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure None known.

Routes of entry No route of entry noted.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Listed on PLONOR list of OSPAR

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Sodium bromide	= 24000 mg/L LC50 Oryzias latipes 96 h 16000 - 24000 mg/L LC50 Poecilia reticulata 96 h = 16000 mg/L LC50 Poecilia reticulata 96 h 15614 - 17428 mg/L LC50 Pimephales promelas 96 h	5800 - 24000 mg/L EC50 Scenedesmus pannonicus 96 h	5800 - 48000 mg/L EC50 Daphnia magna 48 h 5700 - 10800 mg/L EC50 Daphnia magna 48 h

	> 1000 mg/L LC50 Lepomis macrochirus 96 h 0.054 - 0.081 mg/L LC50 Oncorhynchus mykiss 96 h > 1000 mg/L LC50 Oncorhynchus mykiss 96 h 24000 - 96000 mg/L LC50 Oryzias latipes 96 h		

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not regulated
IMDG/ANTAQ Hazard class Not regulated
ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard

No

14.6 Special precautions

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

The product has been assessed and contained in Chapters 17/18 of the IBC Code and the latest MEPC.2/Circular and is permitted to be carried under Annex II of MARPOL and resolution A.673 (16) Offshore Supply Vessel Code. Ship Type:- 3. Pollution Category:- Y. Proper Shipping Name: Sodium bromide solution (50% or less)

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Sodium bromide
Schedule 4
Schedule 5

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required
Group number	Not required

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies

Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	31-Jan-2019
Revision date	23-May-2023
Version	7
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	0
Physical hazard	0
PPE	B

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SAFETY DATA SHEET

SALT, FINE

Version 1

Section 1. Identification

Product identifier : SALT, FINE

Product code : 100404

ADG : -

Product type : Solid.

Identified uses : Blocking agent

Supplier's details : Baker Hughes, Australia
108 Poole Street,
Welshpool,
Western Australia 6106,
Australia

Tel: +618 9350 3800
Fax: +618 9350 5453

Emergency telephone number : CHEMTREC Emergency Telephone Numbers (Asia Pacific Region):
- Australia: (02) 9037 2994
- Brunei: +(65)-31581349 (Mandarin/English)
- China: 4001-204937 (Mandarin) *
- Hong Kong: 800-968-793 (Cantonese) *
- Indonesia: 001-803-017-9114 (Bahasa Indonesian) *
- Japan: 0800-300-5842 (Japanese)
- Malaysia: 1-800-815-308 (Bahasa Malay) *
- New Zealand: 9801 0034
- Philippines: 1-800-1-116-1020 (Tagalog) *
- PNG: +(61) 2 9037 2994
- Singapore: 800-101-2201 (Mandarin) *
- South Korea: 00-308-13-2549 (Korean) *
- Taiwan: 00801-14-8954 (Mandarin) *
- Thailand: 001-800-13-203-9987 (Thai) *
- Vietnam: +(84)-838012436 (Vietnamese)

- UK: +(44) 870-820-0418
- USA: +(1) 703-527-3887 (CHEMTREC International 24 hour)

* Number can only be dialled in-country

Section 2. Hazard(s) identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Section 2. Hazard(s) identification

Precautionary statements (Code) : -, -, -, -, -

Supplemental label elements : Not applicable.

Other hazards which do not result in classification : None known.

Additional information

Mixing of chemicals may create a reaction hazardous to one's health, to the environment, or a potential fire hazard.

Section 3. Composition and ingredient information

Substance/mixture : Substance

Ingredient name	% (w/w)	CAS number
sodium chloride	60 - 100	7647-14-5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Section 4. First aid measures

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : halogenated compounds,metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazchem code : -

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

Control parameters

Occupational exposure limits

None.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls and personal protection

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Information on basic physical and chemical properties

Appearance

Physical state : Solid.

Colour : Bluish-White , Crystalline

Odour : Odourless.

Odour threshold : Not available.

pH : Not available.

Melting point/freezing point : 800°C

Boiling point, initial boiling point, and boiling range : 1413°C (2575.4°F)

Flash point : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Non-flammable.

Lower and upper explosion limit/ flammability limit : Not applicable.

Vapour pressure : 0.32 kPa (2.4 mm Hg) at 746.9°C

Relative vapour density : Not applicable.

Relative density : 2.16

Solubility(ies) :

Media	Result
cold water	Soluble
hot water	Soluble

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : Not applicable.

Decomposition temperature : Not available.

Viscosity : Not available.

Explosive properties : Not available.

Oxidising properties : Not available.

Other information

Pour point : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Reactive or incompatible with the following materials: acids.
Bromine trifluoride , Lithium

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Irritation/Corrosion

Skin : No known significant effects or critical hazards.

Eyes : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Sensitisation

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity : No known significant effects or critical hazards.

Persistence and degradability

Not available.

Section 13. Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Transport hazard class(es)	PG*	Label
ADR/RID	Not regulated.	-	-	-	
ADG	Not regulated.	-	-	-	
IMDG	Not regulated.	-	-	-	
IATA	Not regulated.	-	-	-	

PG* : Packing group

Section 14. Transport information

Regulatory information	Environmental hazards	Additional information
ADR/RID Class	No.	Hazchem code -
ADG Class	No.	Hazchem code -
IMDG Class	No.	-
IATA Class	No.	-

Additional information**: A • in the Hazchem code indicates that Alcohol Resistant Foam is the preferred extinguishing medium. If not available, use the extinguishing medium indicated by the number in the Hazchem code.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

Australia inventory (AIIC) : All components are listed or exempted.

References : **National Code of Practice for the Control of Workplace Hazardous Substances.**

National Code of Practice for the Labelling of Workplace Substances.
National Code of Practice for the Preparation of Material Safety Data Sheets.
Approved Criteria for Classifying Hazardous Substances.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Any other relevant information

History

Date of printing : 29 January 2024.

Date of issue/Date of revision : 29 January 2024

Date of previous issue : No previous validation

Version : 1

Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
Not classified.	

References : Not available.

Indicates information that has changed from previously issued version.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

HALLIBURTON

SAFETY DATA SHEET

SODIUM CHLORIDE

Revision Date: 30-Apr-2020 **Revision Number:** 38

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SODIUM CHLORIDE

Other means of Identification

Synonyms None

Hazardous Material Number: HM001682

Recommended use of the chemical and restrictions on use

Recommended Use Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Sodium chloride	7647-14-5

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Sodium chloride	7647-14-5	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin Wash with soap and water. Get medical attention if irritation persists.
Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
Causes mild eye irritation. May be harmful if swallowed.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
None anticipated

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust.

6.2. Environmental precautions
None known.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid creating or inhaling dust.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store in a cool, dry location.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Sodium chloride	7647-14-5	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties
Physical State: Solid
Color White
Odor: Odorless
Odor Threshold: No information available

Property	Values	Remarks/ - Method
pH:	No data available	

Freezing Point / Range	No data available
Melting Point / Range	801 °C / 1473.8 °F
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.16
Water Solubility	Very soluble
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive. Stable under normal conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None known

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

None known.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

Causes mild eye irritation. May be harmful if swallowed.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium chloride	7647-14-5	3000 mg/kg-bw (rat)	>10,000 mg/kg bw (rabbit)	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation	May cause mild respiratory irritation.
Eye Contact	Causes mild eye irritation.
Skin Contact	May cause mild skin irritation.
Ingestion	May be harmful if swallowed.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels

No data available

Interactive effects
None known.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Sodium chloride	7647-14-5	Not a dermal irritant

Substances	CAS Number	Serious eye damage/irritation
Sodium chloride	7647-14-5	Causes mild eye irritation.

Substances	CAS Number	Skin Sensitization
Sodium chloride	7647-14-5	Not confirmed to cause skin or respiratory sensitization.

Substances	CAS Number	Respiratory Sensitization
Sodium chloride	7647-14-5	Not confirmed to cause skin or respiratory sensitization.

Substances	CAS Number	Mutagenic Effects
Sodium chloride	7647-14-5	No information available

Substances	CAS Number	Carcinogenic Effects
Sodium chloride	7647-14-5	Based on available data, the classification criteria are not met.

Substances	CAS Number	Reproductive toxicity
Sodium chloride	7647-14-5	Based on available data, the classification criteria are not met.

Substances	CAS Number	STOT - single exposure
Sodium chloride	7647-14-5	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Sodium chloride	7647-14-5	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Sodium chloride	7647-14-5	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Sodium chloride	7647-14-5	No information available	LC50 (96h) 9675 mg/L	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Sodium chloride	7647-14-5	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Sodium chloride	7647-14-5	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Sodium chloride	7647-14-5	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

If practical, recover and reclaim, recycle, or reuse by the guidelines of an approved local reuse program. Should contaminated product become a waste, dispose of in a licensed industrial landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.

US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Apr-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL – Short Term Exposure Limit
SU – Sector of Use category
TWA – Time-Weighted Average
UN – United Nations
VOC – Volatile Organic Carbon
vPvB – very Persistent and very Bioaccumulative
VLA-ED - time-weighted average values for a whole work shift [Spain valores límite ambientales para la exposición diaria]
NDS - najwyisze dopuszczalne stkienie na stanowisku pracy
SZW - Netherlands Ministry of Social Affairs and Employment
ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
AS/NZS 1715 - New Zeland Standard on Selection, use and maintenance of respiratory protective equipment
C - Celsius
EN 149 - European standard on filtering halfmasks to protect against particles
EN 374 - European standard on Protective gloves against chemicals and micro-organisms
FFP - Filtering Facepieces
h - hour
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
NDS - OEL-TWA [Poland najwyisze dopuszczalne stkienie na stanowisku pracy]
R/H-phrases - Risk/Hazard-phrases
RID - The European Agreement concerning the International Carriage of Dangerous Goods by Rail
UK - United Kingdom
w/w - weight/weight
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
MAK - Maximum Workplace Concentration
d - day
vPvB – very Persistent and very Bioaccumulative

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

MATERIAL SAFETY DATA SHEET

PAGE	Page **1** of **3**
REVISION DATE	09/06/2020
PRINT DATE	09/06/2020
PRODUCT NAME	Sodium Chloride (Bubble salt) BLS990
VERSION	0

IDENTIFICATION OF THE PRODUCT AND THE COMPANY

ADG Code: NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code). Not classified as a hazardous Substance according to Safe work Australia.

Product Name: **Sodium Chloride (Bubble salt) BLS990**

Company Name:

ALL CHEMICAL
A.B.N: 12631121849

Perth Office	Albany Office
9/69 Truganina Road	1/209 Chester Pass Road
Malaga WA 6090	Albany WA 6330
(08) 92482662	(08) 68186241

Emergency telephone number: +61 432164241

COMPOSITION/ INFORMATION ON INGREDIENTS

Other names: Aussie/Natural Lake Salt, Bubble Salt, Butchers Salt, Coarse Salt, Crude Salt, and Low Sodium Salt.

Product uses: Used as food flavouring, food preservative, in fabric dye industry, to cure hides and skins, glazing pottery, chemical manufacture, soaps and metal recycling.

PHYSICAL DESCRIPTION AND PROPERTIES

Appearance	Translucent to white crystals, granules or powder
Crystal Shape	Cubic/pyramidal in shape
Molecular weight	58.448
Properties of NaCl	Composition by weight is 39.3% sodium & 60.7% chloride
Density	1.2 gm/cc
pH	7.0 to 7.8
Melting Point	801ºC
Boiling Point	1413 ºC at 101.3 kPa
Vapour Pressure	1mm Hg at 865 ºC
Solubility in Water	35.7 gm/100 ml at 0ºC 39.12 gm/100 ml at 100ºC

Chemical Name	CAS No.	Proportion
Sodium chloride (NaCl)	7647-14-5	> 95%

MATERIAL SAFETY DATA SHEET

HEALTH HAZARD INFORMATION

Salt has been not been classed as hazardous according to NOHDC criteria.

Eye Salt is an irritant and may abrade and cause an inflammation of the eye.

Skin May be an irritant to some sensitive persons, or when applied to open cuts and abrasions.

Inhalation Irritant to mucous membranes.

Ingestion After excessive ingestion salt may cause oedema or elevated blood pressure and may cause vomiting. Salt is a stomach irritant.

FIRST AID

Skin: Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye: Wash thoroughly with running water. Get medical advice if irritation develops.

Ingestion: Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Inhalation: Remove to fresh air. Get medical attention for any breathing difficulty.

High water intake facilitates urinary excretion and relief of temporary symptoms.

FIRE AND/OR EXPLOSION HAZARD

General Measures This material is non-combustible. Flames on or in the vicinity of this material can be extinguished using conventional firefighting agents and procedures. However, when heated to decomposition, it emits toxic chloride and sodium oxide fumes.

SPILLS AND DISPOSAL

Clean up: Recover product where practical. Sweep up remnants and dispose of in a sealed container in licenced waste. Flush the area to dissolve in sufficient amounts of water to meet existing water quality standards.

Ensure appropriate measures are taken to prevent excess material entering the Environment.

Disposal: Clean material can be re used. Dispose of waste material only in accordance with the applicable federal, state and local laws and regulations.

MATERIAL SAFETY DATA SHEET

PAGE	Page **3** of **3**
REVISION DATE	09/06/2020
PRINT DATE	09/06/2020
PRODUCT NAME	Sodium Chloride (Bubble salt) BLS990
VERSION	0

STORAGE AND HANDLING

Store under cover at relative humidity below 75% to retard caking. Cycling salt through the 75% relative humidity zone will rapidly increase the onset of caking. In transit, cover to prevent rain and physical damage.

PRECAUTIONS FOR USE

Engineering controls: Adequate ventilation is recommended. Under normal circumstances protective wear is not required, however under very dusty conditions a dust mask is recommended. Gloves, goggles etc. may be used for comfort.

STABILITY AND REACTIVITY

Chemical Stability Stable
Conditions to Avoid None
Incompatible materials Bromium Triflouride, Lithium, strong acids
Hazardous Reactions Reacts violently with Bromium Trifluoride and Lithium

TRANSPORT INFORMATION

Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG).

Person to contact:

Abel Hlophe – All Chemical Senior
Chemical Engineer +61 432164241

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only about safety requirements. The data do not describe the product's properties. Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in this Safety Data Sheet. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and regulation are observed.

HALLIBURTON

SAFETY DATA SHEET

SODIUM FLUORESCEIN POWDER

Revision Date: 23-Mar-2017 **Revision Number:** 4

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SODIUM FLUORESCEIN POWDER

Other means of Identification

Synonyms None

Hazardous Material Number: HM007136

Recommended use of the chemical and restrictions on use

Recommended Use Dye

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention	None
Response	None
Storage	None
Disposal	None

Contains

Substances	**CAS Number**
Sodium fluorescein	518-47-8

Other hazards which do not result in classification
None known

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Sodium fluorescein	518-47-8	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin	Wash with soap and water.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust.

6.2. Environmental precautions
None known.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from acids. Store in a cool, dry location.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Sodium fluorescein	518-47-8	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties
Physical State: Solid
Color Red-orange
Odor: Odorless
Odor Threshold: No information available

Property	Values	Remarks/ - Method
pH:	No data available	
Freezing Point / Range	No data available	
Melting Point / Range	No data available	
Boiling Point / Range	290 °C / 554 °F	

Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	No data available
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	376.28
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong acids.
10.6. Hazardous decomposition products
Hydrogen fluoride.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Numerical measures of toxicity

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium fluorescein	518-47-8	6721 mg/kg (Rat) 2500 mg/kg (Rabbit) 4738 mg/kg (Mouse)	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation.
Skin Contact	Prolonged or repeated contact may cause slight skin irritation.
Ingestion	May cause damage to bones and teeth.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Sodium fluorescein	518-47-8	Substance may cause slight skin irritation

Substances	CAS Number	Serious eye damage/irritation
Sodium fluorescein	518-47-8	May cause mild eye irritation.

Substances	CAS Number	Skin Sensitization
Sodium fluorescein	518-47-8	No information available

Substances	CAS Number	Respiratory Sensitization
Sodium fluorescein	518-47-8	No information available

Substances	CAS Number	Mutagenic Effects
Sodium fluorescein	518-47-8	In vitro tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Sodium fluorescein	518-47-8	No data of sufficient quality are available.

Substances	CAS Number	Reproductive toxicity
Sodium fluorescein	518-47-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Sodium fluorescein	518-47-8	No data of sufficient quality are available.

Substances	CAS Number	STOT - repeated exposure
Sodium fluorescein	518-47-8	No data of sufficient quality are available.

Substances	CAS Number	Aspiration hazard
Sodium fluorescein	518-47-8	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Sodium fluorescein	518-47-8	No information available	LC50 (96h) 997 mg/L (Psetta maxima) LC50 (96h) 1372 mg/L (Oncorhynchus mykiss) LC50 (96h) 2267 mg/L (Ictalurus punctatus) LC50 (96h) 3433 mg/L (Lepomis macrochirus)	No information available	LC50 (48h) 337 mg/L (Daphnia pulex)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Sodium fluorescein	518-47-8	Readily biodegradable (100% @ 20d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow

Sodium fluorescein	518-47-8	Log Kow = -0.67 (estimated)

12.4. Mobility in soil

Substances	CAS Number	Mobility
Sodium fluorescein	518-47-8	KOC = < 2

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or

Chemicals	assessment certificate.
EINECS (European Inventory of Existing Chemical Substances)	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply
Basel Convention - Hazardous Waste:	Does not apply

16. Other information

Date of preparation or review

Revision Date: 23-Mar-2017

Revision Note
SDS sections updated: 2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

STARCIDE®

Revision Date: 15-Nov-2018 **Revision Number:** 7

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name STARCIDE®

Other means of Identification

Synonyms None

Hazardous Material Number: HB003388

Recommended use of the chemical and restrictions on use

Recommended Use Bactericide

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Acute Oral Toxicity	Category 4 - H302
Acute inhalation toxicity - vapor	Category 4 - H332
Acute inhalation toxicity - dust/mist	Category 4 - H332
Skin Corrosion/Irritation	Category 1 - H314
Serious Eye Damage/Irritation	Category 1 - H318
Skin Sensitization	Category 1 - H317
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373
Acute Aquatic Toxicity	Category 2 - H401
Chronic Aquatic Toxicity	Category 3 - H412

- H251

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H332 - Harmful if inhaled
H317 - May cause an allergic skin reaction
H373 - May cause damage to organs through prolonged or repeated exposure
H401 - Toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements

Prevention
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P391 - Collect spillage

Storage
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia

3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	60 - 100%	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Skin Corr. 1C (H314) Eye Corr. 1 (H318) Skin Sens. 1 (H317) STOT RE 2 (H373) Aquatic Acute 2 (H401) Aquatic Chronic 3 (H412)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes severe eye irritation which may damage tissue. Causes severe skin irritation with tissue destruction. May cause allergic skin reaction. Harmful if swallowed. Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation. Evacuate all persons from the area.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas. Consult local authorities.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Avoid breathing mist. Ensure adequate ventilation. Do NOT consume food, drink, or tobacco in contaminated areas. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in original container. Store away from oxidizers. Store away from acids. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 12 months. Keep Away From Food

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.
Organic vapor respirator.

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. Butyl rubber gloves. (>= 0.7 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not flush into surface water or sanitary sewer system Avoid subsoil penetration

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color Colorless to slight yellow
Odor: Sweet amine
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	10 (0.15%)
Freezing Point / Range	No data available
Melting Point / Range	< -35 °C / -31 °F
Pour Point / Range	No data available
Boiling Point / Range	204 °C / 399.2 °F
Flash Point	> 100 °C / > 212 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	0.014 hPa
Vapor Density	No data available
Specific Gravity	1.049 - 1.069
Water Solubility	Soluble in water
Solubility in other solvents	benzene heptane
Partition coefficient: n-octanol/water	1.89
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	21 mPas @ 20°C
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	186.25
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers. Strong acids. Reducing agents.
10.6. Hazardous decomposition products
Formaldehyde. Oxides of nitrogen. Oxides of sulfur.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes severe eye irritation which may damage tissue. Causes severe skin irritation with tissue destruction. May cause allergic skin reaction. Harmful if swallowed. Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	900 mg/kg (Rat)	-	2 mg/L (Rat, 4 hr, aerosol)

Immediate, delayed and chronic health effects from exposure

Inhalation	Harmful if inhaled. Causes severe respiratory irritation.
Eye Contact	Causes eye burns
Skin Contact	Causes severe burns. May cause an allergic skin reaction.

Ingestion Harmful if swallowed. Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may cause damage to the upper respiratory tract. Formaldehyde, a suspected carcinogen, is released when heated.

