

1501253 B.C Ltd.

# Spill and Fuel Management Plan

## **Coppermine Project**

Coppermine River area, Kugluktuk

October 2,2025

Version 1.0

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## Introduction

The Company is now applying for:

- CIRNAC, Class A land use permit for exploration on additional mineral surveys, establish one small temporary exploration camp, and conduct additional drilling on Crown Land,
- KIA Land Use License for exploration and drilling on Inuit Owned Land, establish one small temporary exploration camp, and
- to amend the existing Nunavut Water Board license for increased water use from 20(3m)/day to 299 (3)m/day for increased drilling and domestic purposes.

Proposed exploration activities under the new licenses and permits are to include prospecting, non-invasive aerial or ground geophysical surveys, downhole geophysical surveys, rock chip sampling, till sampling, diamond drilling, and RC drilling to test targets. Proposed activities may take place during summer, autumn, winter or spring, and take place anywhere within the Company's claims. Staff would be based out of the camps, and/or Kugluktuk. Exploration will take place on Crown Land and Inuit owned Land. Proposed exploration activities would be supported by helicopter, fixed wing, snow cats, snowmobiles, and ATVs as appropriate.

Fixed wing aircraft may use skis or floats to land on lakes or ice. Drill rig models to be used are small and have a very small footprint, and will have minimal ground disturbance. The drill site will sit on 8x8x16' timbers with coco matting underneath to minimize disturbance to tundra surface. Up to 299m<sup>3</sup> of water could be used each day for drilling and camp purposes, which will be taken from a nearby lake or river. While a typical diamond drill can use up to 30m<sup>3</sup> of water per day, water used for drilling will be recycled in a tank and reused to reduce the amount drawn from water sources.

Drummed jet fuel, diesel, and gas fuel may be stored within the project area at any given time. All fuel will be stored in secondary containment bunds, at least 31m away from the ordinary highwater mark of any waterbody.

During the Blue Nose East Caribou Herd calving and post-calving, from 28<sup>th</sup> May to 1<sup>st</sup> of July, exploration activities will conform with approved Caribou mitigation measures and permit conditions. It is expected that up to 49 people may be based out of a camp at any given time to support prospecting, drilling and geophysical surveys. One camp would be established on IOL at Jura, and one camp on Crown Land near the Hope Lake airstrip. The proposed camp, equipment and fuel would be either be skidded to the location from Kugluktuk during the winter via snowcat, or flown into Kugluktuk airport or Hope Lake airstrip and mobilised to the camp location via helicopter or fixed wing. These locations would be dependent on accessing a nearby water source for drilling and camp domestic services.

During winter, supplies may be transported from Kugluktuk to the drill site via winter tracks, supported by Kugluktuk based businesses or personnel. No all-weather roads or permanent structures will be built, and all waste material will be removed from the project area. Great care will be taken and consideration will be given to the environment at all times; with drill sites remediated as best as possible.

The Company understands the importance of the cultural and environmental values of the area in which they are proposing to conduct exploration activities to the people of Kugluktuk. As such, they commit to working together with all regulators and the community to ensure that minimal disturbance is made to the environment and that the land, water, and wildlife are not harmed or negatively impacted. The Company commits to working within the terms and conditions of all licenses and permits, and continues to seek the advice and assistance of local knowledge holders.

## Equipment for Drilling

	Amount		Size	type	Use
Reverse Circulation Drill	1-3		4,400 (all components)	RC Hornet or similar	Chip samples
Diamond Drill	1-2		8,600 including rods and casings	Boyles 25A/37 or similar	Core samples
Solids removal equipment	1-2		3000 kg each	Built in 25 kW generator	Remove solids from drill water
Heater	1-4		150 kg	Frost Fighter	Heat drill shack
Generator	1-4		5 kw Gasoline generator or equivalent	20 kw diesel	Power for water pumps