Exposure Levels
No data available

Interactive effects
Skin disorders. Eye ailments.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Causes severe irritation and or burns (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Causes severe irritation and or burns (Rabbit)

Substances	CAS Number	Skin Sensitization
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	May cause sensitization by skin contact (guinea pig)

Substances	CAS Number	Respiratory Sensitization
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	No information available

Substances	CAS Number	Mutagenic Effects
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	In vivo tests did not show mutagenic effects. In vitro tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Causes damage to organs through prolonged or repeated exposure: Gastrointestinal tract (GI) Respiratory system

Substances	CAS Number	Aspiration hazard
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Not applicable

12. Ecological Information

Ecotoxicity
Product Ecotoxicity Data
Product is not classified as hazardous to the environment.

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to	Toxicity to Invertebrates

				Microorganisms	
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	EC50(72 h)=5.7 mg/L (Desmodesmus subspicatus) EC50()=3.35 mg/L (Skeletonema costatum)	LC50(96 h)=135.21 mg/L (Scophthalmus maximus)	EC50: 44 mg/L (activated sludge)	EC50(48 h)=37.9 mg/L (Daphnia magna) EC50(48 h)=4.1 mg/L (Acartia tonsa) NOEC(21 d)=1.3 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Readily biodegradable (69.4% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	Log Pow=-0.11

12.4. Mobility in soil

Substances	CAS Number	Mobility
3, 3'-Methylene bis (5-methyl oxazolidine)	66204-44-2	No information available

12.6. Other adverse effects

Does not contain any organically bound halogen. May not increase the AOX value when discharged from treatment plants or into natural waters.

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number UN2735
UN proper shipping name: Amines, Liquid, Corrosive, N.O.S. (Contains N, N' -Methylenebis[5-methyl oxazolidine])
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

IMDG/IMO

UN Number UN2735
UN proper shipping name: Amines, Liquid, Corrosive, N.O.S. (Contains N, N' -Methylenebis[5-methyl oxazolidine])
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable
EMS: EmS F-A, S-B

IATA/ICAO

UN Number UN2735

UN proper shipping name:	Amines, Liquid, Corrosive, N.O.S. (Contains N, N' -Methylenebis[5-methyl oxazolidine])
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Not applicable

Special precautions during transport
None

HazChem Code
2X

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 15-Nov-2018

Revision Note

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H311 - Toxic in contact with skin
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H411 - Toxic to aquatic life with long lasting effects

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight

CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL – Short Term Exposure Limit
SU – Sector of Use category
TWA – Time-Weighted Average
UN – United Nations
VOC – Volatile Organic Carbon
vPvB – very Persistent and very Bioaccumulative
VLA-ED - time-weighted average values for a whole work shift [Spain valores límite ambientales para la exposición diaria]
NDS - najwyisze dopuszczalne stkienie na stanowisku pracy
SZW - Netherlands Ministry of Social Affairs and Employment
ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
AS/NZS 1715 - New Zeland Standard on Selection, use and maintenance of respiratory protective equipment
C - Celsius
EN 149 - European standard on filtering halfmasks to protect against particles
EN 374 - European standard on Protective gloves against chemicals and micro-organisms
FFP - Filtering Facepieces
h - hour
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
NDS - OEL-TWA [Poland najwyisze dopuszczalne stkienie na stanowisku pracy]
R/H-phrases - Risk/Hazard-phrases
RID - The European Agreement concerning the International Carriage of Dangerous Goods by Rail
UK - United Kingdom
w/w - weight/weight
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
MAK - Maximum Workplace Concentration
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained

from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

SDS no. PID11833
Version 7
Revision date 22-Oct-2019
Supersedes Date: 13-Oct-2016

Safety Data Sheet
STARGLIDE*

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name STARGLIDE*
Product code PID11833

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Lubricant

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Serious eye damage/eye irritation	Category 1

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
DANGER

Hazard Statements
H318 - Causes serious eye damage

Precautionary statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

-

Contains
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature

Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	500-012-0	9004-77-7	30-60

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. If conscious, drink plenty of water. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO_2), or foam.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands before eating, drinking or smoking Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Avoid contact with: Strong oxidizing agents

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Contains no substances with occupational exposure limit values No biological limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**

Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection
Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles Safety glasses with side-shields

Hand protection
Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Neoprene Nitrile PVC
Break through time >480 minutes
Glove thickness >=0.4 mm
Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection
No personal respiratory protective equipment normally required In case of insufficient ventilation wear suitable respiratory equipment Respirator with a vapor filter (EN 141) Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures
Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure
Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state Liquid
Appearance No information available
Odor Slight
Color Yellow
Odor threshold Not applicable

Property	Values	Remarks
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	< -10 °C / 14 °F	
Boiling point/range	No information available	
Flash point	> 130 °C / > 266 °F	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	No information available	
Bulk density	No information available	
Relative density	No information available	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
log Pow	No information available	

Explosive properties	Not applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density	0.93 - 0.97 g/ml

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye damage.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

LD50 Oral > 2000 mg/kg (rat) Calculated (MIXTURE)

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	2630 mg/kg (Rat)	3540 mg/kg bw (Rabbit)	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Eye contact.

Routes of entry Eye contact.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that

large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	LC50 >1800 mg/l, 96h Scophthalmus maximus OECD 203	EC50: 2490 mg/l, 72h Selenastrum capricornutum OECD 201	EC50 >3200 mg/l, 48h Daphnia magna OECD 202

12.2 Persistence and degradability

Product is biodegradable. See component information below.

Chemical Name	Persistence and degradability
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	OECD 301D 76%

12.3 Bioaccumulative potential

The product contains potentially bioaccumulating substances. See component information below.

Chemical Name	Bioaccumulation
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	log Kow 0.44@20°C

12.4 Mobility

Mobility
Insoluble in water. See component information below.

Chemical Name	Mobility
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	Soluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Poly(oxy-1,2-ethanediyl), a-butyl-omega-hydroxy	Not expected to adsorb on soil

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information
Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

No poisons schedule number allocated

New Zealand Hazard Classification Classified

HSNO approval no. HSR002606

Group number 8.3A

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Does not comply
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse

Supersedes Date: 13-Oct-2016

Revision date 22-Oct-2019

Version 7

This SDS has been revised in the following section(s) All sections No changes with regard to classification have been made. Updated according to GHS/CLP.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information

National occupational exposure limits

*A mark of M-I L.L.C., a Schlumberger Company

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HALLIBURTON

SAFETY DATA SHEET

S-TEK

Revision Date: 01-Jun-2020 **Revision Number:** 22

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name S-TEK

Other means of Identification

Synonyms None

Hazardous Material Number: HM005273

Recommended use of the chemical and restrictions on use

Recommended Use THERMATEK Waterproofing Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 1 - H314
Serious Eye Damage/Irritation	Category 1 - H318
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary Statements

Prevention
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER/doctor/physician if you feel unwell

Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Silanetriol, methyl-, potassium salt	31795-24-1

Other hazards which do not result in classification
None known

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Silanetriol, methyl-, potassium salt	31795-24-1	30 - 60%	Skin Corr. 1 (H314) Eye Corr. 1 (H318) STOT SE 3 (H335)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Seek immediate medical attention/advice. Suitable emergency eye wash facility

should be immediately available

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.

Ingestion Following ingestion, onset of symptoms may be delayed by 12 to 24 hours. Admission to hospital should be the first priority even if symptoms are absent.

Symptoms caused by exposure

Causes severe skin irritation with tissue destruction. Causes severe eye irritation which may damage tissue. May cause respiratory irritation.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

Do NOT spray pool fires directly with water. A solid stream of water directed into hot burning liquid can cause splattering.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use appropriate protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Dike far ahead of liquid spill for later disposal. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Do not breathe dust/fume/gas/mist/vapors/spray. Ensure adequate ventilation. Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a well ventilated area.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Silanetriol, methyl-, potassium salt	31795-24-1	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Ensure adequate ventilation, especially in confined areas

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Positive pressure self-contained breathing apparatus.

Hand Protection Impervious rubber gloves. Manufacturer's directions for use should be observed because of great diversity of types. Oil-resistant gloves. Impervious gloves

Skin Protection Full protective chemical resistant clothing. Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid **Color** Clear colorless

Odor: Mild **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	13
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.33
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Silicon dioxide. Metal oxides. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes severe skin irritation with tissue destruction. Causes severe eye irritation which may damage tissue. May cause respiratory irritation.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Silanetriol, methyl-, potassium salt	31795-24-1	>2000 mg/kg (Rats) 11685 mg/kg bw (Rats) (Similar substances)	No data available	> 13.5 mg/L (Rat) (4hr)(Similar Substance) > 42.1 mg/L (Rat) (6hr) (Similar substance)

Immediate, delayed and chronic health effects from exposure
Inhalation May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness. May cause respiratory irritation.
Eye Contact Causes serious eye damage.
Skin Contact Causes severe burns.
Ingestion Ingestion of this product may cause blindness due to the presence of methanol. Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may cause reproductive system damage. Prolonged or repeated exposure may cause embryo and fetus toxicity.

Exposure Levels
No data available

Interactive effects
Skin disorders.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Silanetriol, methyl-, potassium salt	31795-24-1	Causes severe burns (similar substances)

Substances	CAS Number	Serious eye damage/irritation
Silanetriol, methyl-, potassium salt	31795-24-1	Causes severe eye irritation which may damage tissue.

Substances	CAS Number	Skin Sensitization
Silanetriol, methyl-, potassium salt	31795-24-1	No information available

Substances	CAS Number	Respiratory Sensitization
Silanetriol, methyl-, potassium salt	31795-24-1	No information available

Substances	CAS Number	Mutagenic Effects
Silanetriol, methyl-, potassium salt	31795-24-1	No information available

Substances	CAS Number	Carcinogenic Effects
Silanetriol, methyl-, potassium salt	31795-24-1	No information available

Substances	CAS Number	Reproductive toxicity
Silanetriol, methyl-, potassium salt	31795-24-1	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Silanetriol, methyl-, potassium salt	31795-24-1	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Silanetriol, methyl-, potassium salt	31795-24-1	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	Aspiration hazard
Silanetriol, methyl-, potassium salt	31795-24-1	No information available

12. Ecological Information

Ecotoxicity

Product Ecotoxicity Data

Product is not classified as hazardous to the environment.

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Silanetriol, methyl-, potassium salt	31795-24-1	EC50 (72h) 3.6 mg/L (Pseudokirchnerella subcapitata)(similar substance)	LC50 (96h) 500 mg/L (Danio rerio)(Similar substance)	EC50 (3h) 100 mg/L (activated sludge)(domestic)	EC50 (48h) 100 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Silanetriol, methyl-, potassium salt	31795-24-1	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Silanetriol, methyl-, potassium salt	31795-24-1	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Silanetriol, methyl-, potassium salt	31795-24-1	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	UN1719
UN proper shipping name:	Caustic Alkali Liquid, N.O.S. (Contains Potassium Methyl Siliconate)
Transport Hazard Class(es):	8
Packing Group:	II
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	UN1719
UN proper shipping name:	Caustic Alkali Liquid, N.O.S. (Contains Potassium Methyl Siliconate)
Transport Hazard Class(es):	8
Packing Group:	II
Environmental Hazards:	Not applicable
EMS:	EmS F-A, S-B

IATA/ICAO

UN Number	UN1719
UN proper shipping name:	Caustic Alkali Liquid, N.O.S. (Contains Potassium Methyl Siliconate)
Transport Hazard Class(es):	8
Packing Group:	II
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

2R

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List	All components listed on inventory or are exempt.

(DSL)

Poisons Schedule number
S5

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 01-Jun-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
OSHA
ECHA C&L

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

Safety data sheet
Stone Boulders
Version 2.0
Effective date: 2008-27-02
Revised: 2018-02-08

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier

Trade name: Stone Boulders

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product use: Professional use.

1.3 Details of the supplier of the safety data sheet

Company:
Sandaband Well Plugging AS
Hammaren 15
4056 TANANGER
Tel: +47 47679128

Contact: tf@sandaband.com

Importer Name: Chevron Australia Pty Ltd
Address: 250 St Georges Terrace, Perth, WA, 6000, Australia
Telephone: 08 9216 4000
Fax: 08 9216 4444

Emergency contact number available during office hours only: 0427 495 187

1.4 Emergency telephone number:
Use your national or local emergency number.

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification according to 1272/2008 CLP
Not classified.

2.2 Label elements 1272/2008 CLP:

Not classified.

2.3 Other hazards
-

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

CAS/EC-No.	Name	Content %	Classification
- / -	Granite Stone boulders	100	-

3.3 Additional information:
Occupational limits are listed in section 8, if these are available.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General information:	Always contact a doctor, if in doubt about the injured person's condition or if the symptoms continue. Remove affected person from source of contamination.
Inhalation:	If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Get medical attention if irritation persist.
Skin contact:	Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact:	Immediately rinse with water. Continue to rinse for at least 15 minutes. Hold eyelids apart. If irritation occurs: Get medical advice/attention.
Ingestion:	Do not induce vomiting. Immediately give a couple of glasses of water or milk. If continued discomfort, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Dust may irritate respiratory system or lungs. May cause skin irritation. Particles in the eyes may cause irritation and smarting.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media:

None known.

5.2 Special hazards arising from the substance or mixture

Not flammable.
Avoid inhalation of smoke in case of fire.

5.3 Advice for firefighters: Firefighters and others who may be exposed to products of combustion should wear full protective clothing including self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

See section 8 for recommendations on the use of personal protective equipment. Avoid contact with eyes.

6.2 Environmental precautions:

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

6.3 Methods and material for containment and cleaning up:

Collect spilled material using mechanical equipment. Keep container tightly closed. Flush residual spill area with plenty of water.

6.4 Reference to other sections:
See section 8 and 13.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling:
See section 8 for recommendations on the use of personal protective equipment. Avoid contact with eyes. Avoid breathing dust. Avoid handling which leads to dust formation. Keep containers closed when not in use.

7.2 Conditions for safe storage, including any incompatibilities:
Store at moderate temperatures in dry, well-ventilated area.

7.3 Specific end use(s): See Section 1.2.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters - Occupational exposure limits EH40:

CAS-no:	Name:	Limits:
-	Dust - total inhalable - respirable	 Long-term value(TWA): 10 mg/m³ Long-term value(TWA): 4 mg/m³

DNEL/PNEC:
-

8.2 Exposure controls

Appropriate technical measures:
Ensure adequate ventilation of the working area. Use local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

General information: Smoking, consumption of food or liquid, and storage of tobacco, food or liquid, are not allowed in the workroom. Prevent discharge of larger quantity to drain. Ensure eyewash are available. Avoid breathing dust. Avoid contact with eyes.

Personal protective equipment:
Only CE-marked personal protection equipment should be used.

Respiratory protection: If ventilation is insufficient, suitable respiratory protection must be provided. Dust filter P2 (for fine dust).

Hand protection: Use suitable protective gloves if risk of skin contact.

Eye protection: Wear dust resistant safety goggles where there is danger of eye contact.

Body protection: Protective clothing as needed.

Measures to avoid environmental exposure:
Avoid discharge into the environment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	**Odour:**	**Color:**	**PH:**	**Viscosity:**
Solid/powder	None	Grey	-	-
Flash point:	**Boiling point:**	**Vapour pressure:**	**Density g/cm³:**	**Melting point:**
-	-	-	2.9–3.1 - 20°C	-
Ignition temperature:	**Auto-ignition temperature:**	**Molecular weight:**	**Solubility in water 20°C:**	
-	-	-	Insoluble in water	

9.2 Other information:
-

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity: Product is stable under normal, recommended conditions of handling and storage.

10.2 Chemical stability: Product is stable under normal conditions.

10.3 Possibility of hazardous reactions:
Hazardous reactions will not occur under normal transport or storage conditions.

10.4 Conditions to avoid: None known.

10.5 Incompatible materials: None known.

10.6 Hazardous decomposition products:
The product is not degraded when used as recommended.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity: Not classified.

Skin corrosion/irritation: Not classified.

Serious eye damage/irritation: Not classified.

Respiratory or skin sensitisation: Not classified.

Germ cell mutagenicity: Not classified.

Carcinogenicity: Not classified.

Reproductive toxicity: Not classified.

Specific target organ toxicity - single exposure: Not classified.

Specific target organ toxicity – repeated exposure:
Not classified.

Aspiration hazard: Not classified.

Additional information: Dust may irritate respiratory system or lungs.
May cause irritation in the mouth and to the mucous membranes.
May cause skin irritation/eczema.
Particles in the eyes may cause irritation and smarting.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity: Not classified as dangerous for the environment.
Aquatic toxicity testing is not relevant for granite.

12.2 Persistence and degradability:
No data available.

12.3 Bioaccumulative potential:
No potential.

12.4 Mobility in soil: Insoluble in water.

12.5 Result of PBT and vPvB assesment:
The substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects: None known.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:
Dispose of unused contents in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate.

Contaminated packing: Packaging which contains leftovers from the product must be disposed of in the same way as the product.

SECTION 14. TRANSPORT INFORMATION

This product is not classified as dangerous of transport.

	ADR/RID	IMDG/IMO
14.1 UN number	-	-
14.2 UN proper shipping name	-	-
14.3 Transport hazard class(es)	-	-
14.4 Packing group	-	-
14.5 Environmental hazards - MP	-	-
Other informations	-	-

14.6 Special precautions for user:

-

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

-

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Sources:

Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002 (as amended). Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended). Personal Protective Equipment Regulations 2002. Personal Protective Equipment at Work Regulations 1992. Hazardous Waste (England and Wales) Regulations 2005(as amended). EC regulation 1907/2006 (REACH) Directive 2000/532/EC. Seveso directive: 96/82/EC. EU 2015/830.

Additional information: None.

15.2 Chemical safety assessment:

Not necessary.

SECTION 16. OTHER INFORMATION

Full text of H-phrases as mentioned in section 3:

-

Additional information:
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Change 2018-02-08 section:
1 – 16.

Validated by:
SRS
www.msds-eu.com

HALLIBURTON

SAFETY DATA SHEET

SUGAR

Revision Date: 30-Apr-2020 **Revision Number:** 16

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SUGAR

Other means of Identification

Synonyms None

Hazardous Material Number: HM003915

Recommended use of the chemical and restrictions on use

Recommended Use Additive Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Under normal conditions, first aid procedures are not required.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid creating or inhaling dust. Ensure adequate ventilation. Launder contaminated clothing before reuse.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Store in a cool, dry location.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	White
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	160 °C / 320 °F
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.58
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation None known.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability
Readily biodegradable

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations	NA	No information available

above cut-off values according to the competent authority		

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Apr-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any

material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

SUPER CBL ADDITIVE

Revision Date: 16-Mar-2022 **Revision Number:** 33

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name SUPER CBL ADDITIVE

Other means of Identification

Synonyms None

Hazardous Material Number: HM001309

Recommended use of the chemical and restrictions on use

Recommended Use Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Substances/mixtures which, in contact with water, emit flammable gases.	Category 2 - H261

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements: H261 - In contact with water releases flammable gas

Precautionary Statements

Prevention
P223 - Do not allow contact with water.
P231 + P232 - Handle and store contents under inert gas. Protect from moisture.
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response
P335 + P334 - Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

Storage
P402 + P404 - Store in a dry place. Store in a closed container

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains Substances	**CAS Number**
Aluminum	7429-90-5

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Aluminum	7429-90-5	60 - 100%	Flam. Sol. 1 (H228) Pyr. Sol. 1 (H250) Water-react. 2 (H261)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Sand.

Extinguishing media which must not be used for safety reasons

Do NOT use water or carbon dioxide or other liquids on aluminum fires.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Combustible dust when in finely divided and highly suspended state. Avoid stirring burning aluminum. Shut off electricity. Isolate material. Ring sand or class D extinguishing material around fire to contain.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Evacuate all persons from the area.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas. Consult local authorities.

6.3. Methods and material for containment and cleaning up

Remove ignition sources and work with non-sparking tools. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid creating or inhaling dust. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a well ventilated area. Store away from oxidizers. Keep container closed when not in use. Store locked up. Store away from acids. Store away from alkalis. Store away from water. Store in a cool, dry location. Product has a shelf life of 9 months

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Aluminum	7429-90-5	TWA: 10 mg/m^3 TWA: 5 mg/m^3	TWA: 1 mg/m^3

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection	Dust/mist respirator. (N95, P2/P3)
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.
Environmental Exposure Controls	Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid
Color Silver
Odor: Odorless
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	> 176 °C (Closed cup)
Lower flammability limit	0.04
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.7
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	650 °C / 1202 °F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
May react with water with some release of energy but not violently
10.4. Conditions to avoid
Keep away from any contact with water.
10.5. Incompatible materials
Contact with water. Strong acids. Strong alkalis. Strong oxidizers. Halogenated compounds.
10.6. Hazardous decomposition products
Flammable hydrogen gas. Metal oxides.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Aluminum	7429-90-5	> 5000 mg/kg (Rat) (Similar substance)	> 5000 mg/kg (Rabbit) (Similar substance)	> 2.3 mg/L (Rat, 4 h, dust) (Similar substance)

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.

Eye Contact May cause mechanical irritation to eye.

Skin Contact Not irritating to skin in rabbits.

Ingestion Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels

No data available

Interactive effects

Lung disorders.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Aluminum	7429-90-5	Non-irritating to the skin (Rabbit) (similar substances)

Substances	CAS Number	Serious eye damage/irritation
Aluminum	7429-90-5	Non-irritating to the eye (Rabbit) (similar substances)

Substances	CAS Number	Skin Sensitization
Aluminum	7429-90-5	Did not cause sensitization on laboratory animals (guinea pig) (similar substances)

Substances	CAS Number	Respiratory Sensitization
Aluminum	7429-90-5	Did not cause sensitization on laboratory animals (mouse) (similar substances)

Substances	CAS Number	Mutagenic Effects
Aluminum	7429-90-5	In vivo tests did not show mutagenic effects. (similar substances)

Substances	CAS Number	Carcinogenic Effects
Aluminum	7429-90-5	Did not show carcinogenic or teratogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
Aluminum	7429-90-5	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Aluminum	7429-90-5	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Aluminum	7429-90-5	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	Aspiration hazard
Aluminum	7429-90-5	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Aluminum	7429-90-5	EC50(72h): 448.05 mg/L (Skeletonema costatum)	Limit Test: > 1 mg/L (Scophthalmus maximus)	No information available	LC50(48h): 2.47 mg/L (Arcatia tonsa)

12.2. Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

Substances	CAS Number	Persistence and Degradability
Aluminum	7429-90-5	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Aluminum	7429-90-5	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Aluminum	7429-90-5	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable

Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 16-Mar-2022

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H261 - In contact with water releases flammable gases
H228 - Flammable solid

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data

www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

SUPER CBL EXP

Revision date: 19-Dec-2023 **Revision Number:** 2

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name SUPER CBL EXP

Product Code(s) HM004852

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended use Cement Additive
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

GHS Classification

Aspiration hazard	Category 1

Label elements



Signal word
DANGER

Hazard statements
May be fatal if swallowed and enters airways.

Precautionary Statements - Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor.
Do NOT induce vomiting.
Precautionary Statements - Storage
Store locked up.
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification
No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Paraffin based petroleum oil	8012-95-1	30 - 60%
Aluminum	7429-90-5	30 - 60%
Non-hazardous ingredients	Proprietary	Balance

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret

Section 4: First aid measures

Description of first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation Aspiration into lungs can produce severe lung damage. If breathing has stopped, give artificial respiration. Get medical attention immediately. Remove to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Get immediate medical attention. Delayed pulmonary edema may occur.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

Skin contact Wash skin with soap and water.

Ingestion ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. Do NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms Difficulty in breathing. Coughing and/ or wheezing. Dizziness.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to doctors Because of the danger of aspiration, emesis or gastric lavage should not be used unless the risk is justified by the presence of additional toxic substances.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media Water fog, carbon dioxide, foam, dry chemical.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical No information available.

Carbon monoxide and carbon dioxide. Aluminum fumes. Flammable hydrogen gas.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Use personal protective equipment as required.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

General hygiene considerations If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store away from oxidizers. Keep container closed when not in use. Store between 40.5 F (4.7 C) and 120.5 F (49 C). Store in a well ventilated area. Product has a shelf life of 24 months. Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked

up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Strong oxidizers. Strong acids. Strong alkalis. Halogenated compounds.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Australia	New Zealand	ACGIH TLV
Paraffin based petroleum oil 8012-95-1	TWA: 5 mg/m³	TWA: 5 mg/m³ STEL: 10 mg/m³	TWA: 5 mg/m³ inhalable particulate matter excluding metal working fluids, highly & severely refined
Aluminum 7429-90-5	TWA: 10 mg/m³ TWA: 5 mg/m³	TWA: 10 mg/m³	TWA: 1 mg/m³ respirable particulate matter

Chemical name	OSHA PEL	NIOSH
Paraffin based petroleum oil 8012-95-1	TWA: 5 mg/m³ (vacated) TWA: 5 mg/m³	IDLH: 2500 mg/m³ TWA: 5 mg/m³ STEL: 10 mg/m³
Aluminum 7429-90-5	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 15 mg/m³ total dust (vacated) TWA: 5 mg/m³ respirable fraction	TWA: 10 mg/m³ total dust TWA: 5 mg/m³ respirable dust

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls Use in a well ventilated area.

Individual protection measures, such as personal protective equipment

Eye/face protection None known. If splashes are likely to occur, wear safety glasses with side-shields.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.

Hand protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.

Respiratory protection Not normally necessary.
If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.

Environmental exposure controls No information available.

Other protective equipment None known.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Colour	Gray / Silver
Odour	Mild.
Odour threshold	No information available

Property	**Values**	**Remarks • Method**
pH		None known
Melting point / freezing point	No data available	
Initial boiling point and boiling range		
Flash point	185 °C / 365 °F	ASTM D 92
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	7	
Lower flammability or explosive limits	1	
Vapour pressure	No data available	
Relative vapour density	No data available	
Relative density	1.23	
Water solubility	Insoluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	360 °C / 680 °F	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	

Other information

VOC content	No information available
Particle characteristics	No information available

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong oxidizers. Strong acids. Strong alkalis. Halogenated compounds.

Hazardous decomposition products

Hazardous decomposition products Carbon monoxide and carbon dioxide. Aluminum fumes. Flammable hydrogen gas.

Section 11: Toxicological information

Information on likely routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available. Aspiration into lungs can produce severe lung damage. May cause pulmonary edema. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. May cause irritation.

Skin contact Repeated exposure may cause skin dryness or cracking.

Ingestion Specific test data for the substance or mixture is not available. Potential for aspiration if swallowed. May cause lung damage if swallowed. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways.

Symptoms Difficulty in breathing. Coughing and/ or wheezing. Dizziness.

Acute toxicity .

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	99,999.00 mg/kg
ATEmix (dermal)	99,999.00 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-vapour)	99,999.00 mg/l
ATEmix (inhalation-dust/mist)	99,999.00 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Paraffin based petroleum oil	> 2000 mg/kg (Rat) >5000 mg/kg (Rat) (similar substance)	> 15000 mg/kg (Rodent) > 2000 mg/kg (Rabbit) (similar substance)	> 0.210 mg/L (Rat) (similar substance)
Aluminum	> 5000 mg/kg (Rat) (Similar substance)	> 5000 mg/kg (Rabbit) (Similar substance)	> 2.3 mg/L (Rat, 4 h, dust) (Similar substance)

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Chemical name	Skin corrosion/irritation
Paraffin based petroleum oil 8012-95-1	Non-irritating to the skin (similar substances)
Aluminum 7429-90-5	Non-irritating to the skin (Rabbit) (similar substances)

Serious eye damage/eye irritation No information available.

Chemical name	Serious eye damage/eye irritation
Paraffin based petroleum oil	Non-irritating to the eye (similar substances)

8012-95-1	
Aluminum 7429-90-5	Non-irritating to the eye (Rabbit) (similar substances)

Respiratory or skin sensitisation No information available.

Chemical name	Respiratory sensitisation
Paraffin based petroleum oil 8012-95-1	No information available
Aluminum 7429-90-5	Did not cause sensitisation on laboratory animals (mouse) (similar substances)
Chemical name	**Skin sensitisation**
Paraffin based petroleum oil 8012-95-1	Not confirmed to cause skin or respiratory sensitization. (similar substances)
Aluminum 7429-90-5	Did not cause sensitisation on laboratory animals (guinea pig) (similar substances)

Germ cell mutagenicity No information available.

Chemical name	**Germ cell mutagenicity**
Paraffin based petroleum oil 8012-95-1	In vitro tests did not show mutagenic effects. (similar substances)
Aluminum 7429-90-5	In vivo tests did not show mutagenic effects. (similar substances)

Carcinogenicity

Chemical name	**Carcinogenicity**
Paraffin based petroleum oil 8012-95-1	Did not show carcinogenic effects in animal experiments (similar substances)
Aluminum 7429-90-5	Did not show carcinogenic or teratogenic effects in animal experiments

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	Australia	European Union	IARC
Paraffin based petroleum oil - 8012-95-1	-	-	Group 1 Group 3

Legend

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 3 - Not Classifiable as to Carcinogenicity in Humans

Reproductive toxicity No information available.

Chemical name	**Reproductive toxicity**
Paraffin based petroleum oil 8012-95-1	No information available
Aluminum 7429-90-5	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

STOT - single exposure No information available.

Chemical name	**STOT - single exposure**
Paraffin based petroleum oil 8012-95-1	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Aluminum 7429-90-5	No significant toxicity observed in animal studies at concentration requiring classification.

STOT - repeated exposure No information available.

Chemical name	STOT - repeated exposure
Paraffin based petroleum oil 8012-95-1	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Aluminum 7429-90-5	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Aspiration hazard May be fatal if swallowed and enters airways.

Chemical name	Aspiration hazard
Paraffin based petroleum oil 8012-95-1	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.
Aluminum 7429-90-5	Not applicable

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Unknown aquatic toxicity 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Paraffin based petroleum oil	-	LC50 (96h) >1000 mg/L (Oncorhynchus mykiss) LC50 (96h) > 100 mg/L (Lepomis macrochirus)	-	-
Aluminum	EC50(72h): 448.05 mg/L (Skeletonema costatum)	Limit Test: > 1 mg/L (Scophthalmus maximus)	-	LC50(48h): 2.47 mg/L (Arcatia tonsa)

Terrestrial ecotoxicty There is no data for this product.

Persistence and degradability

Chemical name	Persistence and degradability
Paraffin based petroleum oil 8012-95-1	(15 - 35% @ 28d)
Aluminum 7429-90-5	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation There is no data for this product.

Mobility

Chemical name	Mobility
Paraffin based petroleum oil 8012-95-1	KOC > 3
Aluminum 7429-90-5	No information available

Other adverse effects

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Classified as a scheduled poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

Poison Schedule Number 5

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	Paraffin based petroleum oil - 8012-95-1
Present	-	Aluminum - 7429-90-5	Present
-			

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

AIIC Contact supplier for inventory compliance status.

NZIoC	Contact supplier for inventory compliance status.
TSCA	Contact supplier for inventory compliance status.
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.

Legend:
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Section 16: Any other relevant information

Revision date 19-Dec-2023

Key or legend to abbreviations and acronyms used in the safety data sheet
ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon

UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

EPG
SAFETY DATA SHEET

According to Model Work Health and Safety Regulations

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product name: EPG
Type of product: Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Processing aid for industrial applications
Uses advised against: None

1.3. Details of the supplier of the safety data sheet
Company: R&D Solutions
Telephone: +61 8 9486 9350
Address: Suite 3, Level 1, 610 Murray St, West Perth WA 6005, Australia
E-mail address: contact@randd-solutions.com

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture
Classification according to Model Work Health and Safety Regulations:
Not classified.

2.2. Label elements
Labelling according to *Model Work Health and Safety Regulations*:
Hazard pictogram(s): None.
Signal word: None.
Hazard statement(s): None.
Precautionary statement(s): None.
Additional elements: None.

2.3. Other hazards
The product swells in water. The product when wet renders surfaces extremely slippery.

SECTION 3. Composition/information on ingredients

3.1 Substances
Not applicable, this product is not a substance.

3.2 Mixtures

Hazardous components
Contains no reportable hazardous substances.

List of components within mixture:

Chemicals within product	CAS number	Mass fraction (%)
2-Propenoic acid, potassium salt (1:1), polymer with 2-propenamide	31212-13-2	>99
2-Propenamide	79-06-1	<0.1
2-Propenoic acid, potassium salt	26159-89-7	<0.5
Total	-	~100

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air. No hazards which require special first aid measures.

Skin contact:
Wash off with soap and plenty of water. Get medical attention if irritation develops and persists.

Eye contact:
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In case of persistent eye irritation, consult a physician.

Ingestion:
Rinse mouth with water. Do NOT induce vomiting. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
None.

4.3. Indication of any immediate medical attention and special treatment needed.
None.

Other information:
The product swells in water.

SECTION 5. Fire-fighting measures

5.1. Extinguishing media
Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media:
None.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products:
Thermal decomposition may produce: nitrogen oxides (NOx), carbon oxides (COx). Hydrogen cyanide (hydrocyanic acid) may be produced in the event of combustion in an oxygen deficient atmosphere.

5.3. Advice for fire-fighters
Protective measures:
In the event of fire, wear self-contained breathing apparatus.

Other information:

The product swells in water. The product when wet renders surfaces extremely slippery.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions:
The product swells in water. The product when wet renders surfaces extremely slippery.

Protective equipment:
Wear adequate personal protective equipment (see Section 8 Exposure Controls/Personal Protection).

Emergency procedures:
Keep people away from spill/leak.

6.2. Environmental precautions
As with all chemical products, do not flush into surface water.

6.3. Methods and material for containment and cleaning up

Small spills:
Do not flush with water. Clean up promptly by sweeping or vacuum. Keep in suitable, closed containers for disposal.

Large spills:
Do not flush with water. Clean up promptly by sweeping or vacuum. Keep in suitable, closed containers for disposal.

Residues:
After cleaning, flush away traces with water.

6.4. Reference to other sections

SECTION 7: Handling and storage; SECTION 8: Exposure controls/personal protection; SECTION 9: Physical and chemical properties; SECTION 13: Disposal considerations;

SECTION 7. Handling and storage

7.1. Precautions for safe handling
No special precautions required. The product swells in water. The product when wet renders surfaces extremely slippery.

7.2. Conditions for safe storage, including any incompatibilities.
Keep in a dry place. Keep container closed when not in use. Incompatible with strong acids and oxidizing agents.

7.3. Specific end use(s)

No information available.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:
None.

8.2. Exposure controls

Appropriate engineering controls:
Use local exhaust if dusting occurs. Natural ventilation is adequate in absence of dusts.

Individual protection measures, such as personal protective equipment:

a) Eye/face protection:
Safety glasses with side-shields.

b) Skin protection:
Workclothes protecting arms, legs and body.

c) Hand protection:
PVC or other plastic material gloves.

d) Respiratory protection:
No personal respiratory protective equipment normally required. Dust safety masks recommended where working powder concentration is more than 10 mg/m3.

e) Additional advice:
Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls:
Do not allow uncontrolled discharge of product into the environment. Do not flush into surface water.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Appearance: Granular solid, White.

b) Odour: None.

c) Odour Threshold: Not applicable.

d) pH: 5-8 @ 5g/L

e) Melting point/freezing point: Not applicable.

f) Initial boiling point and boiling range: Not applicable.

g) Flash point: Not applicable.

h) Evaporation rate: Not applicable.

i) Flammability (solid, gas): No data available.

j) Upper/lower flammability or explosive limits: Not expected to create explosive atmospheres.

k) Vapour pressure: Not applicable.

l) Vapour density: Not applicable.

m) Relative density: 0.6 - 0.9

n) Solubility(ies): Insoluble in water.

o) Partition coefficient: -2

p) Autoignition temperature: Does not self-ignite (based on the chemical structure).

q) Decomposition temperature: >150C

r) Viscosity: Not applicable.

s) Explosive properties: Not expected to be explosive based on the chemical structure.

t) Oxidizing properties: Not expected to be oxidising based on the chemical structure.

9.2. Other information

None.

SECTION 10. Stability and reactivity

10.1. Reactivity
None known.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Oxidizing agents may cause exothermic reactions.

10.4. Conditions to avoid
None known.
10.5. Incompatible materials
Incompatible with strong acids and oxidizing agents.

10.6. Hazardous decomposition products
Thermal decomposition may produce: nitrogen oxides (NOx), carbon oxides (COx), hydrogen cyanide (hydrocyanic acid).

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Information on the product as supplied: Acute oral toxicity: LD50/oral/rat > 5000 mg/kg

Acute dermal toxicity: LD50/dermal/rat > 5000 mg/kg

Acute inhalation toxicity: The product is not expected to be toxic by inhalation.

Skin corrosion/irritation: Not irritating.

Serious eye damage/eye irritation: Not irritating.

Respiratory/skin sensitisation: Not sensitizing.

Mutagenicity: Not mutagenic.

Carcinogenicity: Not carcinogenic.

Reproductive toxicity: Not toxic for reproduction.

STOT - single exposure: No known effects.

STOT - repeated exposure: No known effects.

Aspiration hazard: No hazards resulting from the material as supplied.

SECTION 12. Ecological information

12.1. Toxicity
Information on the product as supplied:

Acute toxicity to fish: LC50/Danio rerio/96 hours > 100 mg/L (OECD 203)
LC50/Oncorhynchus mykiss/96 hours > 100 mg/L (OECD 203)

Acute toxicity to invertebrates: EC50/Daphnia magna/48 hours > 100 mg/L (OECD 202)
Acute toxicity to algae: IC50/Scenedesmus subspicatus/72 hours > 100 mg/L (OECD 201)
Chronic toxicity to fish: No data available.

Chronic toxicity to invertebrates: No data available.

Toxicity to microorganisms: No data available.

Effects on terrestrial organisms: No known effects.

Sediment toxicity: No data available.

12.2. Persistence and degradability

Information on the product as supplied:

Degradation: Not readily biodegradable.

Hydrolysis: Does not hydrolyse.

Photolysis: No data available.

12.3. Bioaccumulative potential

Information on the product as supplied:

Not bioaccumulating.

Partition co-efficient (Log Pow): -2

Bioconcentration factor (BCF): No data available

12.4. Mobility in soil

Information on the product as supplied:

None.

12.5. Other adverse effects

None known.

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products:

Dispose in accordance with local and national regulations. Can be landfilled or incinerated, when in compliance with local regulations.

Contaminated packaging:
Dispose in accordance with local and national regulations. Can be landfilled or incinerated, when in compliance with local regulations.

Recycling:
The product and its packaging are not suitable for recycling.

SECTION 14. Transport information

Land transport (ADG)
Not classified.

Sea transport (IMDG)
Not classified.

Air transport (IATA)
Not classified.

SECTION 15. Regulatory information

Information on the product as supplied:

Australian Inventory of Chemical Substances (AICS)

All components of this product are either listed on the inventory or are exempt from listing.

SECTION 16. Other information

This data sheet contains changes from the previous version in section(s):

SECTION 2. Hazards identification, SECTION 3. Composition/information on ingredients, SECTION 4. First aid measures, SECTION 11. Toxicological information, SECTION 16. Other Information.

Key or legend to abbreviations and acronyms used in the safety data sheet:
None.

This SDS was prepared in accordance with the following:
Model Work Health and Safety Regulations & Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

HALLIBURTON

SAFETY DATA SHEET

THERMATEK® LT

Revision Date: 11-Feb-2021 **Revision Number:** 34

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name THERMATEK® LT

Other means of Identification

Synonyms None

Hazardous Material Number: HM005274

Recommended use of the chemical and restrictions on use

Recommended Use Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton/Baroid Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Serious Eye Damage/Irritation	Category 2 - H319

Label elements, including precautionary statements

Hazard Pictograms



Signal Word WARNING

Hazard Statements: H319 - Causes serious eye irritation

Precautionary Statements

Prevention P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear eye protection/face protection

Response P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

Storage None

Disposal None

Contains

Substances	**CAS Number**
Calcium oxide	1305-78-8

Other hazards which do not result in classification

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Calcium oxide	1305-78-8	1 - 5%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318) STOT SE 3 (H335)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure

Causes eye irritation.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Not applicable

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Avoid creating or inhaling dust. Ensure adequate ventilation. Avoid contact with eyes, skin, or clothing. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool, dry location. Keep container closed when not in use. Product has a shelf life of 24 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Calcium oxide	1305-78-8	TWA: 2 mg/m³	TWA: 2 mg/m³

Appropriate engineering controls

Engineering Controls

Personal protective equipment must be CE marked and should be selected in collaboration with the supplier of such equipment.
The recommended protective equipment and the specified standards are indicative. Standards should be of the latest version.
Risk assessment of the actual workplace / operation (actual risk) may result in other protective measures.
The suitability and durability of the protective equipment will depend on the application.
A well ventilated area to control dust levels.