### Equipment for Camps (Juro and Hope Lake)

Helicopter (s)	1-2	Bell 407 or similar	1300 kg	Drill moves, crew transport
Twin Otter	1	Standard skis or floats	16 m long	Resupply and equipment
Snowmachines	1-8	Standard	200 kg	Transport to/from drills, geophysics, camp support
ATV and trailer	1-4	Standard	500 kg	Transport equipment and supplies
Inflatable boat	1-2	Zodiac or similar	300 kb	Lake bathymetry
Diesel generator	1-4	20 kw diesel generator or similar – 500 kg	20 kg	Camp power
Water pumps	1-4	Standard	10 kg	generator; Drill Rig/camp support
<b>Per camp</b>				
freezer	2	Standard	chest	Domestic use
stove	2	Standard	30"	Domestic use
fridge	2	Standard		Domestic use
Generator	2	20 kw		Camp/ water pumps
Water Pump	2	Honda WT20XK4C or		Water for camp

		equivalent		
Incinerator	1	Dual chamber		Incinerate camp waste
Pacto Toilets	4	Regular		Human waste
Washer	2	Regular		Clothes washing
Dryer	2	Regular		Clothes drying
Toyo Stove	13	L731/732 or equivalent		Tent heat

### Equipment for Ice road or overland winter property access:

Sloop or equivalent	2	5000 kg	Winter/Ice Road low pressure transport trailer/sled on tracks or skis
Chieftan or equivalent	2	31,700 kg	Winter/Ice Road low pressure transport
Snow cat or similar	3	98,000 kg	Winter/Ice Road low pressure transport
Frost Fighter	3	150 kg	heating
light tower	3	150 kg	lighting
Water truck	1	11,250 kg	Winter/Ice Road
			<b>Depending on scale (this would be the max if significant work required )</b>
Skid steers or equivalent	1	5000 kg	Moving drill rigs
Dozer or equivalent	1	10,000 kg	Moving drill rigs
Loader	1	6,800 kg	Ice road maintenance
Hagglund or similar	2	4500 kg	Winter/Ice Road low pressure transport
Service Trucks	2	2500 kg	Ice road transport
Grader	1	21,700 kg	Winter/Ice road construction and maintenance
Plough truck or equivalent	1	17,700 kg	Winter/Ice road construction and maintenance

### Camp Infrastructure for each camp

Sleeper tents	4.3 x 4.9	9
First aid tents	4.3 x 4.9	1
Kitchen dining room	4.8 x 9.8	1
Men's Dry	4.8 x 9.8	1
Women's Dry	4,8 x 9.8	1
Office	4.3 x 4.9	1
Core Shack	4.3 x 9.8	1
Drill/Mud/Lubricants shack	4.3 x 4.9	1
Toilet Facilities	4.3 x 4.9	1

Generator Shack	3.7 x 4.9	1
Storage Shack	4.3 x 4.9	1
Pump Shack	4 x 4	1
Emergency shelter for drill	10 x 10	1-4

**Fuel:**

<u>Type</u>	<u>Size</u>	<u>Amount</u>	<u>Use</u>	<u>Disposal</u>
Diesel	205-liter drums	200	Generator/heating/drill support	Backhaul empties to Yellowknife
Jet A	205-liter drums	200	Helicopter refuel	Backhaul empties to Yellowknife
Propane	100 lb. cylinders	30	Cooking	Backhaul empties to Yellowknife
Gasoline	205-liter drums	10	camp support/Snow machine/ATV/generator	Backhaul empties to Yellowknife
Oil	20 L buckets	50	generator; Drill Rig/camp support	Backhaul to camp, and then remove to Kugluktuk to be transported to an approved facility for disposal
Lubricants	20 L buckets	50	drill	Backhaul to camp, and then remove to Kugluktuk to be transported to an approved facility for disposal
Drill Mud/additives	20 L buckets	50	drill	Backhaul to camp, and then remove to Kugluktuk to be transported to an approved facility for disposal

Small fuel caches (outside of Kugluktuk) would be located along the airstrip at Hope Lake near the camp, at each camp location, and at each drill site (4-12 drums at each rig). All fuel will be stored in secondary containment and covered with tarps to prevent water/snow accumulated with the program is not active.