Personal protective equipment (PPE)

Personal Protective Equipment	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection	Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	Wear safety glasses or goggles to protect against exposure. Dust proof goggles. (EN-166)
Other Precautions	Eyewash fountains and safety showers must be easily accessible.
Environmental Exposure Controls	Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	White
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	2852 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	3600 °C / 6512 °F
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	3.6
Water Solubility	Slightly soluble
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	40.3 g/mol
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials
Strong acids. Avoid halogens. Prolonged contact with aluminum.
10.6. Hazardous decomposition products
Metal oxides.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes eye irritation.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium oxide	1305-78-8	> 2000 mg/kg (Rat)	No data available	No data available

Immediate, delayed and chronic health effects from exposure
Inhalation May cause mild respiratory irritation.
Eye Contact Causes eye irritation.
Skin Contact May cause skin irritation.
Ingestion Large doses may cause nausea, vomiting and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Allergic skin and/or respiratory reaction.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Calcium oxide	1305-78-8	Causes moderate skin irritation. (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
Calcium oxide	1305-78-8	Causes eye burns (Rabbit)

Substances	CAS Number	Skin Sensitization
Calcium oxide	1305-78-8	Patch test on human volunteers did not demonstrate sensitization properties

Substances	CAS Number	Respiratory Sensitization
Calcium oxide	1305-78-8	No information available

Substances	CAS Number	Mutagenic Effects
Calcium oxide	1305-78-8	In vitro tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Calcium oxide	1305-78-8	Did not show carcinogenic effects in animal experiments (similar substances)

Substances	CAS Number	Reproductive toxicity
Calcium oxide	1305-78-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure

Calcium oxide	1305-78-8	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Calcium oxide	1305-78-8	None under normal use conditions

Substances	CAS Number	Aspiration hazard
Calcium oxide	1305-78-8	Not applicable

12. Ecological Information

Ecotoxicity

Product Ecotoxicity Data

Product is not classified as hazardous to the environment.

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Calcium oxide	1305-78-8	No information available	LC50 (96h) 1070 mg/L (Cyprinus carpio) NOEC (46d) 100 mg/L (Tilapia nilotica)	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Calcium oxide	1305-78-8	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Calcium oxide	1305-78-8	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Calcium oxide	1305-78-8	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 11-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID
National Toxicology Program (NTP)
IUCLID
CDC/NIOSH
OSHA
ECHA C&L

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

THERMA-THIN®

Revision Date: 16-Aug-2017 **Revision Number:** 29

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name THERMA-THIN®

Other means of Identification

Synonyms None

Hazardous Material Number: HM003774

Recommended use of the chemical and restrictions on use

Recommended Use Thinner

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton/Baroid Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention	None
Response	None
Storage	None
Disposal	None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

No significant hazards expected.

Medical Attention and Special Treatment

Notes to Physician	Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Product has a shelf life of 12 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally necessary.

Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Pale clear to light amber
Odor:	Mild	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	6-8
Freezing Point / Range	0 °C
Melting Point / Range	No data available
Boiling Point / Range	100 °C / 212 °F
Flash Point	> 95 °C / > 200 °F PMCC
Evaporation rate	< 1
Vapor Pressure	18
Vapor Density	> 1
Specific Gravity	1.24
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	1.2
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	300 cps @ 20 C
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	59
Liquid Density	10.33 lbs/gal @ 20 C

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye and skin contact.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No data available	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation None known.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion Large doses may cause nausea, vomiting and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential
Does not bioaccumulate.

Substances	CAS Number	Log Pow
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
EINECS (European Inventory of Existing Chemical Substances)	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply
Basel Convention - Hazardous Waste:	Does not apply

16. Other information

Date of preparation or review

Revision Date: 16-Aug-2017

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

SAFETY DATA SHEET

T LOK 900 THREAD LOCK COMPOUND (EPOXY)

Infosafe No.: LQ2R3
ISSUED Date : 28/02/2019
ISSUED by: ATOM

1. IDENTIFICATION

GHS Product Identifier
T LOK 900 THREAD LOCK COMPOUND (EPOXY)

Product Code
900

Company Name
ATOM

Address
11-15 Mackay St Kewdale
WA 6105 Australia

Telephone/Fax Number
Tel: 08 9351 3666
Fax: 08 9351 3699

Emergency phone number
0419900238 - 24 hrs

Recommended use of the chemical and restrictions on use
Thread locking compound, adhesive.

2. HAZARD IDENTIFICATION

GHS classification of the substance/mixture
Classified as Hazardous according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) including Work, Health and Safety Regulations, Australia.
Classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)
Skin Corrosion/Irritation: Category 2
Sensitization - Skin: Category 1
Eye Damage/Irritation: Category 2A
Germ Cell Mutagenicity: Category 2
Hazardous to the Aquatic Environment - Acute Hazard: Category 2
Hazardous to the Aquatic Environment - Long-Term Hazard: Category 2

Signal Word (s)
WARNING

Hazard Statement (s)
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H341 Suspected of causing genetic defects.
H411 Toxic to aquatic life with long lasting effects.

Pictogram (s)
Exclamation mark,Health hazard,Environment



Precautionary statement – Prevention
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash contaminated skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement – Response
P308+P313 IF exposed or concerned: Get medical advice/attention.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P362 Take off contaminated clothing and wash before reuse.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P391 Collect spillage.

Precautionary statement – Storage
P405 Store locked up.

Precautionary statement – Disposal
P501 Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Name	CAS	Proportion
Propane, 2,2-bis[p-(2,3-epoxypropoxy) phenyl]-, polymers	25085-99-8	30 %
1,2-Epoxy-3-(2-methylphenoxy) propane	2210-79-9	20 %
Talc	14807-96-6	20 %
Calcium carbonate	1317-65-3	20%
Organoclay	71011-24-0	10 %

4. FIRST-AID MEASURES

Inhalation
If inhaled, remove affected person from contaminated area. Keep at rest until recovered. If symptoms develop and/or persist seek medical attention.

Ingestion
Do not induce vomiting. Wash out mouth thoroughly with water. Seek immediate medical attention.

Skin
Remove all contaminated clothing immediately. Wash affected area thoroughly with soap and water. Wash contaminated clothing before reuse or discard. Seek medical attention.

Eye contact
If in eyes, hold eyelids apart and flush the eyes continuously with running water. Remove contact lenses. Continue flushing for several minutes until all contaminants are washed out completely. Seek medical attention.

First Aid Facilities
Eyewash, safety shower and normal washroom facilities.

Advice to Doctor
Treat symptomatically.

Other Information
For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use dry chemical, carbon dioxide (CO2), water spray (fog) or foam.

Unsuitable Extinguishing Media
Do not use water jet.

Hazards from Combustion Products
Under fire conditions this product may emit toxic and/or irritating fumes and gases including carbon monoxide, carbon dioxide and phenolics.

Specific Hazards Arising From The Chemical
This product will readily burn under fire conditions.

Hazchem Code
2Z

Decomposition Temperature
Not available

Precautions in connection with Fire
Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes. Water spray may be used to cool down heat-exposed containers. Fight fire from safe location. This product should be prevented from entering drains and watercourses.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures
Wear appropriate personal protective equipment and clothing to prevent exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unprotected personnel. If possible contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into suitable labelled containers for subsequent recycling or disposal. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Avoid inhalation of vapours and mists, and skin or eye contact. Use only in a well ventilated area. Keep containers sealed when not in use. Prevent the build up of mists or vapours in the work atmosphere. Do not use near ignition sources. Do not pressurise, cut, heat or weld containers as they may contain hazardous residues. Maintain high standards of personal hygiene by washing hands prior to eating, drinking, smoking or using toilet facilities.

Avoid exposure. Do not handle until all safety precautions have been read and understood.

Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well-ventilated area away from sources of ignition, oxidising agents, strong acids, foodstuffs, and clothing. Keep containers closed when not in use, securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Have appropriate fire extinguishers available in and near the storage area. Take precautions against static electricity discharges. Use proper grounding procedures. Ensure that storage conditions comply with applicable local and national regulations. For information on the design of the storeroom, reference should be made to Australian Standard AS1940 - The storage and handling of flammable and combustible liquids.

Storage Temperatures
Do not expose to extreme cold. Store at 5 – 40°C, away from strong oxidizers and acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limit values
No exposure standards have been established for the mixture. However, over-exposure to some chemicals may result in enhancement of pre-existing adverse medical conditions and/or allergic reactions and should be kept to the least possible levels.

Biological Limit Values
No biological limits allocated.

Appropriate Engineering Controls
This substance is hazardous and should be used with a local exhaust ventilation system, drawing vapours away from workers' breathing zone. A flame-proof exhaust ventilation system is required. If the engineering controls are not sufficient to maintain concentrations of vapours/mists below the exposure standards, suitable respiratory protection must be worn. Refer to relevant regulations for further information concerning ventilation requirements.

Respiratory Protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable mist/dust filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements.
Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

Eye Protection
Safety glasses with side shields, chemical goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform to relevant regulations.
Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 (series) - Eye Protectors for Industrial Applications.

Hand Protection
Wear gloves of impervious material (Nitrile or butyl rubber). Final choice of appropriate gloves will vary according to individual circumstances. i.e. methods of handling or according to risk assessments undertaken. Occupational protective gloves should conform to relevant regulations.
Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

Body Protection
Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Description	Properties	Description
Form	Paste	**Appearance**	Grey paste
Colour	Grey	**Odour**	Mild odour
Decomposition Temperature	Not available	**Melting Point**	Not available
Boiling Point	Not available	**Solubility in Water**	Insoluble in water
Specific Gravity	1.4	**pH**	Not available
Vapour Pressure	Not applicable, insoluble in water	**Vapour Density (Air=1)**	Not available
Evaporation Rate	Not available	**Odour Threshold**	Not available
Viscosity	Cone penetration 330-365 (ASTM D217)	**Partition Coefficient: n-octanol/water**	Not available
Flash Point	121°C (PMCC)	**Flammability**	Not flammable
Auto-Ignition Temperature	Not applicable	**Flammable Limits - Lower**	Not applicable
Flammable Limits - Upper	Not applicable		

10. STABILITY AND REACTIVITY

Chemical Stability
Stable under normal conditions of storage and handling.

Reactivity and Stability
Reacts with incompatible materials.

Conditions to Avoid
Extreme heat, flames and other sources of ignition.

Incompatible materials
Strong oxidizing agents and acids.

Hazardous Decomposition Products
Thermal decomposition may result in the release of toxic and/or irritating fumes and gases including carbon monoxide, carbon dioxide and phenolics.

Possibility of hazardous reactions
Not available

Hazardous Polymerization
Will not occur without amine catalyst, then it may build up heat.

11. TOXICOLOGICAL INFORMATION

Toxicology Information
Toxicity data for material given below.

Acute Toxicity - Oral
LD50 (Rat): >5000 mg/kg (Estimated, based on components)

Acute Toxicity - Dermal
LD50 (Rabbit): >5000 mg/kg (Estimated based on components)

Ingestion
Ingestion of this product may irritate the gastric tract causing nausea and vomiting.

Inhalation
Inhalation of dusts/vapors may irritate the respiratory system.

Skin
Causes skin irritation. Skin contact will cause redness, itching and swelling. Repeated exposure may cause skin dryness and cracking and may lead to dermatitis.

Eye
Causes serious eye irritation. On eye contact this product will cause tearing, stinging, blurred vision, and redness.

Respiratory sensitisation
Not expected to be a respiratory sensitiser.

Skin Sensitisation
May cause an allergic skin reaction.

Germ cell mutagenicity
Suspected of causing genetic defects. Classified as suspected to induce heritable mutations.

Carcinogenicity
Not considered to be a carcinogenic hazard.

Reproductive Toxicity
Not considered to be toxic to reproduction.

STOT-single exposure
Not expected to cause toxicity to a specific target organ.

STOT-repeated exposure
Not expected to cause toxicity to a specific target organ.

Aspiration Hazard
Not expected to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Toxic to aquatic life with long lasting effects.

No ecological data available for this material. The available ecological data for the ingredients is given below:

Persistence and degradability
Not expected to be readily biodegradable.

Mobility
Not available

Bioaccumulative Potential
Moderate, Log Pow estimated between 3 and 5.

Other Adverse Effects
Not available

Environmental Protection
Do not discharge this material into waterways, drains and sewers.

Acute Toxicity - Fish
Oxirane, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis-, homopolymer
LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l/96h

o-Cresyl glycidyl ether
LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l/96h

Acute Toxicity - Daphnia
Oxirane, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis-, homopolymer
EC50 (Daphnia magna (water flea)) 1.8 mg/l/48h
Chronic toxicity
NOEC (Daphnia magna (water flea)): 0.3 mg/l/21d

o-Cresyl glycidyl ether
EC50 (Daphnia magna (water flea)): 3.3 mg/l/48h

Acute Toxicity - Algae
Oxirane, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis-, homopolymer
Toxicity to algae: EC50 – Scenedesmus capricornutum (fresh water algae):11 mg/l/72h

o-Cresyl glycidyl ether
EC50 (Scenedesmus capricornutum (fresh water algae)): 5.1 mg/l/72h

13. DISPOSAL CONSIDERATIONS

Disposal considerations
Dispose of waste according to applicable local and national regulations. Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes including emptied containers are controlled wastes and should be disposed of in accordance with all applicable local and national regulations.

14. TRANSPORT INFORMATION

Transport Information
This material is classified as Dangerous Goods Class 9 Miscellaneous Dangerous Goods
Class 9: Miscellaneous substances Dangerous Goods are incompatible in a placard load with any of the following:
Class 1: Explosives (when the class 9 substance is a fire risk substance) Division 5.1: Oxidising substances (when the class 9 substance is a fire risk substance) and

Division 5.2: Organic peroxides (when the class 9 substance is a fire risk substance)

Note: Special Provision AU01:
Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in:
packagings that do not incorporate a receptacle exceeding 500 kg(L); or
IBCs

Marine Transport (IMO/IMDG):
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.
UN No.: 3077
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Contains epoxy resin)(MARINE POLLUTANT)
DG Class: 9
Packaging Group: III
EMS No.: F-A, S-F
Special provisions: 274, 335, 966, 967, 969

Air Transport (ICAO/IATA):
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.
UN No: 3077
Proper Shipping Name: : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Contains epoxy resin)
Class: 9
Packing Group: III
Label: Miscellaneous
Packaging Instructions (passenger W cargo): 956
Packaging Instructions (cargo only): 956
Special provisions: A97, A158, A179, A197

U.N. Number
3077

UN proper shipping name
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Contains Zinc)

Transport hazard class(es)
9

Packing Group
III

Hazchem Code
2Z

IERG Number
47

IMDG Marine pollutant
Yes

Transport in Bulk
Not available

Special Precautions for User
Not available

15. REGULATORY INFORMATION

Regulatory information
Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.
Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Poisons Schedule
Not Scheduled

16. OTHER INFORMATION

Date of preparation or last revision of SDS
SDS Reviewed: February 2019
Supersedes: October 2013

References
Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.
Standard for the Uniform Scheduling of Medicines and Poisons.
Australian Code for the Transport of Dangerous Goods by Road W Rail.
Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Workplace exposure standards for airborne contaminants.
Adopted biological exposure determinants, American Conference of Industrial Hygienists (ACGIH).
Globally Harmonised System of Classification and Labelling of Chemicals.

END OF SDS

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SAFETY DATA SHEET

T LOK 900 THREAD LOCK COMPOUND (CATALYST)

Infosafe No.: LQ2R6
ISSUED Date : 28/02/2019
ISSUED by: ATOM

1. IDENTIFICATION

GHS Product Identifier
T LOK 900 THREAD LOCK COMPOUND (CATALYST)

Company Name
ATOM

Address
11-15 Mackay St Kewdale
WA 6105 Australia

Telephone/Fax Number
Tel: 08 9351 3666
Fax: 08 9351 3699

Emergency phone number
0419900238 - 24 hrs

Recommended use of the chemical and restrictions on use
Thread locking compound, adhesive.

2. HAZARD IDENTIFICATION

GHS classification of the substance/mixture
Classified as Hazardous according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) including Work, Health and Safety Regulations, Australia.
Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (cth edition)
Skin Corrosion/Irritation: Category 2
Sensitization - Skin: Category 1
Eye Damage/Irritation: Category 1
Sensitization - Respiratory: Category 1
Toxic to Reproduction: Category 2
STOT Repeated Exposure: Category 1

Signal Word (s)
DANGER

Hazard Statement (s)
H315 Causes skin irritation.
H31c May cause an allergic skin reaction.
H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H361 Suspected of damaging fertility or the unborn child.
H3c2 Causes damage to organs (Kidneys, lungs, liver and skin) through prolonged or repeated exposure.

Pictogram (s)
Corrosion,Health hazard,Exclamation mark



Precautionary statement – Prevention
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash contaminated skin thoroughly after handling.
P2c0 Do not eat, drink or smoke when using this product.
P2c2 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P285 In case of inadequate ventilation wear respiratory protection.

Precautionary statement – Response
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Precautionary statement – Storage
P405 Store locked up.

Precautionary statement – Disposal
P501 Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Name	CAS	Proportion
Polyethylpolyamine	68131-73-7	100%

4. FIRST-AID MEASURES

Inhalation
If inhaled, remove affected person from contaminated area. Apply artificial respiration if not breathing. Seek medical attention.

Ingestion
Do not induce vomiting. Wash out mouth thoroughly with water. Seek immediate medical attention.

Skin
Remove all contaminated clothing immediately. Wash affected area thoroughly with soap and water. Wash contaminated clothing before reuse or discard. Seek medical attention.

Eye contact
If in eyes, hold eyelids apart and flush the eyes continuously with running water. Remove contact lenses. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Seek immediate medical attention.

First Aid Facilities
Eyewash, safety shower and normal washroom facilities.

Advice to Doctor
Treat symptomatically.

Other Information
For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use dry chemical, carbon dioxide (CO2), water spray (fog) or foam.

Unsuitable Extinguishing Media
Do not use water jet.

Hazards from Combustion Products
Under fire conditions this product may emit toxic and/or irritating fumes, smoke and gases including carbon monoxide and carbon dioxide.

Specific Hazards Arising From The Chemical
This product will burn if exposed to fire.

Decomposition Temperature
Not available

Precautions in connection with Fire
Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapours or fumes. Water spray may be used to cool down heat-exposed containers. Fight fire from safe location. This product should be prevented from entering drains and watercourses.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures
Wear appropriate personal protective equipment and clothing to prevent exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unprotected personnel. If possible contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into suitable labelled containers for subsequent recycling or disposal. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

7. HANDLING AND STORAGE

Precautions for Safe Handling
Avoid inhalation of vapours and mists, and skin or eye contact. Use only in a well ventilated area. Keep containers sealed when not in use. Prevent the build up of mists or vapours in the work atmosphere. Do not use near ignition sources. Do not pressurise, cut, heat or weld containers as they may contain hazardous residues. Maintain high standards of personal hygiene by washing hands prior to eating, drinking, smoking or using toilet facilities.

Avoid exposure. Do not handle until all safety precautions have been read and understood. It is recommended that pregnant or breastfeeding women should not handle this product unless adequate exposure protection can be assured at all times. Female personnel planning pregnancy should be made aware of the potential risks.

Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well-ventilated area away from sources of ignition, oxidising agents, strong acids, foodstuffs, and clothing. Keep containers closed when not in use, securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Have appropriate fire extinguishers available in and near the storage area. Take precautions against static electricity discharges. Use proper grounding procedures. Ensure that storage conditions comply with applicable local and national regulations.

Storage Regulations
Classified as a Class C2 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS1940 (201c).

Storage Temperatures
Do not expose to extreme cold. Store at 5 – 40°C, away from strong oxidizers and acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limit values
No exposure standards have been established for the mixture. However, over-exposure to some chemicals may result in enhancement of pre-existing adverse medical conditions and/or allergic reactions and should be kept to the least possible levels.

Biological Limit Values
No biological limit allocated.

Appropriate Engineering Controls
This substance is hazardous and should be used with a local exhaust ventilation system, drawing vapours away from workers' breathing zone. A flame-proof exhaust ventilation system is required. If the engineering controls are not sufficient to maintain concentrations of vapours/mists below the exposure standards, suitable respiratory protection must be worn. Refer to relevant regulations for further information concerning ventilation requirements.

Respiratory Protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements.
Reference should be made to Australian Standards AS/NZS 1c15, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1c16, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

Eye Protection
Safety glasses with full face shield should be used. Eye protection devices should conform to relevant regulations.
Eye protection should conform with Australian/New Zealand Standard AS/NZS 133c (series) - Eye Protectors for Industrial Applications.

Hand Protection
Wear gloves of impervious material (Nitrile). Final choice of appropriate gloves will vary according to individual circumstances. i.e. methods of handling or according to risk assessments undertaken. Occupational protective gloves should conform to relevant regulations.
Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

Body Protection
Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Description	Properties	Description
Form	Liquid	**Appearance**	Colorless to slightly yellow liquid.
Colour	Colorless to slightly yellow.	**Odour**	Amine odour
Decomposition Temperature	Not available	**Melting Point**	Not available
Boiling Point	Not available	**Solubility in Water**	Insoluble in water.
Solubility in Organic Solvents	Soluble in alcohols and petroleum distillates.	**Specific Gravity**	1.02
pH	Not available	**Vapour Pressure**	Not available
Vapour Density (Air=1)	>1	**Evaporation Rate**	Not available
Odour Threshold	Not available	**Viscosity**	300-500 cps
Partition Coefficient: n-octanol/water	Not available	**Flash Point**	>93°C (Pensky Martens Closed Cup)
Flammability	Not flammable	**Auto-Ignition Temperature**	Not applicable
Flammable Limits - Lower	Not applicable	**Flammable Limits - Upper**	Not applicable

10. STABILITY AND REACTIVITY

Chemical Stability
Stable under normal conditions of storage and handling.

Reactivity and Stability
Reacts with incompatible materials.

Conditions to Avoid
Extreme heat, flames and other sources of ignition.

Incompatible materials
Strong oxidizing agents and acids.

Hazardous Decomposition Products
Thermal decomposition may result in the release of toxic and/or irritating fumes and gases including carbon monoxide and carbon dioxide.

Possibility of hazardous reactions
Not available

Hazardous Polymerization
Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicology Information
No toxicity data available for this material. The available acute toxicity data for the ingredients are given below.

Acute Toxicity - Oral
Polyethylenepolyamine (Proprietary):
LD50 (rabbit): 5500 mg/kg
LD50 (mouse): 38.5 mg/kg
LD50 (rat): 1080 mg/kg

Polyethylenepolyamine #1 (Proprietary):
LD50 (rat): 2800 mg/kg

Acute Toxicity - Dermal
Polyethylenepolyamine (Proprietary):
od50 (rabbit): 6c5 mg/kg

Polyethylenepolyamine #1 (Proprietary):
LD50 (rabbit): 550 mg/kg

Ingestion
Ingestion of this product may irritate the gastric tract causing nausea and vomiting.

Inhalation
Inhalation of product vapours may cause irritation of the nose, throat and respiratory system.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin
Causes skin irritation. Skin contact will cause redness, itching and swelling. Repeated exposure may cause skin dryness and cracking and may lead to dermatitis. May cause an allergic skin reaction.

Moderate skin irritant (Rabbit)

Eye
Causes eye damage. Eye contact will cause stinging, blurring, tearing, severe pain and possible burns, necrosis, permanent damage and blindness.

Respiratory sensitisation
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin Sensitisation
May cause an allergic skin reaction.

Germ cell mutagenicity
Not considered to be a mutagenic hazard.

Carcinogenicity
Not considered to be a carcinogenic hazard.

Reproductive Toxicity
Suspected of damaging fertility or the unborn child. Classified as a suspected human reproductive or developmental toxicant.

STOT-single exposure
Not expected to cause toxicity to a specific target organ.

STOT-repeated exposure
Causes damage to organs (kidney, lungs, liver and skin) through prolonged or repeated exposure.

Aspiration Hazard
Not expected to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity
No ecological data available for this material.

Persistence and degradability
Not available

Mobility
Not available

Bioaccumulative Potential
Not available

Other Adverse Effects
Not available

Environmental Protection
Prevent this material entering waterways, drains and sewers.

13. DISPOSAL CONSIDERATIONS

Disposal considerations
The disposal of the spilled or waste material must be done in accordance with applicable local and national regulations.

14. TRANSPORT INFORMATION

Transport Information
Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (cth edition)
Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.
Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

U.N. Number
None Allocated

UN proper shipping name
None Allocated

Transport hazard class(es)
None Allocated

IMDG Marine pollutant
No

Transport in Bulk
Not available

Special Precautions for User
Not available

15. REGULATORY INFORMATION

Regulatory information
Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.
Classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Poisons Schedule
S5

16. OTHER INFORMATION

Date of preparation or last revision of SDS
SDS Reviewed: February 2019
Supersedes: October 2013

References
Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.
Standard for the Uniform Scheduling of Medicines and Poisons.
Australian Code for the Transport of Dangerous Goods by Road & Rail.
Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Workplace exposure standards for airborne contaminants.
Adopted biological exposure determinants, American Conference of Industrial Hygienists (ACGIH).
Globally Harmonised System of Classification and Labelling of Chemicals.

END OF SDS

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HALLIBURTON

SAFETY DATA SHEET

TUNED DEFENSE CEMENT SPACER

Revision Date: 25-Apr-2019 **Revision Number:** 3

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name TUNED DEFENSE CEMENT SPACER

Other means of Identification

Synonyms None

Hazardous Material Number: HM008976

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton/Baroid Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Carcinogenicity	Category 1A - H350
Combustible dust	Combustible dust

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements: H350 - May cause cancer by inhalation

Precautionary Statements

Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P281 - Use personal protective equipment as required

Response P308 + P313 - IF exposed or concerned: Get medical advice/attention

Storage P405 - Store locked up

Disposal P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Crystalline silica, quartz	14808-60-7

Other hazards which do not result in classification
None known

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Crystalline silica, quartz	14808-60-7	0.1 - 1%	Carc. 1A (H350) STOT RE 1 (H372)

The specific chemical identity of the composition has been withheld as proprietary.

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Rinse mouth with water many times. Get medical attention, if symptoms occur

Symptoms caused by exposure
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease. Carcinogen.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

Avoid creating dust clouds with extinguishers.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Ensure adequate ventilation. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Remove sources of ignition. Take precautionary measures against static discharges All equipment used when handling the product must be grounded

6.2. Environmental precautions

None known.

6.3. Methods and material for containment and cleaning up

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid dust accumulations. This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet. Remove sources of ignition.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from acids. Store in a cool, dry location. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container. Product has a shelf life of 24 months. Avoid contact with heat, sparks, open flame, and static discharge.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Crystalline silica, quartz	14808-60-7	TWA: 0.1 mg/m^3	TWA: 0.025 mg/m^3

Appropriate engineering controls

Engineering Controls Localized ventilation should be used to control dust levels.

Personal protective equipment (PPE)

Personal Protective Equipment	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection	Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.
Environmental Exposure Controls	Do not allow material to contaminate ground water system

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	Dark brown
Odor:	Not determined	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	No data available
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity

May form combustible dust concentrations in air.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

Strong oxidizers. Strong acids. Strong alkalis.

10.6. Hazardous decomposition products

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C). Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease. Carcinogen.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Crystalline silica, quartz	14808-60-7	> 15000 mg/kg (human)	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).

Eye Contact May cause mechanical irritation to eye.

Skin Contact May cause mild skin irritation.

Ingestion May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Exposure Levels

No data available

Interactive effects

Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin

Substances	CAS Number	Serious eye damage/irritation
Crystalline silica, quartz	14808-60-7	Non-irritating to the eye No information available

Substances	CAS Number	Skin Sensitization
Crystalline silica, quartz	14808-60-7	No information available.

Substances	CAS Number	Respiratory Sensitization
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	Mutagenic Effects
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

Substances	CAS Number	Reproductive toxicity
Crystalline silica, quartz	14808-60-7	No information available

Substances	CAS Number	STOT - single exposure
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Substances	CAS Number	Aspiration hazard
Crystalline silica, quartz	14808-60-7	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Crystalline silica, quartz	14808-60-7	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	No information available	LL50(24 h)>10000 mg/L (Daphnia magna)

12.2. Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

Substances	CAS Number	Persistence and Degradability
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Crystalline silica, quartz	14808-60-7	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Crystalline silica, quartz	14808-60-7	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number

None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 25-Apr-2019

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H350 - May cause cancer by inhalation
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

TUNED SPACER E+

Revision date: 19-Feb-2024 **Revision Number:** 34

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name TUNED SPACER E+

Product Code(s) HM003335

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended use Cement Spacer
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

GHS Classification

Carcinogenicity	Category 1A
Specific target organ toxicity — repeated exposure	Category 2

Label elements



Signal word
DANGER

Hazard statements
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements - Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/clothing and eye/face protection.
Do not breathe dust/fume/gas/mist/vapours/spray.
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention.
Precautionary Statements - Storage
Store locked up.
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification
No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Crystalline silica, quartz	14808-60-7	1 - 5%
Non-hazardous ingredients	Proprietary	Balance

Section 4: First aid measures

Description of first aid measures

General advice IF exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

Skin contact Wash skin with soap and water.

Ingestion Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to doctors Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media Water fog, carbon dioxide, foam, dry chemical.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical No information available.

Oxides of sulfur. Carbon monoxide and carbon dioxide. Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Avoid generation of dust. Collect spillage with a shovel and broom, or similar.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and

immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

Incompatible materials Strong oxidizers.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Australia	New Zealand	ACGIH TLV
Crystalline silica, quartz 14808-60-7	TWA: 0.05 mg/m³	TWA: 0.05 mg/m³	-

Chemical name	OSHA PEL	NIOSH
Crystalline silica, quartz 14808-60-7	TWA: 50 µg/m³ (vacated) TWA: 0.1 mg/m³ respirable dust : (250)/(%SiO2 + 5) mppcf TWA respirable fraction : (10)/(%SiO2 + 2) mg/m³ TWA respirable fraction	IDLH: 50 mg/m³ respirable dust TWA: 0.05 mg/m³ respirable dust

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses or goggles to protect against exposure. (EN-166).

Skin and body protection Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing. Wear suitable protective clothing.

Hand protection Normal work gloves. Wear suitable gloves.

Respiratory protection Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.

Environmental exposure controls No information available.

Other protective equipment Eyewash fountains and safety showers must be easily accessible.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Colour	White to light straw
Odour	Odourless.
Odour threshold	No information available

Property	Values	Remarks • Method
pH		None known
Melting point / freezing point	No data available	
Initial boiling point and boiling range		
Flash point	No data available	None known
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapour pressure	No data available	
Relative vapour density	No data available	
Relative density	1.88 - 2.05	
Water solubility	Soluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong oxidizers.

Hazardous decomposition products

Hazardous decomposition products Oxides of sulfur. Carbon monoxide and carbon dioxide. Amorphous silica may transform at

elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Section 11: Toxicological information

Information on likely routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms No information available.

Acute toxicity .

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	99,999.00	mg/kg
ATEmix (dermal)	99,999.00	mg/kg
ATEmix (inhalation-gas)	99,999.00	ppm
ATEmix (inhalation-vapour)	99,999.00	mg/l
ATEmix (inhalation-dust/mist)	99,999.00	mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Crystalline silica, quartz	> 15000 mg/kg (human)	-	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Chemical name	Skin corrosion/irritation
Crystalline silica, quartz 14808-60-7	Non-irritating to the skin

Serious eye damage/eye irritation No information available.

Chemical name	Serious eye damage/eye irritation
Crystalline silica, quartz 14808-60-7	Non-irritating to the eye

Respiratory or skin sensitisation No information available.

Chemical name	Respiratory sensitisation
Crystalline silica, quartz 14808-60-7	No information available
Chemical name	**Skin sensitisation**
Crystalline silica, quartz 14808-60-7	No information available

Germ cell mutagenicity No information available.

Chemical name	Germ cell mutagenicity
Crystalline silica, quartz 14808-60-7	Not regarded as mutagenic.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer. No information available.

Chemical name	Carcinogenicity
Crystalline silica, quartz 14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	Australia	European Union	IARC
Crystalline silica, quartz - 14808-60-7	Carc. 1A	-	Group 1

Legend

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

Reproductive toxicity No information available.

Chemical name	Reproductive toxicity
Crystalline silica, quartz 14808-60-7	This product does not contain any known or suspected reproductive hazards

STOT - single exposure No information available.

Chemical name	STOT - single exposure
Crystalline silica, quartz 14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure. No information available.

Chemical name	STOT - repeated exposure
Crystalline silica, quartz 14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Aspiration hazard No information available.

Chemical name	Aspiration hazard
Crystalline silica, quartz 14808-60-7	Based on available data, the classification criteria are not met

Other adverse effects Based on available data, the classification criteria are not met.

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Unknown aquatic toxicity 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea

Crystalline silica, quartz	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	-	LL50(24 h)>10000 mg/L (Daphnia magna)

Terrestrial ecotoxicty There is no data for this product.

Persistence and degradability No information available

Chemical name	Persistence and degradability
Crystalline silica, quartz 14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation No information available.

Mobility No information available

Chemical name	Mobility
Crystalline silica, quartz 14808-60-7	No information available

Other adverse effects

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	Crystalline silica, quartz - 14808-60-7
Contact supplier for inventory compliance status	-		

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

TSCA	All components listed on inventory or are exempt
AIIC	All components listed on inventory or are exempt
NZIoC	All components listed on inventory or are exempt

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Section 16: Any other relevant information

Revision date 19-Feb-2024

Reason for revision Update to Format

Key or legend to abbreviations and acronyms used in the safety data sheet
ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)

EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitisers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

TUNED® SPACER III

Revision date: 10-Jan-2024 **Revision Number:** 34

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name TUNED® SPACER III

Product Code(s) HM005735

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended use Cement Spacer
Uses advised against No information available.

Details of manufacturer or importer

Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 (08) 6424 4800

For further information, please contact

fdunexchem@halliburton.com

Emergency telephone number

Australia Emergency Telephone Number + 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre 24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

Section 2: Hazard(s) identification

Statement of Hazardous Nature: Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

GHS Classification

Carcinogenicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 1

Label elements



Signal word
DANGER

Hazard statements
May cause cancer.
Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements - Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/clothing and eye/face protection.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention.
Precautionary Statements - Storage
Store locked up.
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification
No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Crystalline silica, quartz	14808-60-7	60 - 100%
Non-hazardous ingredients	Proprietary	Balance

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret

Section 4: First aid measures

Description of first aid measures

General advice IF exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water.

Ingestion Rinse mouth.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

Section 5: Firefighting measures

Suitable Extinguishing Media

Suitable extinguishing media All standard fire fighting media.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Specific hazards arising from the chemical No information available.

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation.

General hygiene considerations If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Do not reuse empty container. Store in a well ventilated area. Keep container closed when not in use. Store locked up.

Incompatible materials Hydrofluoric acid.

Section 8: Exposure controls and personal protection

Control parameters

Exposure Limits

Chemical name	Australia	New Zealand	ACGIH TLV
Crystalline silica, quartz 14808-60-7	TWA: 0.05 mg/m³	TWA: 0.05 mg/m³	-

Chemical name	OSHA PEL	NIOSH
Crystalline silica, quartz 14808-60-7	TWA: 50 µg/m³ (vacated) TWA: 0.1 mg/m³ respirable dust : (250)/(%SiO2 + 5) mppcf TWA respirable fraction : (10)/(%SiO2 + 2) mg/m³ TWA respirable fraction	IDLH: 50 mg/m³ respirable dust TWA: 0.05 mg/m³ respirable dust

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses or goggles to protect against exposure. (EN-166).

Skin and body protection Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing. Wear suitable protective clothing.

Hand protection Normal work gloves. Wear suitable gloves.

Respiratory protection Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.

Environmental exposure controls No information available.

Other protective equipment None known. Eyewash fountains and safety showers must be easily accessible.

Thermal hazards No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	No information available
Color	Dark gray
Odor	Odorless.
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH		None known
Melting point / freezing point	No data available	
Initial boiling point and boiling range		
Flash point	No data available	None known
Evaporation rate	No data available	
Flammability	No data available	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	
Relative vapor density	No data available	
Relative density	2.51	
Water solubility	Insoluble in water	
Solubility(ies)	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Other information		
VOC content	No information available	
Particle characteristics	No information available	

Section 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Hydrofluoric acid.

Hazardous decomposition products

Hazardous decomposition products Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Section 11: Toxicological information

Information on likely routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation, Ingestion, Skin contact, Eye contact, Inhalation

Product Information

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms No information available.

Acute toxicity .

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	99,999.00 mg/kg
ATEmix (dermal)	99,999.00 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-vapor)	99,999.00 mg/l
ATEmix (inhalation-dust/mist)	99,999.00 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Crystalline silica, quartz	> 15000 mg/kg (human)	-	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Chemical name	Skin corrosion/irritation
Crystalline silica, quartz 14808-60-7	Non-irritating to the skin

Serious eye damage/eye irritation No information available.

Chemical name	Serious eye damage/eye irritation
Crystalline silica, quartz 14808-60-7	Non-irritating to the eye No information available

Respiratory or skin sensitization No information available.

Chemical name	Respiratory sensitization
Crystalline silica, quartz 14808-60-7	No information available

Chemical name	Skin sensitization
Crystalline silica, quartz 14808-60-7	No information available

Germ cell mutagenicity No information available.

Chemical name	Germ cell mutagenicity
Crystalline silica, quartz 14808-60-7	Not regarded as mutagenic.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

Chemical name	Carcinogenicity
Crystalline silica, quartz 14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	Australia	European Union	IARC
Crystalline silica, quartz - 14808-60-7	Carc. 1A	-	Group 1

Legend

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

Reproductive toxicity No information available.

Chemical name	Reproductive toxicity
Crystalline silica, quartz 14808-60-7	No information available

STOT - single exposure No information available.

Chemical name	STOT - single exposure
Crystalline silica, quartz 14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Chemical name	STOT - repeated exposure
Crystalline silica, quartz 14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Aspiration hazard No information available.

Chemical name	Aspiration hazard
Crystalline silica, quartz 14808-60-7	No information available

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity

Unknown aquatic toxicity 1 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Crystalline silica, quartz	EC50(72 h)=440 mg/L (Pseudokirchneriella subcapitata)	LL0(96 h)=10000 mg/L (Danio rerio)	-	LL50(24 h)>10000 mg/L (Daphnia magna)

Terrestrial ecotoxicty There is no data for this product.

Persistence and degradability

Chemical name	Persistence and degradability
Crystalline silica, quartz 14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation There is no data for this product.

Mobility

Chemical name	Mobility
Crystalline silica, quartz 14808-60-7	No information available

Other adverse effects

Section 13: Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

See section 8 for more information

Section 14: Transport information

ADG Not regulated

IATA Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Section 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia

See section 8 for national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

Australian Industrial Chemicals Introduction Scheme (AICIS)

Chemical name	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information	Crystalline silica, quartz - 14808-60-7
Contact supplier for inventory compliance status	-		

Illicit Drug Precursors/Reagents
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

International Inventories

AIIC	Contact supplier for inventory compliance status.
NZIoC	Contact supplier for inventory compliance status.
TSCA	Contact supplier for inventory compliance status.
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.

Legend:
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Section 16: Any other relevant information

Revision date 10-Jan-2024

Reason for revision Update to Format

Key or legend to abbreviations and acronyms used in the safety data sheet

ADR - The European Agreement concerning the International Carriage of Dangerous Goods by Road
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EN 149 - European standard on filtering halfmasks to protect against particles
FFP - Filtering Facepieces
h - hour
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LL50 – Lethal Loading 50%
d - day
Derived No Effect Level (DNEL)
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
IATA/ICAO - International Air Transport Association / International Civil Aviation Organization
IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
VOC – Volatile Organic Carbon
UN – United Nations
VLA-EC - short-time excursion limits [Spain valores límite ambientales para la exposición de corta duración]
vPvB – very Persistent and very Bioaccumulative
w/w - weight/weight
Water hazard class (WGK)
UN – United Nations
VOC – Volatile Organic Carbon
TWA - Time-Weighted Average
STEL – Short Term Exposure Limit

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

Key literature references and sources for data used to compile the SDS

Acute Exposure Guideline Level(s) (AEGL(s))
European Chemicals Agency (ECHA) (ECHA_API)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
NIOSH (National Institute for Occupational Safety and Health)

Disclaimer

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information isobtained from various sources including the manufacturer and other third party sources. The information may not be validunder all conditions nor if this material is used in combination with other materials or in any process. Final determination ofsuitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

MATERIAL SAFETY DATA SHEET

PAGE	Page **1** of **7**
REVISION DATE	09/07/2022
PRINT DATE	09/07/2022
PRODUCT NAME	Urea solution
VERSION	0

IDENTIFICATION OF THE PRODUCT AND THE COMPANY

ADG Code: NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code). Not classified as a hazardous Substance according to Safe work Australia.

Product Name: **UREA SOLUTION**

Company Name:

ALL CHEMICAL
A.B.N: 12631121849

Perth Office	Albany Office
9/69 Truganina Road	1/209 Chester Pass Road
Malaga WA 6090	Albany WA 6330
(08) 92482662	(08) 68186241

Emergency telephone number: +61 432164241

Other names: Carbamide resin solution; Isourea solution

Chemical Formula: $(NH_2)_2CO$

Chemical Name: Carbonyl diamide solution; Carbonyldiamine solution

HEALTH HAZARD INFORMATION

Emergency overview: Harmful if swallowed or inhaled. Causes irritation to skin, eyes, and respiratory tract.