Spill kits will be located at both camp and at the drill rigs. Kits will contain fuel absorbent pads, heavy duty plastic bags, tarps, and empty drums or buckets, and hand tools.

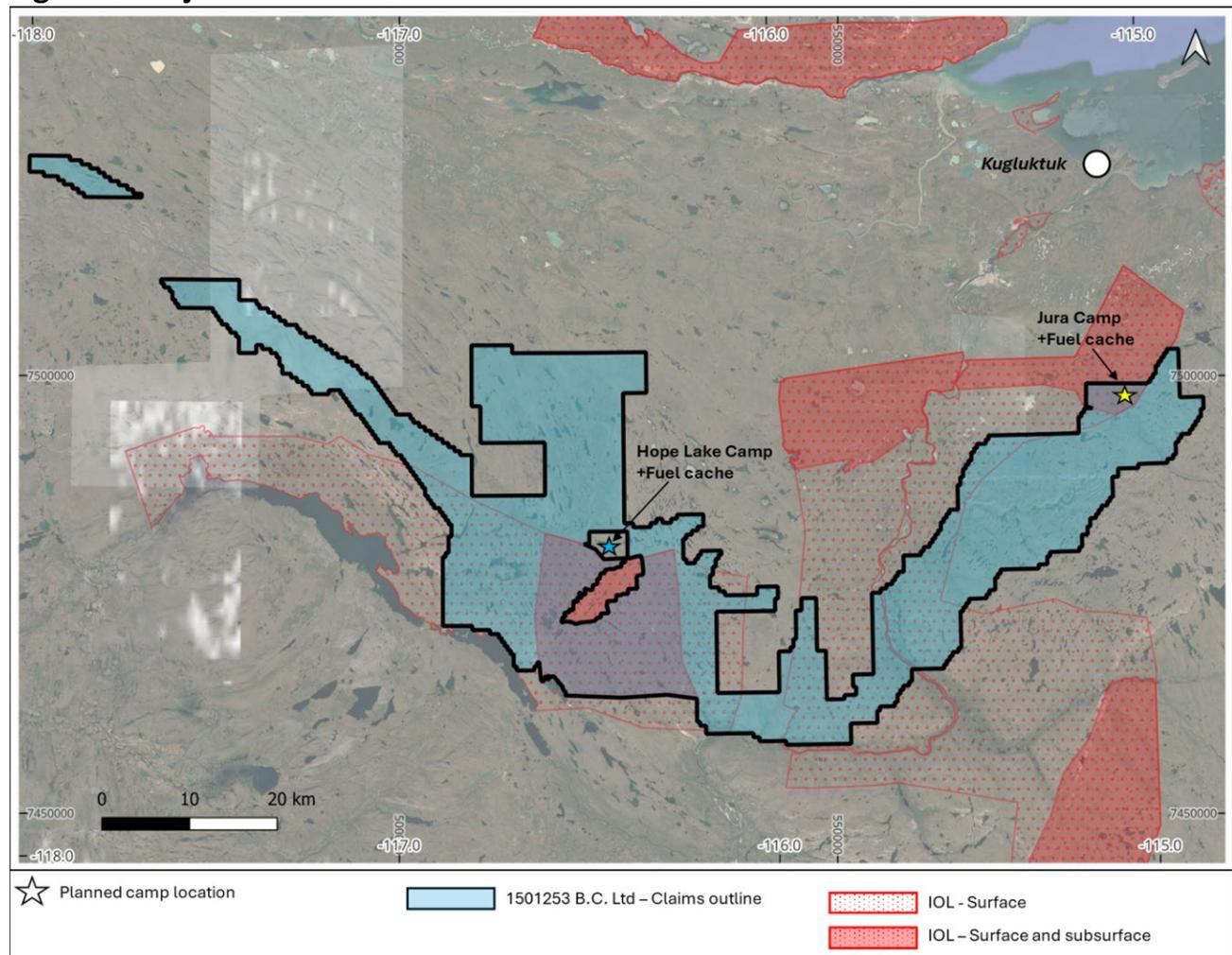
After drilling is complete and the site is remediated, 1501253 B.C Ltd will conduct a thorough inspection of each drill location area to check for:

- Hydrocarbon staining
- Fire and safety hazards

- Debris or litter

1501253 B.C Ltd commits to taking a series of photographs of the drill site locations before and after the activities are complete, for recording and reporting purposes. All items, waste, and fuel barrels will be removed upon completion of each hole.