Classification of the hazardous chemical
Classification by the ADG Code: Not a dangerous good.

Classification by Hazardous Chemical Information System (HCIS) (Australia): Not classified

Precautionary statements:
Other hazards which do not result in classification

Eye Irritation H319 (the classification provided by companies to ECHA in CLP notifications identifies that this substance causes serious eye irritation)

HSNO CCID classification:
(oral) Acutely toxic
Mildly irritating to the skin
Irritating to the eye

Harmful to terrestrial vertebrates

FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Eye Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately.

Skin Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner, which limits further exposure. Get medical aid.

Inhalation Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. Get medical aid immediately.

Ingestion Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cups of water. Get medical aid immediately.

Advise to Doctor Treat symptomatically and supportively

FIRE FIGHTING MEASURES

Extinguishing Media Use agent most appropriate to extinguish surrounding fire.

Special hazards arising from the Substance or mixture

Fire: May produce toxic fumes of carbon monoxide, nitrogen oxide, ammonia.

Explosion: Not an explosion hazard.

Hazchem Code: Not applicable

Advice for firefighter Keep containers cool with water spray. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.

ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency Procedures.	- Use suitable equipment (including PPE) to prevent contamination of skin, eyes, and personal clothing. - Provide sufficient ventilation. Emergency procedures, Prevent further leakage or spillage if safe to do so. Keep away from incompatible products.
Environmental precautions	If the product contaminates rivers and lakes or drains inform respective authorities. Do not flush into surface water or sanitary sewer system.
Methods of cleaning up	Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

STORAGE AND HANDLING

Handling: General: Eating, drinking, and smoking in work areas is prohibited. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas. Use only in a well-ventilated area. Keep container tightly closed. Do not get on skin or in eyes. Do not ingest or inhale.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances.

EXPOSURE CONTROLS / PERSONAL PROTECTION

HCIS Airborne Exposure Limits:	None
AIHA Workplace Environmental Exposure Limit (WEEL):	5 mg/m3, 8-hour TWA.
Engineering controls:	Facilities storing or utilising this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment (PPE)

Eyes:	Use chemical safety goggles and/or full-face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.
Skin:	Wear protective gloves and clean body-covering clothing.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respiratory Protection (AS/NZS 1715/1716 Approved): Wear a full-face piece dust/mist respirator. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colourless to Yellowish or brownish colour
Odour: Slight acrid odour -develops odour of ammonia
Odour threshold: Not available
pH: 6.5 - 8.5
Boiling point: 105 - 110ºC
Flash point: Not available
Evaporation rate: Not available
Flammability: Not Flammable
Upper/lower flammability or explosive limits: Not available
Vapour pressure: Not available
Vapour density: Not available
Specific Gravity: 1.14 @ 20ºC/4ºC
Solubility: Very soluble

Partition coefficient :n-octanol/water: Not available

Auto-ignition temperature: Not available
Decomposition temperature: Not available
Viscosity: Not available

Composition

Chemical Entity	CAS Number	EC Number	Proportion
Urea	57-13-6	200-315-5	30 -50%
Water	7732-18-5	231-791-2	70 -50%

STABILITY AND REACTIVITY

Reactivity: Will react with oxidising agents.

Chemical stability:	Stable under normal temperatures and pressures.
Possibility of hazardous Reactions:	Will not react or polymerise, releasing excess pressure or heat, or create other hazardous conditions
Conditions to avoid	Excess heat
Incompatible materials	Urea solution reacts with calcium hypochlorite or sodium hypochlorite to form the explosive nitrogen trichloride. It is incompatible with sodium nitrite, gallium perchlorate, strong oxidizing agents (permanganate, dichromate, nitrate, chlorine), phosphorus pentachloride, nitrosyl perchlorate, titanium tetrachloride and chromyl chloride.
Hazardous decomposition Products:	Urea decomposes upon heating and can form products including ammonia, oxides of nitrogen, cyanuric acid, cyanic acid, biuret, carbon dioxide.

TOXICOLOGICAL INFORMATION

Acute toxicity	Urea solution: Oral rat LD50: 8471 mg/kg. Investigated as a tumorigen, mutagen, reproductive effector
Inhalation:	Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. May be absorbed into the bloodstream with symptoms similar to ingestion.
Ingestion:	Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhoea. May also cause headache, confusion and electrolyte depletion.
Skin Contact:	Causes irritation to skin. Symptoms include redness, itching, and pain.
Eye Contact:	Causes irritation, redness, and pain.
Chronic Exposure:	A study of 67 workers in an environment with high airborne concentrations of urea solution found a high incidence of protein metabolism disturbances, moderate emphysema, and chronic weight loss.
Aggravation of Pre-existing Conditions:	Supersensitive individuals with skin or eye problems, kidney impairment or asthmatic condition should have physician's approval before exposure to urea dust.
Respiratory or skin sensitisation:	Not sensitising
Germ cell	Not available

mutagenicity:

Carcinogenicity: Not an NTP carcinogen.

IARC category: None

Reproductive toxicity: Not available

Specific Target Organ Toxicity (STOT): Single exposure: Not available

Specific Target Organ Toxicity (STOT): Repeated exposure: Not available

Aspiration hazard: Not available

Information on Possible routes of exposure: Ingestion, Inhalation, Skin/ eye exposure.

Delayed Health Effects from Exposure: Not available

Interactive Effects: Not available

ECOLOGICAL INFORMATION

Ecotoxicity: No information

Persistence and degradability: When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.
When released into the air, this material is expected to have a half-life of less than 1 day.

Bio accumulative potential: This material has an experimentally determined bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate

Mobility in soil: When released to soil, this material will hydrolyze into ammonium ion in a matter of days to several weeks. this material may leach into groundwater.

Other adverse effects: None known

DISPOSAL CONSIDERATIONS

Disposal methods: Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an approved waste facility. State and local disposal regulations may differ from federal disposal regulations. Neutralise to pH 6-9 before disposal

Disposal of any contaminated packaging: Dispose of container and unused contents in accordance with federal, state, and local requirements.

Effects of sewage disposal: No data

TRANSPORT INFORMATION

Australian DG Classification for Road and Rail: Not regulated

Environmental hazards for Transport Purposes: Not a marine pollutant

Special precautions during transport: None

Hazchem Code: Not applicable

REGULATORY INFORMATION

Safety, Health and Environmental Regulations
AICS: This Ingredient is listed in the Australian Inventory of Chemical Substances
SUSMP Labelling: Poison Schedule: None allocated.

OTHER INFORMATION

Person to contact:

Abel Hlophe – All Chemical Senior Chemical Engineer +61 432164241

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only about safety requirements. The data do not describe the product's properties. Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in this Safety Data Sheet. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and regulation are observed.

HALLIBURTON

SAFETY DATA SHEET

VERSASET

Revision Date: 05-Feb-2021 **Revision Number:** 28

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name VERSASET

Other means of Identification

Synonyms None

Hazardous Material Number: HM001390

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 1 - H314
Serious Eye Damage/Irritation	Category 1 - H318
Substances/mixtures corrosive to metal	Category 1 - H290

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Precautionary Statements

Prevention
P103 - Read label before use
P234 - Keep only in original packaging.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P390 - Absorb spillage to prevent material damage

Storage
P405 - Store locked up
P406 - Store in corrosive resistant container with a resistant inner liner.

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Sodium aluminate	1302-42-7

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Sodium aluminate	1302-42-7	60 - 100%	Skin Corr. 1A (H314) Eye Corr. 1 (H318) Met. Corr. 1 (H290)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes severe eye irritation which may damage tissue. Causes severe skin irritation with tissue destruction.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Not applicable

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Not applicable

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove. Do NOT spread spilled product with water.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from acids. Store in a dry location. Product has a shelf life of 24 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Sodium aluminate	1302-42-7	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Localized ventilation should be used to control dust levels.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. (>= 8 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.

Eye Protection Dust proof goggles.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid
Color White
Odor: Odorless
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	11.5
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.3
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	82
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Amphoteric metals such as aluminum, magnesium, lead, tin, or zinc.
10.6. Hazardous decomposition products
None known.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes severe eye irritation which may damage tissue. Causes severe skin irritation with tissue destruction.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium aluminate	1302-42-7	> 2000 mg/kg (Rat) (Similar substance)	> 5000 mg/kg (Rabbit) (Similar substance)	> 5 mg/L air (Rat, aerosol, 4hr) (Similar substance)

Immediate, delayed and chronic health effects from exposure
Inhalation May cause respiratory irritation.
Eye Contact Causes severe eye irritation which may damage tissue.
Skin Contact Causes severe skin irritation with tissue destruction.
Ingestion Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Skin disorders. Eye ailments.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Sodium aluminate	1302-42-7	Causes severe skin irritation with tissue destruction. (similar substances)

Substances	CAS Number	Serious eye damage/irritation
Sodium aluminate	1302-42-7	Causes severe eye irritation which may damage tissue. (similar substances)

Substances	CAS Number	Skin Sensitization
Sodium aluminate	1302-42-7	Did not cause sensitization on laboratory animals (guinea pig) (similar substances)

Substances	CAS Number	Respiratory Sensitization

Sodium aluminate	1302-42-7	No information available

Substances	CAS Number	Mutagenic Effects
Sodium aluminate	1302-42-7	No data of sufficient quality are available.

Substances	CAS Number	Carcinogenic Effects
Sodium aluminate	1302-42-7	Did not show carcinogenic effects in animal experiments (similar substances)

Substances	CAS Number	Reproductive toxicity
Sodium aluminate	1302-42-7	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Sodium aluminate	1302-42-7	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	STOT - repeated exposure
Sodium aluminate	1302-42-7	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	Aspiration hazard
Sodium aluminate	1302-42-7	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Sodium aluminate	1302-42-7	No information available	No information available	EC50(3h): > 100 mg/L (activated sludge, domestic sewage)	No information available

12.2. Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

Substances	CAS Number	Persistence and Degradability
Sodium aluminate	1302-42-7	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Sodium aluminate	1302-42-7	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Sodium aluminate	1302-42-7	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.
Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Dispose of container according to national or local regulations. Do NOT reuse container. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations
Not applicable

14. Transport Information

Transportation Information
Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted by surface modes.
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	UN2812
UN proper shipping name:	Sodium Aluminate, Solid
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
2X

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
S6

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.

Basel Convention - Hazardous Waste: Does not apply.

16. Other information

Date of preparation or review

Revision Date: 05-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Mixture identification:

Trade name: VISCOSTAR 6K

Trade code: 9023826

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use: Not available

Uses advised against: Not available

1.3. Details of the supplier of the safety data sheet

Company: MAPEI AS - Vallsetvegen, 6 - 2120 Sagstua - Norway

phone: +47-62972000 - fax: +47-62972099 - www.mapei.no (office hours)

Responsible: sicurezza@mapei.it

1.4. Emergency telephone number

Giftinformasjonen – phone number: +47 22591300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

The product is not classified as hazardous according to Regulation EC 1272/2008 (CLP).

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

The product is not classified as hazardous according to Regulation EC 1272/2008 (CLP).

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%.

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

Not Relevant

3.2. Mixtures

Mixture identification: VISCOSTAR 6K

Hazardous components within the meaning of the CLP regulation and related classification:

None

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Wash with plenty of water and soap.

In case of eyes contact:

Wash immediately with water.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and the hazard label.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

4.2. Most important symptoms and effects, both acute and delayed

Not available

4.3. Indication of any immediate medical attention and special treatment needed

Treatment:

Not available

(see paragraph 4.1)

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO_2).

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

5.3. Advice for firefighters

Use suitable breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Limit leakages with earth or sand.

6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Retain contaminated washing water and dispose it.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No data available

8.2. Exposure controls

Eye protection:

Not needed for normal use. Anyway, operate according good working practices.

Protection for skin:

No special precaution must be adopted for normal use.

Protection for hands:

Suitable materials for safety gloves; EN ISO 374:

Polychloroprene - CR: thickness >=0,5mm; breakthrough time >=480min.

Nitrile rubber - NBR: thickness >=0,35mm; breakthrough time >=480min.

Butyl rubber - IIR: thickness >=0,5mm; breakthrough time >=480min.

Fluorinated rubber - FKM: thickness >=0,4mm; breakthrough time >=480min.

Respiratory protection:

Personal Protective Equipment should comply with relevant CE standards (as EN ISO 374 for gloves and EN ISO 166 for goggles), correctly maintained and stored. Consult the supplier to check the suitability of equipment against specific chemicals and for user information.

Not needed for normal use. Anyway, operate according good working practices.

Hygienic and Technical measures

Not available

Appropriate engineering controls:

Not available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Appearance: liquid

Color: Green

Odour: Odourless

Odour threshold: Not available

Melting point / freezing point: Not available

Initial boiling point and boiling range: 100 °C (212 °F)

Flammability: N.A.

Upper/lower flammability or explosive limits: Not available

Flash point: Not available

Auto-ignition temperature: Not available

Decomposition temperature: Not available

pH: Not available

Viscosity: 350.00 cPs

Kinematic viscosity: Not available

Solubility in water: dispersible

Solubility in oil: Not available

Partition coefficient (n-octanol/water): Not available

Vapour pressure: Not available

Relative density: Not available

Vapour density: Not available

Particle characteristics:

Particle size: Not available

9.2. Other information

Miscibility: Not available

Conductivity: Not available

No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the mixture:

a) acute toxicity	Not classified
	Based on available data, the classification criteria are not met
b) skin corrosion/irritation	Not classified

	Based on available data, the classification criteria are not met
c) serious eye damage/irritation	Not classified
	Based on available data, the classification criteria are not met
d) respiratory or skin sensitisation	Not classified
	Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified
	Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified
	Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified
	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified
	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

11.2 Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 0.1%

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

List of Eco-Toxicological properties of the product

Not classified for environmental hazards

Based on available data, the classification criteria are not met

12.2. Persistence and degradability

N.A.

12.3. Bioaccumulative potential

N.A.

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1%.

12.6 Endocrine disrupting properties

No endocrine disruptor substances present in concentration >= 0.1%

12.7 Other adverse effects

Not available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Recover if possible.

A waste code (EWC) according to European List of Waste (LoW) cannot be specified, due to dependence on the usage. Contact and send to an authorized waste disposal service.

Methods of disposal:

Disposal of this product, solutions, packaging and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor.

Do not dispose of waste into sewers.

Clean waste packaging should be recycled when possible and authorized by the authority.

Hazardous waste: No

Disposal considerations:

Do not allow to enter drains or watercourses.

Dispose of product according to all federal, state and local applicable regulations.

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.

Dispose of containers contaminated by the product in accordance with local or national legal provisions. For further information, contact your local waste authority.

Special precautions:

This material and its container must be disposed of in a safe way. Care should be taken when handling untreated empty containers.

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty containers or liners may retain some product residues. Do not re-use empty containers.

SECTION 14: Transport information

Not classified as dangerous in the meaning of transport regulations.

14.1. UN number or ID number

Not Applicable

14.2. UN proper shipping name

Not Applicable

14.3. Transport hazard class(es)

Not Applicable

14.4. Packing group

Not Applicable

14.5. Environmental hazards

Not Applicable

14.6. Special precautions for user

Not Applicable

Road and Rail (ADR-RID) :

ADR-Hazard identification number: NA

Not Applicable

Air (IATA) :

Not Applicable

Sea (IMDG) :

Not Applicable

14.7. Maritime transport in bulk according to IMO instruments

Not Applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

VOC (2004/42/EC) : N.A. g/l

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EU) n. 2020/878

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)

Regulation (EU) n. 2015/1221 (ATP 7 CLP)

Regulation (EU) n. 2016/918 (ATP 8 CLP)

Regulation (EU) n. 2016/1179 (ATP 9 CLP)

Regulation (EU) n. 2017/776 (ATP 10 CLP)

Regulation (EU) n. 2018/669 (ATP 11 CLP)

Regulation (EU) n. 2019/521 (ATP 12 CLP)

Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Regulation (EU) n. 2020/217 (ATP 14 CLP)

Regulation (EU) n. 2020/1182 (ATP 15 CLP)

Provisions related to directive EU 2012/18 (Seveso III):

None

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: None.

Restrictions related to the substances contained: 75

SVHC Substances:

SVHC substances not present in a concentration ≥ 0.1% (w/w)

National regulations

MAL-kode: 1-1 (1993)

German Water Hazard Class (WGK)

Class 1: slightly hazardous for water.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

If appropriate, specific provisions in relation to possible training for workers are mentioned in section 2. Any training related to safety in the workplace must in any case refer to a risk assessment that must be carried out by a company safety officer taking into account the specific operating and environmental conditions in which the products are used.

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This SDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

IC50: half maximal inhibitory concentration

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

IMDG: International Maritime Code for Dangerous Goods.

INCI: International Nomenclature of Cosmetic Ingredients.

IRCCS: Scientific Institute for Research, Hospitalization and Health Care
KAFH: KAFH
KSt: Explosion coefficient.
LC50: Lethal concentration, for 50 percent of test population.
LD50: Lethal dose, for 50 percent of test population.
LDLo: Leathal Dose Low
N.A.: Not Applicable
N/A: Not Applicable
N/D: Not defined/ Not available
NA: Not available
NIOSH: National Institute for Occupational Safety and Health
NOAEL: No Observed Adverse Effect Level
OSHA: Occupational Safety and Health Administration.
PBT: Persistent, Bioaccumulative and Toxic
PGK: Packaging Instruction
PNEC: Predicted No Effect Concentration.
PSG: Passengers
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
TLV: Threshold Limiting Value.
TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

- 2. HAZARDS IDENTIFICATION
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 15. REGULATORY INFORMATION
- 16. OTHER INFORMATION

SDS no. PID2234
Version 3
Revision date 17-Feb-2022
Supersedes Date: 19-Mar-2019

Safety Data Sheet
WALNUT NUT PLUG* (All Grades)

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	WALNUT NUT PLUG* (All Grades)
Product code	PID2234
Country Limitations	This SDS is not for use in the European Union (EU).
Synonyms	WALNUT NUT PLUG* FINE, WALNUT NUT PLUG* MEDIUM, WALNUT NUT PLUG* COARSE

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Lost circulation material.
Uses advised against	Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Australia Pty Ltd
ABN: 67 009 214 162
Level 5
10 Telethon Avenue
Perth
WA 6000

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards	Not classified
Environmental hazards	Not classified
Physical Hazards	Not classified

2.2 Label elements

Signal word

None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

–

Contains
Cellulose

Crystalline silica (impurity)

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Combustible dust

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Cellulose	Listed	Proprietary	60-100
Crystalline silica (impurity)	238-878-4	14808-60-7	<1

3.2 Mixtures

Not applicable

Comments
This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if symptoms occur.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Take precautionary measures against static discharges. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not eat, drink, smoke, sniff Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions Ensure adequate ventilation. Take precautionary measures against static discharges. Keep airborne concentrations below exposure limits.

Storage precautions Keep containers tightly closed in a dry, cool and well-ventilated place Keep away from open flames, hot surfaces and sources of ignition Avoid contact with: Oxidizing agents

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits No biological limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
Cellulose	10 mg/m³ TWA	10mg/m³TWAinhalable dust	Not determined
Crystalline silica (impurity)	0.1 mg/m³ TWA	0.05mg/m³TWArespirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Cellulose	Not determined	10 mg/m³ TWA	Not determined
Crystalline silica (impurity)	Not determined	0.025 mg/m³ TWA	0.03 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Cellulose	10 mg/m³ MAC	Not determined	10 mg/m³ TWA
Crystalline silica (impurity)	1 mg/m³ MAC	0.1 mg/m³ TWA	0.05 mg/m³ TWA Confirmed carcinogen
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Cellulose	10 mg/m³ TWA	Not determined	10 mg/m³ MAC
Crystalline silica (impurity)	0.1 mg/m³ TWA	Not determined	1 mg/m³ TWA 3 mg/m³ MAC

			Fibrogenic substance glass;in the form of disintegration aerosol;limit is for total mass of aerosols 1153 Fibrogenic substance containing >70% Silicon dioxide in dust;limit is for total mass of aerosols 1154
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Cellulose	Not determined	10 mg/m³ TWA 5 mg/m³ TWA 20 mg/m³ STEL	Not determined
Crystalline silica (impurity)	0.025 mg/m³ TWA	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection Use eye protection according to EN 166, designed to protect against powders and dusts Safety glasses with side-shields Tightly fitting safety goggles

Hand protection Wear gloves according to EN 374 to protect against skin effects from powders Use protective gloves made of: Neoprene Nitrile Frequent change is advisable

Respiratory protection No protective equipment is needed under normal use conditions In case of insufficient ventilation wear suitable respiratory equipment Suitable mask with particle filter P3 (European Norm 143) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state Solid
Appearance No information available
Odor Odorless
Color Light brown

Property	Values	Remarks
pH	No information available	
pH @ dilution	No information available	
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point	193 °C / 380 °F	PMCC
Evaporation rate (BuAc =1)	No information available	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No information available	
Lower explosion limit	No information available	
Vapor pressure	No information available	
Relative Vapor Density	No information available	
Specific gravity	1.1 - 1.4	@ 20 °C
Bulk density	577-641 kg/m³/36-40 lb/ft3	
Water solubility	Insoluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	. Not applicable	
Dynamic viscosity	No information available	
Partition Coefficient (n-octanol/water)	Not determined	
Density and/or Relative Density	No information available	

Explosive properties	Suspended dust may present a dust explosion hazard
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Dust may form explosive mixture in air.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static charges.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis.

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Dust may cause mechanical irritation.

Skin contact Prolonged contact may cause redness and irritation.

Ingestion Ingestion may cause stomach discomfort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cellulose	> 5 g/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5800 mg/m³ (Rat) 4 h
Crystalline silica (impurity)	No data available	No data available	No data available

Sensitization This product does not contain any components suspected to be sensitizing.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity Crystalline silica dust is listed by IARC in Group 1 as known to cause lung cancer in humans, if inhaled.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of Exposure Inhalation.

Routes of entry Inhalation.

Specific target organ toxicity - Single exposure Not classified

Specific target organ toxicity - Repeated exposure Not classified.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Cellulose	No information available	No information available	No information available
Crystalline silica (impurity)	LC50 Danio rerio (zebra fish) : > 10000 mg/l 96h	EC50: > 1000 mg/l 72h	LC50 Daphnia manga (Water flea): > 10000 mg/l 24h

12.2 Persistence and degradability

No product level data available. See component information below.

Chemical Name	Persistence and degradability
Crystalline silica (impurity)	Inorganic compound

12.3 Bioaccumulative potential

The product does not contain any substances expected to be bioaccumulating. See component information below.

Chemical Name	Bioaccumulation
Crystalline silica (impurity)	Product/Substance is inorganic

12.4 Mobility

Mobility
Insoluble in water.

Chemical Name	Mobility
Crystalline silica (impurity)	Insoluble in water

Mobility in soil
See component information below.

Chemical Name	Mobility in soil
Crystalline silica (impurity)	Not expected to adsorb on soil

12.5 Other adverse effects

None known.

12.6 Other information.

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not required
Group number	Not required

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

This SDS is not for use in the European Union (EU).

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Anne Karin (Anka) Fosse
Supersedes Date:	19-Mar-2019
Revision date	17-Feb-2022
Version	3
This SDS has been revised in the following section(s)	1, 2, 12, 15, 16 No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

Training Advice
Do not handle until all safety precautions have been read and understood
Follow general hygiene considerations recognized as common good workplace practices

HMIS classification

Health	1*
Flammability	1
Physical hazard	0
PPE	E

*A mark of M-I L.L.C., a Schlumberger Company

Disclaimer

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HALLIBURTON

SAFETY DATA SHEET

WellLife™ 684

Revision Date: 30-Apr-2020 **Revision Number:** 20

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name WellLife™ 684

Other means of Identification

Synonyms None

Hazardous Material Number: HM006935

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Combustible dust when in finely divided and highly suspended state.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Ensure adequate ventilation. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas. Consult local authorities.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Avoid creating or inhaling dust. Avoid dust accumulations. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store away from oxidizers. Store in a dry location. Product has a shelf life of 60 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls A well ventilated area to control dust levels.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Not normally needed. But if significant exposures are possible then the following respirator is recommended: Dust/mist respirator. (N95, P2/P3)
Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: fibers
Color Black
Odor: Odorless
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	> 450 °C / > 868 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.9
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) 6

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
Strong oxidizers.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous	NA	No data available	No data available	No data available

substances in concentrations above cut-off values according to the competent authority				

Immediate, delayed and chronic health effects from exposure

Inhalation May cause mild respiratory irritation.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion May cause mild gastric distress.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Skin disorders.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.

New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Apr-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

WellLife™ 1094

Revision Date: 09-Oct-2018 **Revision Number:** 10

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name WellLife™ 1094

Other means of Identification

Synonyms None

Hazardous Material Number: HM007634

Recommended use of the chemical and restrictions on use

Recommended Use Cement Additive

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention	None
Response	None
Storage	None
Disposal	None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Eyes	Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

No significant hazards expected.

Medical Attention and Special Treatment

Notes to Physician	Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases. May form explosive mixtures with organic and combustible materials. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid creating or inhaling dust. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool, dry location. Product has a shelf life of 60 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Not normally necessary.

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	White
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	163-168 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.23
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent	NA	No data available	No data available	No data available

authority				

Immediate, delayed and chronic health effects from exposure

Inhalation None known.
Eye Contact None known.
Skin Contact None known.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility

Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
EINECS (European Inventory of Existing Chemical Substances)	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.

Canadian Domestic Substances List (DSL) All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 09-Oct-2018

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
OSHA
ECHA C&L

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all

conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

WellLife™ 734

Revision Date: 30-Apr-2020 **Revision Number:** 30

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name WellLife™ 734

Other means of Identification

Synonyms None

Hazardous Material Number: HM005965

Recommended use of the chemical and restrictions on use

Recommended Use Cement Enhancer

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton/Baroid Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Not classified

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classified

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	60 - 100%	Not classified

4. First aid measures

Description of necessary first aid measures
Inhalation Under normal conditions, first aid procedures are not required.
Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin Under normal conditions, first aid procedures are not required.
Ingestion Under normal conditions, first aid procedures are not required.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

Specific hazards arising from the chemical
Special exposure hazards in a fire
Not applicable

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid creating and breathing dust. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
Material is slippery underfoot. Keep floors clean of spills. Avoid creating or inhaling dust. Avoid dust accumulations. Ensure adequate ventilation. Avoid contact with eyes, skin, or clothing. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Storage Information
Store in a dry location. Product has a shelf life of 60 months.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	Not applicable	Not applicable

Appropriate engineering controls
Engineering Controls None known.

Personal protective equipment (PPE)
Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection Not normally necessary.

Hand Protection Normal work gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.
Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Solid	**Color**	White to Variable
Odor:	Odorless	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	1200 °C
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.6
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
Bulk Density	44 lbs/ft3 @ 20 C

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
None known.
10.6. Hazardous decomposition products
None known.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in concentrations above cut-off values according to the competent	NA	No data available	No data available	No data available

authority				

Immediate, delayed and chronic health effects from exposure

Inhalation None known.
Eye Contact May cause mechanical irritation to eye.
Skin Contact None known.
Ingestion None known.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None known.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility

Contains no hazardous substances in concentrations above cut-off values according to the competent authority	NA	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.

US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 30-Apr-2020

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

WellLock A2

Revision Date: 21-Apr-2017 **Revision Number:** 18

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name WellLock A2

Other means of Identification

Synonyms None

Hazardous Material Number: HM007350

Recommended use of the chemical and restrictions on use

Recommended Use Accelerator

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Acute Oral Toxicity	Category 4 - H302
Acute toxicity - Dermal	Category 4 - H312
Skin Corrosion/Irritation	Category 1 - H314
Serious Eye Damage/Irritation	Category 1 - H318
Skin Sensitization	Category 1 - H317
Chronic Aquatic Toxicity	Category 2 - H411

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P391 - Collect spillage

Storage
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
2,4,6 Tridimethylaminomethyl phenol	90-72-2

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
2,4,6 Tridimethylaminomethyl phenol	90-72-2	60 - 100%	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Skin Corr. 1C (H314) Eye Irrit. 1 (H318) Skin Sens. 1 (H317) Aquatic Chronic 2 (H411)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes severe eye irritation which may damage tissue. Causes severe skin irritation with tissue destruction. May cause allergic skin reaction. Harmful if swallowed. Harmful in contact with skin.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation. Evacuate all persons from the area.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Avoid breathing mist. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Do NOT consume food, drink, or tobacco in contaminated areas.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Store in a cool well ventilated area. Keep from excessive heat. Keep container closed when not in use. Store in a dry location. Store locked up. Product has a shelf life of 24 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
2,4,6 Tridimethylaminomethyl phenol	90-72-2	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Organic vapor respirator with a dust/mist filter. (A2P2/P3)

Hand Protection Impervious rubber gloves.

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not allow material to contaminate ground water system

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid

Color Light yellow

Odor: Amine

Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	~11
Freezing Point / Range	No data available
Melting Point / Range	No data available
Boiling Point / Range	315 °C / 600 °F
Flash Point	157 °C / 315 °F PMCC
Evaporation rate	No data available
Vapor Pressure	0.1 mmHg
Vapor Density	No data available
Specific Gravity	0.97
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	265.45 g/mol
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
Avoid contact with acids.
10.5. Incompatible materials
Strong oxidizers. Reducing agents.
10.6. Hazardous decomposition products
Oxides of nitrogen. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye contact. Skin contact. Ingestion.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes severe eye irritation which may damage tissue. Causes severe skin irritation with tissue destruction. May cause allergic skin reaction. Harmful if swallowed. Harmful in contact with skin.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
2,4,6 Tridimethylaminomethyl phenol	90-72-2	1340 mg/kg (Rat)	1280 mg/kg (Rat)	No data available

Immediate, delayed and chronic health effects from exposure
Inhalation May cause respiratory irritation.
Eye Contact Causes severe eye irritation which may damage tissue.
Skin Contact Harmful in contact with skin. Causes severe burns. May cause an allergic skin reaction.
Ingestion Harmful if swallowed. Causes burns of the mouth, throat and stomach. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Eye ailments. Skin disorders.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
2,4,6 Tridimethylaminomethyl phenol	90-72-2	Skin, rabbit: Causes severe burns

Substances	CAS Number	Serious eye damage/irritation
2,4,6	90-72-2	Eye, rabbit: Causes severe eye irritation which may damage tissue.

Tridimethylaminomethyl phenol		

Substances	CAS Number	Skin Sensitization
2,4,6 Tridimethylaminomethyl phenol	90-72-2	May cause an allergic skin reaction. (guinea pig)

Substances	CAS Number	Respiratory Sensitization
2,4,6 Tridimethylaminomethyl phenol	90-72-2	No information available

Substances	CAS Number	Mutagenic Effects
2,4,6 Tridimethylaminomethyl phenol	90-72-2	In vitro tests did not show mutagenic effects. Was not mutagenic in Salmonella bacterial assay.

Substances	CAS Number	Carcinogenic Effects
2,4,6 Tridimethylaminomethyl phenol	90-72-2	No information available

Substances	CAS Number	Reproductive toxicity
2,4,6 Tridimethylaminomethyl phenol	90-72-2	Animal testing did not show any effects on fertility.

Substances	CAS Number	STOT - single exposure
2,4,6 Tridimethylaminomethyl phenol	90-72-2	No information available

Substances	CAS Number	STOT - repeated exposure
2,4,6 Tridimethylaminomethyl phenol	90-72-2	No information available

Substances	CAS Number	Aspiration hazard
2,4,6 Tridimethylaminomethyl phenol	90-72-2	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
2,4,6 Tridimethylaminomethyl phenol	90-72-2	EC50 (72h) 84 mg/L (Desmodesmus subspicatus)	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
2,4,6 Tridimethylaminomethyl phenol	90-72-2	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
2,4,6 Tridimethylaminomethyl phenol	90-72-2	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
2,4,6 Tridimethylaminomethyl phenol	90-72-2	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	UN2735
UN proper shipping name:	Amines, Liquid, Corrosive, N.O.S. (Contains Tris-2,4,6-(Dimethylaminomethyl) Phenol)
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Marine Pollutant

IMDG/IMO

UN Number	UN2735
UN proper shipping name:	Amines, Liquid, Corrosive, N.O.S. (Contains Tris-2,4,6-(Dimethylaminomethyl) Phenol)
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Marine Pollutant
EMS:	EmS F-A, S-B

IATA/ICAO

UN Number	UN2735
UN proper shipping name:	Amines, Liquid, Corrosive, N.O.S. (Contains Tris-2,4,6-(Dimethylaminomethyl) Phenol)
Transport Hazard Class(es):	8
Packing Group:	III
Environmental Hazards:	Marine Pollutant

Special precautions during transport

None

HazChem Code

2X

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory All components are listed on the AICS or are subject to a relevant exemption, permit, or

	assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
EINECS (European Inventory of Existing Chemical Substances)	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply
Basel Convention - Hazardous Waste:	Does not apply

16. Other information

Date of preparation or review

Revision Date: 21-Apr-2017

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H411 - Toxic to aquatic life with long lasting effects

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury

w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID
OSHA
ECHA C&L

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

WellLock H1

Revision Date: 15-Mar-2022 **Revision Number:** 36

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name WellLock H1

Other means of Identification

Synonyms None

Hazardous Material Number: HM007347

Recommended use of the chemical and restrictions on use

Recommended Use Curing Agent

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Acute Oral Toxicity	Category 4 - H302
Serious Eye Damage/Irritation	Category 2 - H319
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373

Label elements, including precautionary statements

Hazard Pictograms



Signal Word WARNING

Hazard Statements:
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H373 - May cause damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear eye protection/face protection

Response
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P314 - Get medical attention/advice if you feel unwell
P391 - Collect spillage

Storage None

Disposal P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Diethyltoluenediamine	68479-98-1

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Diethyltoluenediamine	68479-98-1	60 - 100%	Acute Tox. 4 (H302) Eye Irrit. 2A (H319) STOT RE 2 (H373) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin	Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Harmful if swallowed. Harmful in contact with skin. Causes serious eye irritation. May cause damage to organs through prolonged or repeated exposure.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical. Use water spray to cool fire exposed surfaces.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Product will not burn unless preheated. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation. Evacuate all persons from the area.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Wash hands after use. Avoid breathing vapors. Ensure adequate ventilation. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from oxidizers. Keep from excessive heat. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 36 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Diethyltoluenediamine	68479-98-1	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Organic vapor/acid gas respirator with a dust/mist filter.

Hand Protection Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. Neoprene gloves.

Skin Protection Wear protective clothing impervious to the chemical substance, including boots, gloves, lab coat, apron, rainjacket, pants or coverall, as appropriate, to prevent skin contact. Butyl coated apron or clothing.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists. (EN-166)

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not allow material to contaminate ground water system. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color Clear
Odor: Amine
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	307 °C / 586 °F
Flash Point	> 135 °C / > 275 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	0.97 mmHg
Vapor Density	5.2
Specific Gravity	1.02
Water Solubility	Partly soluble
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

Molecular Weight	178.27 g/mol
VOC Content (%)	No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
Keep away from heat, sparks and flame.
10.5. Incompatible materials
Strong oxidizers. Strong acids. Reducing agents. Violent, explosive reaction with sulfur trioxide, decaborane, silver perchlorate, triethenyl aluminum, and hydrogen in presence of nickel catalyst at temperatures above 200 C.
10.6. Hazardous decomposition products
Oxides of nitrogen. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation. Ingestion.

Symptoms related to exposure
Most Important Symptoms/Effects
Harmful if swallowed. Harmful in contact with skin. Causes serious eye irritation. May cause damage to organs through prolonged or repeated exposure.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Diethyltoluenediamine	68479-98-1	472 mg/kg (rat)	>2000 mg/kg bw (rabbit)	No data available

Immediate, delayed and chronic health effects from exposure
Inhalation May cause mild respiratory irritation.
Eye Contact Causes serious eye irritation.
Skin Contact Harmful in contact with skin.
Ingestion Harmful if swallowed. Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity A two year feeding study in rats showed DETDA caused effects in the pancreas, liver, thyroid, and eyes. An increase in the number of tumors in the liver and thyroid of male rats and in the liver and possibly mammary gland of female rats was found. May cause damage to organs through prolonged or repeated exposure.

Exposure Levels
No data available

Interactive effects
Diseases of the pancreas. Eye ailments. Skin disorders.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Diethyltoluenediamine	68479-98-1	Not irritating to skin in rabbits.

Substances	CAS Number	Serious eye damage/irritation
Diethyltoluenediamine	68479-98-1	Causes moderate eye irritation (Rabbit)

Substances	CAS Number	Skin Sensitization
Diethyltoluenediamine	68479-98-1	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Diethyltoluenediamine	68479-98-1	No information available

Substances	CAS Number	Mutagenic Effects
Diethyltoluenediamine	68479-98-1	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Diethyltoluenediamine	68479-98-1	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
Diethyltoluenediamine	68479-98-1	No information available

Substances	CAS Number	STOT - single exposure
Diethyltoluenediamine	68479-98-1	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Diethyltoluenediamine	68479-98-1	Causes damage to organs through prolonged or repeated exposure if swallowed: Pancreas, bone marrow, spleen, Kidney

Substances	CAS Number	Aspiration hazard
Diethyltoluenediamine	68479-98-1	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Diethyltoluenediamine	68479-98-1	ErC50 (72h) 104 mg/L (Desmodesmus subspicatus)	LC50 (48h) 200 mg/L (Leuciscius idus)	EC50 (24h) > 170 mg/L (Pseudomonas putida)	EC50 (48h) 0.5 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Diethyltoluenediamine	68479-98-1	Persistent

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Diethyltoluenediamine	68479-98-1	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Diethyltoluenediamine	68479-98-1	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Follow all applicable community, national or regional regulations regarding waste management methods.
Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations
Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	UN3082
UN proper shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Diethyltoluenediamine)
Transport Hazard Class(es):	9
Packing Group:	III
Environmental Hazards:	Marine Pollutant

IMDG/IMO

UN Number	UN3082
UN proper shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Diethyltoluenediamine)
Transport Hazard Class(es):	9
Packing Group:	III
Environmental Hazards:	Marine Pollutant
EMS:	EmS F-A, S-F

IATA/ICAO

UN Number	UN3082
UN proper shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Diethyltoluenediamine)
Transport Hazard Class(es):	9
Packing Group:	III
Environmental Hazards:	Marine Pollutant

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
•3Z

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.

Basel Convention - Hazardous Waste: Does not apply.

16. Other information

Date of preparation or review

Revision Date: 15-Mar-2022

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H319 - Causes serious eye irritation
H373 - May cause damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID
OSHA
ECHA C&L

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

WellLock R1

Revision Date: 15-Mar-2022 **Revision Number:** 44

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name WellLock R1

Other means of Identification

Synonyms None

Hazardous Material Number: HM007352

Recommended use of the chemical and restrictions on use

Recommended Use Resin

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 7th Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 2 - H319
Skin Sensitization	Category 1 - H317
Germ Cell Mutagenicity	Category 2 - H341
Carcinogenicity	Category 2 - H351
Reproductive Toxicity	Category 2 - H361
Acute Aquatic Toxicity	Category 2 - H401
Chronic Aquatic Toxicity	Category 2 - H411

Flammable liquids.	Category 4 - H227

Label elements, including precautionary statements

Hazard Pictograms



Signal Word DANGER

Hazard Statements:
H227 - Combustible liquid
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H341 - Suspected of causing genetic defects
H351 - Suspected of causing cancer
H361 - Suspected of damaging fertility or the unborn child
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear protective gloves/eye protection/face protection
P281 - Use personal protective equipment as required

Response
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash before reuse
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P363 - Wash contaminated clothing before reuse
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P391 - Collect spillage
P370 + P378 - In case of fire: Use water spray for extinction

Storage
P403 + P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Bisphenol A / Epichlorohydrin resin	25068-38-6
Butyl glycidyl ether	2426-08-6

Other hazards which do not result in classification
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Bisphenol A / Epichlorohydrin resin	25068-38-6	60 - 100%	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317) Aquatic Acute 2 (H401) Aquatic Chronic 2 (H411)
Butyl glycidyl ether	2426-08-6	10 - 30%	Acute Tox. 4 (H302) Acute Tox. 3 (H311) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2A (H319) Skin Sens. 1 (H317) Muta. 2 (H341) Carc. 2 (H351) Repr. 2 (H361) STOT SE 3 (H335) Aquatic Acute 2 (H401) Aquatic Chronic 2 (H411) Flam. Liq. 3 (H226)

4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes skin irritation. May cause allergic skin reaction. Causes serious eye irritation. May cause heritable genetic damage. Potential carcinogen. Potential reproductive hazard. May cause birth defects.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove sources of ignition. Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation. Evacuate all persons from the area.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove. Isolate spill and stop leak where safe.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Remove sources of ignition. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Avoid breathing mist. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Keep from heat, sparks, and open flames. Keep container closed when not in use. Store in a cool, dry location. Store in a well ventilated area. Store locked up. Product has a shelf life of 60 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Bisphenol A / Epichlorohydrin resin	25068-38-6	Not applicable	Not applicable
Butyl glycidyl ether	2426-08-6	TWA: 25 ppm TWA: 133 mg/m^3	TWA: 3 ppm

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Organic vapor respirator.