**Figure 1. Project Location**



All employees and contractors working on site will be made familiar with the fuel storage practices, spill prevention measures, and spill response actions detailed in this Spill Management Plan. The Plan will be printed and laminated and left at each camp, fuel cache and drill rig.

The site supervisor for the Coppermine Project, and main contact for all spill related matters is listed below:

**Alex Vilela**  
**Exploration Manager**  
 Perth, Australia  
[alex.vilela@sentinelresources.com.au](mailto:alex.vilela@sentinelresources.com.au)  
 +61 45 9298209

## 2.0 Potential Spill Materials Inventory

Given the scope of activities proposed for the 2025 and 2026 field seasons, a limited number of hazardous materials will be present onsite. All fuel containers will be stored at least 31 meters away from the Ordinary High-Water Mark of any water body. See Table 1 below for a list of hazardous materials stored on site which could lead to a spill.

**Table 1. Project Spill Materials Inventory – Confirm totals**

Material	size and type	max on site	Location	Spill Prevention Measures
Jet fuel	205 L metal drums	200	Camp	<ul style="list-style-type: none"> <li>• Drums stored within secondary containment</li> <li>• Insta-berm and/or absorbent pad used to catch any drips during fuel transfer</li> <li>• Daily inspections of fuel cache to check for leaks or damaged drums, all issues to be addressed immediately</li> <li>• Helicopter fueling only conducted by qualified personnel such as the pilot or engineer</li> <li>• Mark all fuel caches with flags, posts, or similar devices to make them plainly visible, even when buried under snow.</li> </ul>
Diesel	205 L drums	200	Camp	<ul style="list-style-type: none"> <li>• Drums stored within secondary containment</li> <li>• Insta-berm and/or absorbent pad used to catch any drips during fuel transfer</li> <li>• Daily inspections of fuel cache to check for leaks or damaged drums, all issues addressed immediately</li> <li>• Mark all fuel caches with flags, posts, or similar devices to make them plainly visible, even when buried under snow.</li> </ul>

Material	size and type	max on site	Location	Spill Prevention Measures
Diesel	205 L drums	4-12	drills	<ul style="list-style-type: none"> <li>• same as the camp diesel</li> </ul>
Gasoline	205 L drums	10	camp	<ul style="list-style-type: none"> <li>• Containers stored within secondary containment or in drill rig shelter</li> <li>• Insta-berm and/or absorbent pad used to catch any drips during fuel transfer</li> <li>• Daily inspections of fuel storage site to check for leaks or damaged containers, all issues addressed immediately</li> <li>• Mark all fuel caches with flags, posts, or similar devices to make them plainly visible, even when buried under snow.</li> </ul>
Engine oils, lubricants, grease, coolant etc.	20 L tub	25	dril	<ul style="list-style-type: none"> <li>• in containment ---same as camp</li> </ul>

Material	size and type	max on site	Location	Spill Prevention Measures
Engine oils, lubricants, grease, coolant etc.	20 L tub	25	Camp	<ul style="list-style-type: none"> <li>• Containers stored within secondary containment or in drill rig shelter</li> <li>• Insta-berm and/or absorbent pad used to catch any drips during fuel transfer</li> <li>• Daily inspections of fuel storage site to check for leaks or damaged containers, all issues addressed immediately</li> <li>• Mark all fuel caches with flags, posts, or similar devices to make them plainly visible, even when buried under snow.</li> </ul>
Propane	100 lb tanks	30	camp	<ul style="list-style-type: none"> <li>• up to 15 tanks at each camp</li> <li>• Tanks will be moved to the drill rigs as required to support drilling activities</li> </ul>

### 3.0 Response Plan

In the event of a spill, the following procedures will be followed to ensure a swift and effective response, minimizing impacts to the receiving environment:

#### **General Spill Response Procedures**

1. Ensure all personnel are safe and there are no immediate dangers.
2. Remove all potential sources of ignition from the immediate area. Turn off all operating machinery and isolate electronics.
3. Identify the source of the spill and, if possible, stop the flow.
4. Inform the site supervisor immediately. The site supervisor will likely be onsite, but if they aren't, then contact them via radio or satellite phone (contact details to be provided with spill kit).
5. Contain the spill using spill response materials such as absorbent pads, absorbent booms, or barriers.
6. Initiate clean-up and remedial actions, ensuring that GPS coordinates, photographs, and general notes (substance, estimated spill volume, etc.) are taken for reporting purposes.
7. Segregate contaminated soils, snow/ice, water, and absorbents in separate, clearly labelled 205 L metal drums for eventual shipment off-site.
8. Track spill internally using the Spill Tracker (Appendix A).
9. As per the minimum reportable quantities in the Northwest Territories-Nunavut Spill Management Planning and Reporting Regulations, all externally reportable spills, or any spill near or into water, will be reported to the 24-Hour Spill Report Line and the Inspector:

**24-Hour Spill Report Line: +1 (867) 920-8130**

**Inspector: +1 (867) 975-4284** (or as indicated by Crown-Indigenous and Northern Affairs Canada in the Project land use permit). Though not required by legislation, it is best practice to report all spills to the Spill Line and Inspector.

10. Conduct an investigation into the cause, to prevent a repeat of the incident.
11. Within 30 days of the spill, the site supervisor or designate will submit a detailed report to the Inspector, as per conditions of the Project land use permit.

### Spill Response Procedures for Different Media

1. To improve response effectiveness, personnel should follow specific guidance based on the spill medium:

#### Spills on Snow and Ice

- a) Use absorbent materials to contain and collect liquid spills, and to stop spill spreading any further. Once spill is contained, proceed with removing contaminated ice and snow.
- b) Shovel contaminated snow/ice into labelled drums, or if none are immediately available, place in plastic-lined containment areas for transfer to drums as soon as possible.
- c) Avoid disturbing underlying ice to prevent contamination of water bodies.

#### Spills on Soil

- a) Construct containment berms using shovels etc to dig trenches or build berms, or use spill containment barriers. Create these downhill to focus spill material and prevent it spreading.
- b) Excavate contaminated soil using shovels and rakes, and store it in labelled drums for off-site disposal.
- c) Apply absorbents if to aid in clean-up.

#### Spills in Water\*

- a) Prevent further contamination by stopping the spill source promptly.
- b) Deploy absorbent booms, pads and skimmers to contain and absorb spilled substances. Deploy booms with a boat or by hand to prevent spill from spreading and reaching fragile shorelines or being blown away by wind or current.
- c) Remove absorbents and store it in labelled drums for off-site disposal, skim off contaminated top layer of water.

*\*The company does not expect there to be any chance of spills in/on water, as **no drilling** will be conducted within 31 metres of the high-water mark of any water body. The company will **not** drill on any frozen lakes or rivers.*

## 2. Resource Inventory

Fully stocked spill kits will be maintained a, in the camps and at the drills and will be placed in an appropriate location near fuel storage and fuel transfer. Miscellaneous equipment present on site will be made available for spill response such as shovels, fuel transfer pumps, hand tools, and hoses/fittings.

A 305 L spill kit and instruction manual will be located at the fuel caches and will include:

Socks	Caution tape
Absorbent pads	Nitrile gloves
Pillows	Safety goggles
Absorbent cloth roll	Protective coveralls
Premixed plugging compound	Plastic disposal bags
Plastic sheets/tarp	Picks/shovels/rakes
Instruction booklet	

Smaller 20 L spill kits will also be used on site for activities such as fuel transfers. These spill kits include:

Socks	Disposal bags
Absorbent pads	5 L polyethylene pail
Nitrile gloves	Instruction booklet

The Company will ensure that empty, sealed-top 205 L metal drums are present on site to manage all waste liquids, or to transfer liquids into if any drums are compromised. Open-top 205 L metal drums and/or lined mega bags will be present on site for disposal and eventual shipment of any contaminated absorbents and contaminated soil.