Hand Protection	Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Impervious rubber gloves.
Skin Protection	Wear protective clothing impervious to the chemical substance, including boots, gloves, lab coat, apron, rainjacket, pants or coverall, as appropriate, to prevent skin contact. Rubber apron.
Eye Protection	Chemical goggles; also wear a face shield if splashing hazard exists. (EN-166)
Other Precautions	Eyewash fountains and safety showers must be easily accessible.
Environmental Exposure Controls	Do not allow material to contaminate ground water system. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Liquid	**Color**	Light yellow
Odor:	Characteristic	**Odor Threshold:**	No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	78 °C / 173 °F (PMCC)
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.13
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

Will Not Occur

10.4. Conditions to avoid

Keep away from heat, sparks and flame.

10.5. Incompatible materials

Strong acids. Strong alkalis.

10.6. Hazardous decomposition products

Aldehydes. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye and skin contact; Inhalation; Ingestion.

Symptoms related to exposure

Most Important Symptoms/Effects

Causes skin irritation. May cause allergic skin reaction. Causes serious eye irritation. May cause heritable genetic damage. Potential carcinogen. Potential reproductive hazard. May cause birth defects.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bisphenol A / Epichlorohydrin resin	25068-38-6	> 5000 mg/kg bw (Rat)	>23,032 mg/kg bw (rabbit) (similar substance)	> saturated concentration (rat, 5 hr, vapor) (similar substance)
Butyl glycidyl ether	2426-08-6	1660 mg/kg (Rat) 2000 mg/kg (Rat) 1530 mg/kg (Mouse)	788 mg/kg (Rabbit)	> 670 ppm (Rat, 8 Hr.)

Immediate, delayed and chronic health effects from exposure

Inhalation Harmful if inhaled. Excessive inhalation causes headache, dizziness, nausea and incoordination.

Eye Contact Causes serious eye irritation.

Skin Contact Causes skin irritation. May cause an allergic skin reaction.

Ingestion Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity This product contains a suspected carcinogen. May cause heritable genetic damage. Prolonged or repeated exposure may cause reproductive system damage. May cause birth defects.

Exposure Levels

No data available

Interactive effects

Skin disorders. Eye ailments.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Bisphenol A / Epichlorohydrin resin	25068-38-6	Skin, rabbit: Causes moderate skin irritation. (similar substances)
Butyl glycidyl ether	2426-08-6	May cause mild skin irritation. (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
Bisphenol A / Epichlorohydrin resin	25068-38-6	Eye, rabbit: Causes moderate eye irritation
Butyl glycidyl ether	2426-08-6	Causes moderate eye irritation (Rabbit)

Substances	CAS Number	Skin Sensitization
Bisphenol A / Epichlorohydrin resin	25068-38-6	Skin sensitizer in guinea pig. (similar substances)
Butyl glycidyl ether	2426-08-6	May cause sensitization by skin contact

Substances	CAS Number	Respiratory Sensitization
Bisphenol A / Epichlorohydrin resin	25068-38-6	No information available
Butyl glycidyl ether	2426-08-6	No information available

Substances	CAS Number	Mutagenic Effects
Bisphenol A / Epichlorohydrin resin	25068-38-6	While some in vitro tests were positive and/or equivocal, in vivo results were negative. (similar substances)
Butyl glycidyl ether	2426-08-6	In vitro tests have shown mutagenic effects Some in vivo tests have shown mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Bisphenol A / Epichlorohydrin resin	25068-38-6	Did not show carcinogenic effects in animal experiments (similar substances)

Butyl glycidyl ether	2426-08-6	Substances which should be regarded as if they are carcinogenic to man

Substances	CAS Number	Reproductive toxicity
Bisphenol A / Epichlorohydrin resin	25068-38-6	Did not show teratogenic effects in animal experiments. Animal testing did not show any effects on fertility. (similar substances)
Butyl glycidyl ether	2426-08-6	Prolonged or repeated exposure may cause reproductive system damage. Prolonged or repeated exposure may cause embryo and fetus toxicity.

Substances	CAS Number	STOT - single exposure
Bisphenol A / Epichlorohydrin resin	25068-38-6	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Butyl glycidyl ether	2426-08-6	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Bisphenol A / Epichlorohydrin resin	25068-38-6	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Butyl glycidyl ether	2426-08-6	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Bisphenol A / Epichlorohydrin resin	25068-38-6	Not applicable
Butyl glycidyl ether	2426-08-6	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Bisphenol A / Epichlorohydrin resin	25068-38-6	EC50 (72h) > 100 mg/L (Pseudokirchnerella subcapitata)(similar substance)	LC50 (96h) 3.6 mg/L (Salmo gairdneri) (similar substance)	IC50 (3h) 100 mg/L (Activated sludge, industrial)(similar substance)	EC50 (48h) 2.8 mg/L (Daphnia magna) NOEC (21d) 0.3 mg/L (Daphnia magna) (similar substance)
Butyl glycidyl ether	2426-08-6	EC50 (96h) 35 mg/L (Pseudokirchneriella subcapitata)	LC50 (96h) 65 mg/L (Salmo gairdneri)	No information available	EC50 (48h) 3.9 mg/L (Daphnia magna) EC50 (24h) 22 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Bisphenol A / Epichlorohydrin resin	25068-38-6	Persistent (5% @ 28d)
Butyl glycidyl ether	2426-08-6	Inherently biodegradable

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Bisphenol A / Epichlorohydrin resin	25068-38-6	LogPow = 2.918
Butyl glycidyl ether	2426-08-6	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Bisphenol A / Epichlorohydrin resin	25068-38-6	No information available
Butyl glycidyl ether	2426-08-6	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods
Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging
Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations
Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	UN3082
UN proper shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Bisphenol A / Epichlorohydrin Resin) (Butyl Glycidyl Ether)
Transport Hazard Class(es):	9
Packing Group:	III
Environmental Hazards:	Marine Pollutant

IMDG/IMO

UN Number	UN3082
UN proper shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Bisphenol A / Epichlorohydrin Resin) (Butyl Glycidyl Ether)
Transport Hazard Class(es):	9
Packing Group:	III
Environmental Hazards:	Marine Pollutant
EMS:	EmS F-A, S-B

IATA/ICAO

UN Number	UN3082
UN proper shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Bisphenol A / Epichlorohydrin Resin) (Butyl Glycidyl Ether)
Transport Hazard Class(es):	9
Packing Group:	III
Environmental Hazards:	Marine Pollutant

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
•3Z

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.

US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 15-Mar-2022

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H311 - Toxic in contact with skin
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H341 - Suspected of causing genetic defects
H351 - Suspected of causing cancer
H361 - Suspected of damaging fertility or the unborn child
H411 - Toxic to aquatic life with long lasting effects

Additional information: For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter

mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

WellLock R2

Revision Date: 04-Feb-2021 **Revision Number:** 28

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name WellLock R2

Other means of Identification

Synonyms None

Hazardous Material Number: HM007351

Recommended use of the chemical and restrictions on use

Recommended Use Resin

Uses advised against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road, Jandakot, WA 6164
Australia
ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951
Global Incident Response Access Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion/Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 2 - H319
Skin Sensitization	Category 1 - H317
Acute Aquatic Toxicity	Category 3 - H402
Chronic Aquatic Toxicity	Category 3 - H412

Label elements, including precautionary statements

Hazard Pictograms



Signal Word WARNING

Hazard Statements:
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H402 - Harmful to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements

Prevention
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear protective gloves/eye protection/face protection

Response
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash before reuse
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P391 - Collect spillage

Storage None

Disposal P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Cyclohexanedimethanol diglydicyl ether	14228-73-0

Other hazards which do not result in classification
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Cyclohexanedimethanol diglydicyl ether	14228-73-0	60 - 100%	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317) Aquatic Acute 3 (H402) Aquatic Chronic 3 (H412)

4. First aid measures

Description of necessary first aid measures

Inhalation	If inhaled, move victim to fresh air and seek medical attention.
Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin	Get medical attention if irritation persists. In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes eye irritation. Causes skin irritation. May cause allergic skin reaction. May be harmful if swallowed.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special exposure hazards in a fire

Product will not burn unless preheated. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Ensure adequate ventilation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from alkalis. Store away from acids. Store away from oxidizers. Store away from reducing agents. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 60 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Cyclohexanedimethanol diglydicyl ether	14228-73-0	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.

Hand Protection Use gloves which are suitable for the chemicals present in this product as well as other environmental factors in the workplace.

Skin Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color Clear
Odor: Mild
Odor Threshold: No information available

Property	Values	Remarks/ - Method
pH:	No data available	
Freezing Point / Range	No data available	
Melting Point / Range	No data available	
Pour Point / Range	No data available	
Boiling Point / Range	> 148 °C / > 300 °F	
Flash Point	> 93 °C / > 200 °F (PMCC)	
Evaporation rate	No data available	
Vapor Pressure	1 mmHg	
Vapor Density	No data available	
Specific Gravity	1.09	
Water Solubility	Insoluble in water	
Solubility in other solvents	No data available	
Partition coefficient: n-octanol/water	No data available	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
Stable
10.3. Possibility of hazardous reactions
Will Not Occur
10.4. Conditions to avoid
Keep away from heat, sparks and flame.
10.5. Incompatible materials
Strong acids. Strong alkalis. Mineral acids.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide. Aldehydes.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Causes eye irritation. Causes skin irritation. May cause allergic skin reaction. May be harmful if swallowed.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cyclohexanedimethanol diglydicyl ether	14228-73-0	2189 mg/kg (Rat) (similar substance)	>2000 mg/kg (Rat) (similar substance)	> Saturated concentration (rat, vapor, 4 hr)(similar substance)

Immediate, delayed and chronic health effects from exposure
Inhalation May cause mild respiratory irritation.
Eye Contact Causes eye irritation.
Skin Contact Causes skin irritation. May cause an allergic skin reaction.
Ingestion May be harmful if swallowed. Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels
No data available

Interactive effects
Eye ailments. Skin disorders.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Cyclohexanedimethanol diglydicyl ether	14228-73-0	Skin, rabbit: Causes moderate skin irritation. (similar substances)

Substances	CAS Number	Serious eye damage/irritation
Cyclohexanedimethanol diglydicyl ether	14228-73-0	Eye, rabbit: Causes moderate eye irritation (similar substances)

Substances	CAS Number	Skin Sensitization
Cyclohexanedimethanol diglydicyl ether	14228-73-0	May cause sensitization by skin contact (guinea pig) (mouse) (similar substances)

Substances	CAS Number	Respiratory Sensitization

Cyclohexanedimethanol diglydicyl ether	14228-73-0	No information available

Substances	CAS Number	Mutagenic Effects
Cyclohexanedimethanol diglydicyl ether	14228-73-0	While some in vitro tests were positive and/or equivocal, in vivo results were negative. (similar substances)

Substances	CAS Number	Carcinogenic Effects
Cyclohexanedimethanol diglydicyl ether	14228-73-0	No information available

Substances	CAS Number	Reproductive toxicity
Cyclohexanedimethanol diglydicyl ether	14228-73-0	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Cyclohexanedimethanol diglydicyl ether	14228-73-0	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	STOT - repeated exposure
Cyclohexanedimethanol diglydicyl ether	14228-73-0	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Cyclohexanedimethanol diglydicyl ether	14228-73-0	Not applicable

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Cyclohexanedimethanol diglydicyl ether	14228-73-0	No information available	LC50 (96h) 30 mg/L (Oncorhynchus mykiss) (similar substance)	IC50 (3h) >100 mg/L (Activated sludge, domestic) (similar substance)	EC50 (48h) 47 mg/L (Daphnia magna) (similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Cyclohexanedimethanol diglydicyl ether	14228-73-0	Inherently biodegradable

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Cyclohexanedimethanol diglydicyl ether	14228-73-0	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Cyclohexanedimethanol diglydicyl ether	14228-73-0	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging
Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations
Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

Special precautions during transport
None

HazChem Code
None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components are listed on the AIIC or are subject to a relevant exemption, permit, or assessment certificate.
New Zealand Inventory of Chemicals	All components are listed on the NZIoC or are subject to a relevant exemption, permit, or assessment certificate.
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian Domestic Substances List (DSL)	All components listed on inventory or are exempt.

Poisons Schedule number
None Allocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

16. Other information

Date of preparation or review

Revision Date: 04-Feb-2021

Revision Note
SDS sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H402 - Harmful to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

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End of Safety Data Sheet

MATERIAL SAFETY DATA SHEET

PAGE	Page **1** of **9**
REVISION DATE	09/07/2022
PRINT DATE	09/07/2022
PRODUCT NAME	Yeast Extract
VERSION	0

IDENTIFICATION OF THE PRODUCT AND THE COMPANY

ADG Code: NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code). Not classified as a hazardous Substance according to Safe work Australia.

Product Name: **YEAST EXTRACT**

Company Name:

ALL CHEMICAL
A.B.N: 12631121849
Perth Office
9/69 Truganina Road
Malaga WA 6090
(08) 92482662
Albany Office
1/209 Chester Pass Road
Albany WA 6330
(08) 68186241

Emergency telephone number: +61 432164241

Other names: Angel Yeast; Angel Yeast Extract; Autolyzed Yeast; Inactive Yeast; Nutritional Yeast

Product uses: Food industry

Chemical Family: No Data Available

Chemical Formula: Unspecified

Chemical Name: Yeast, extract

Product Description: No data available

HEALTH HAZARD INFORMATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification NOT hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS).

Signal Word None

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code).

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code).

PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	Flake, Powder
Odour:	Typical, yeast
Colour:	Light yellow to yellow
pH:	No Data Available
Vapour Pressure:	No Data Available
Relative Vapour Density:	No Data Available
Boiling Point:	No Data Available
Melting Point:	No Data Available
Freezing Point:	No Data Available
Solubility:	Soluble in water
Specific Gravity:	No Data Available
Flash Point:	No Data Available
Auto Ignition Temp:	No Data Available
Evaporation Rate:	No Data Available
Bulk Density:	No Data Available
Corrosion Rate:	No Data Available
Decomposition Temperature:	No Data Available
Density:	No Data Available
Specific Heat:	No Data Available
Molecular Weight:	No Data Available
Net Propellant Weight:	No Data Available
Octanol Water Coefficient:	No Data Available
Particle Size:	No Data Available
Partition Coefficient:	No Data Available
Saturated Vapour Concentration:	No Data Available
Vapour Temperature:	No Data Available
Viscosity:	No Data Available
Volatile Percent:	No Data Available
VOC Volume:	No Data Available
Additional Characteristics:	No information available
Potential for Dust Explosion:	Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential hazard.
Fast or Intensely Burning Characteristics:	No information available
Flame Propagation or Burning	No information available

Rate of Solid Materials:

Non-Flammables That could Contribute Unusual Hazards to a Fire: No information available

Properties That May Initiate or Contribute to Fire Intensity: Combustible solid; May burn but does not ignite readily.

Reactions That Release Gases or Vapours: Fire/decomposition may produce irritating, toxic and/or corrosive fumes, including Carbon oxides.

Release of Invisible Flammable Vapours and Gases: No information available.

Composition

Chemical Entity	Formula	CAS Number	Proportion
Yeast extract	Unspecified	8013-01-2	<=100 %

FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed IF SWALLOWED: Rinse mouth, then drink a glass of water. Get medical advice/attention if you feel unwell.

Eye IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for 10 - 15 minutes. If eye irritation persists, get medical advice/attention.

Skin IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.

Inhaled IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention.

Advise to Doctor Treat symptomatically.

FIRE FIGHTING MEASURES

General Measures

If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire out.

Flammability Conditions

Combustible solid; May burn but does not ignite readily.

Extinguishing Media

If material is involved in a fire, use dry chemical, Carbon dioxide (CO2), foam or water spray for extinction. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Fire and Explosion Hazard

Avoid generating dust; Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Hazardous Products of Combustion

Fire may produce irritating, toxic and/or corrosive fumes, including carbon oxides.

Special Fire Fighting Instructions

Contain runoff from fire control or dilution water – Runoff may pollute waterways.

Personal Protective Equipment

Wear self-contained breathing apparatus (SCBA) and chemical splash suit. SCBA and structural firefighters' uniform may provide limited protection.

Flash Point No Data Available
Lower Explosion Limit No Data Available
Upper Explosion Limit No Data Available
Auto Ignition Temperature No Data Available
Hazchem Code No Data Available

ACCIDENTAL RELEASE MEASURES

General Response Procedure

Ensure adequate ventilation. ELIMINATE all ignition sources. Do not touch or walk-through spilled material. Slippery when split. Avoid breathing vapours and contact with eyes, skin, and clothing.

Clean Up Procedures	Collect material (sweep up, but avoid generating dust) and place into suitable, properly labelled containers for disposal.
Containment	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Prevent dust cloud.
Decontamination	No information available.
Environmental Precautionary Measures	Prevent entry into drains and waterways.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorized personnel away.
Personal Precautionary Measures	Use personal protective equipment as required

STORAGE AND HANDLING

Handling: Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practise. Minimise dust generation and accumulation. Avoid breathing mist/vapours and contact with eyes, skin and clothing. Use personal protective equipment as required. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

Storage: Store in a cool, dry, and well-ventilated place, out of direct sunlight. Keep container tightly closed when not in use. Keep away from heat and sources of ignition – No smoking. Keep away from incompatible materials

Container: Keep in the original container.

EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. For dusts from solid substances without specific occupational exposure standards. -Safe Work Australia Exposure Standard: 8hr TWA = 10 mg/m3 (measured as inhalable dust) -New Zealand WES: TWA = 10 mg/m3; TWA = 3 mg/m3 (respirable dust).

Exposure Limits	No data available.
Biological Measures	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the containment at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Dust mask/particulate filter respirator. - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses. - Hand protection: Handle with gloves. Recommended: Impervious gloves. E.g. PVC. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, safety shoes.
Special Hazardous Precautions:	No information available.
Work Hygienic Practices:	Do not eat, drink, or smoke when using this product. Always wash hands before smoking, eating, drinking, or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use**.** Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

STABILITY AND REACTIVITY

General Information	No information available.
Chemical Stability	Stable under normal conditions of use.
Conditions to Avoid	Avoid generating dust. Keep away from heat and sources of ignition.
Materials to Avoid	Incompatible/reactive with strong oxidising agents.
Hazardous Decomposition Products	Fire/Decomposition may produce irritating, toxic and/or corrosive fumes, including Carbon oxides.

Hazardous Polymerisation Hazardous Polymerisation will not occur.

TOXICOLOGICAL INFORMATION

General Information

Information on possible routes of exposure:

- Ingestion: This material is not known to be health hazardous; large amounts may cause nausea and vomiting.
- Eye contact: May cause physical irritation.
- Skin contact: May cause physical irritation.
- Inhalation: Breathing in dust may result in respiratory irritation.

Chronic effects: No information available.

Carcinogen Category None.

ECOLOGICAL INFORMATION

Ecotoxicity No information available.

Persistence/Degradability This material is biodegradable.

Mobility No information available.

Environmental Fate Prevent entry into drains and waterways.

Bioaccumulation Potential No information available.

Environmental Impact No data available.

DISPOSAL CONSIDERATIONS

General Information Dispose of contents/container in accordance with local/regional/national regulations.

Special Precautions for Land Fill No information available.

TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name Yeast Extract
Class No data available
Subsidiary Risk(s) No data available
No data available
UN Number No data available
Hazchem No data available

Pack Group	No data available
Special Provision	No data available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport
IMDG Code

Proper Shipping Name	Yeast Extract
Class	No data available
Subsidiary Risk(s)	No data available
UN Number	No data available
Hazchem	No data available
Pack Group	No data available
Special Provision	No data available
EMS	No data available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport
IATA DGR

Proper Shipping Name	Yeast Extract
Class	No data available
Subsidiary Risk(s)	No data available
UN Number	No data available
Hazchem	No data available
Pack Group	No data available
Special Provision	No data available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Good Classification	Not Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code).

TRANSPORT INFORMATION

Person to contact:



Abel Hlophe – All Chemical Senior Chemical Engineer +61 432164241

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only about safety requirements. The data do not describe the product's properties. Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in this Safety Data Sheet. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and regulation are observed.