## 3. Roles and Responsibilities

**1501253 B.C Ltd Senior Management** - Responsible for ensuring that the site supervisor is aware of spill response and reporting procedures, as well as appropriate mitigations to prevent spills from occurring. The Senior Management team will ensure that management

plans are properly implemented and that the site supervisor is familiar with the conditions of site authorizations such as the land use permits and water license

**Site Supervisor** – Responsible for ensuring employees and contractors on site are aware of spill response equipment and procedures, as well as appropriate mitigations to prevent spills from occurring. The site supervisor is responsible for implementing management plans such as the Spill management Plan to minimize environmental impacts from the Project. Should a spill occur, they will ensure proper documentation and that the appropriate authorities are notified in a timely manner.

**Staff and Contractors** – All personnel working on site must be familiar with the Spill management Plan and understand how to respond to a spill. Staff and contractors must adhere to the Spill management Plan to help minimize wildlife attractants and environmental risks created by the Project.



**SCHEDULE B****(Section 9)**

<i>Item No.</i>	<i>TDGA Class</i>	<i>Description of Contaminant</i>	<i>Amount Spoiled</i>
<b>1.</b>	1	Explosives	Any amount
<b>2.</b>	2.1	Compressed gas (flammable)	Any amount of gas from containers with a capacity greater than 100 l.
<b>3.</b>	2.2	Compressed gas (non-corrosive, non flammable)	Any amount of gas from containers with a capacity greater than 100 l.
<b>4.</b>	2.3	Compressed gas (toxic)	Any amount
<b>5.</b>	2.4	Compressed gas (corrosive)	Any amount
<b>6.</b>	3.1, 3.2, 3.3	Flammable liquid	100 l
<b>7.</b>	4.1	Flammable solid	25 kg
<b>8.</b>	4.2	Spontaneously combustible solids	25 kg
<b>9.</b>	4.3	Water reactant solids	25 kg
<b>10.</b>	5.1	Oxidizing substances	50 l or 50 kg
<b>11.</b>	5.2	Organic Peroxides	1 l or 1 kg
<b>12.</b>	6.1	Poisonous substances	5 l or 5 kg
<b>13.</b>	6.2	Infectious substances	Any amount
<b>14.</b>	7	Radioactive	Any amount
<b>15.</b>	8	Corrosive substances	5 l or 5 kg
<b>16.</b>	9.1 (in part)	Miscellaneous products or substances, excluding PCB mixtures	50 l or 50 kg
<b>17.</b>	9.2	Environmentally hazardous	1 l or 1 kg
<b>18.</b>	9.3	Dangerous wastes	5 l or 5 kg
<b>19.</b>	9.1 (in part)	PCB mixtures of 5 or more parts per million	0.5 l or 0.5 kg
<b>20.</b>	None	Other contaminants	100 l or 100 kg



Canada

# NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	<b>REPORT NUMBER</b>  _____
	B		OCCURRENCE DATE: MONTH – DAY – YEAR			
C	LAND USE PERMIT NUMBER (IF APPLICABLE)			WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION				REGION <input type="checkbox"/> NWT <input type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE			LONGITUDE		
	DEGREES	MINUTES	SECONDS	DEGREES	MINUTES	SECONDS
F	RESPONSIBLE PARTY OR VESSEL NAME		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION			
G	ANY CONTRACTOR INVOLVED		CONTRACTOR ADDRESS OR OFFICE LOCATION			
H	PRODUCT SPILLED		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER		
	SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER		
I	SPILL SOURCE		SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES		
J	FACTORS AFFECTING SPILL OR RECOVERY		DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT		
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS					
L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE	
	M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE
<b>REPORT LINE USE ONLY</b>						
N	RECEIVED AT SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLED	REPORT LINE NUMBER	
		STATION OPERATOR		YELLOWKNIFE, NT	(867) 920-8130	
LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED	
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS		
LEAD AGENCY						
FIRST SUPPORT AGENCY						
SECOND SUPPORT AGENCY						
THIRD SUPPORT AGENCY						

1501253 B. C. LTD. (Somerset Minerals)  
Diamond Drilling  
**Closed Loop Mud System**

- **All drill fluids will be contained within an entirely closed system, with drip-trays and berms used as appropriate.**
- Drilling will utilize a modified closed loop fluids system. The system will be comprised of 'T-junction' connected to the NQ /HQ drillhole casing, leading to a portable heavy duty plastic secondary tank (500 to 1000 liters), sitting beside the drill collecting drill fluids by gravity, then the fluid will be pumped with a electric submersible pump back to the fly tank (1500 liters), then through a heater, before being pumped back down the drill casing. The portable trough will settle the cuttings and also serve as a mixing tank for non-toxic calcium chloride. The main fly tank has two reservoirs and also works for mud and calcium chloride mixing. There will be two locations to monitor salt content and mud properties. The water pump and lines will be used for initial drill fluid creation as required, and have a T gate on the feed line to the rig so the pump (when water isn't required) would just circulate to the source and cut down on volumes used. The pumps have flow meters.
- The drill will have two water heaters for use.
- Use of a **closed system** will also make it simple to maintain mud and salt levels as there will not be dilutive water continually introduced to the system.
- Mud testing will be tested via viscosity funnel & cup and mud balance, and for the calcium chloride either a either a handheld spectrometer or test strips. Either test only takes a few minutes.
- We have also attached a mud/salt drilling practise sheet for the drillers to guide their use for each hole and steps to follow in the event the main mud pump fails at the rig.

1501253 B. C. LTD. (Somerset Minerals)  
Diamond Drilling SOP  
**Salt, Mud, and Heat Practise**

**Initial rig setup:**

Once rig is properly sited on the pad:

- Set up closed system fluid recycling system.
- Fill the drill tank and half the secondary tank with water, then send pump water to recycle back to source.
- Test the backup gas driven engine pump to ensure it operational. Shut it off.
- Begin heating and drill first rod in, stop drilling.
- Begin adding calcium chloride according to specific hole details, get the concentration up to 16%, test every 20 minutes until at concentration.
- Then add required mud as noted on specific hole details and test mud.
- Begin advancing drilling.
- Measure temperature of fluid every hour when drilling.
- Test fluid for salinity and temperature every hour, and mud properties every 6 hours.
- If salinity drops, or the temperature drops then double check the heater and add calcium chloride to restore temperature and salinity levels.
- Advise foreman if there's a temperature drop before it reaches +8
- If the temperature reaches + 4 degrees immediately begin to pull rods, ensure the heater is functioning. The top 100 meters of the hole will likely be the coldest.
- Repeat if you need makeup water to complete the hole.

**If the main mud pump fails:**

- Immediately start the back up gas driven engine pump, attach the pre plumbed hose to the swivel and restore circulation.
- Advise the foreman.
- Test the salinity and temperature immediately.
- Continue operating the recycle system.
- Measure temperature of fluid every hour.
- Add calcium chloride to restore temperature and salinity levels.
- Provided the calcium chloride is at saturation the rods will not be frozen in, but the circulation needs to continue until the pump or equipment failure is repaired and restored.

# APPENDIX B: MSDS SHEETS

# Safety Data Sheet

Section 1. Identification		
<b>Product Identifier</b>	<b>Calcium Chloride</b>	<b>Version: 7</b> <b>Effective Date: 25 January 2021</b>
<b>Other Means Of Identification</b>	None	
<b>Initial Supplier Identifier</b>	Chemfax Products Ltd. 11444 – 42 Street SE Calgary, AB T2C 5C4 Tel: 403-287-2055	
<b>Recommended Use And Restrictions on Use</b>	Dust control, concrete curing agent. No restrictions	
<b>Product Family</b>	Inorganic Salt	
<b>Emergency Phone</b>	1-855-887-2055 Monday - Friday 8:00am - 4:30pm MST	

Section 2. Hazard Identification	
<b>Hazard Classification</b>	
<b>Health Hazards</b>	Skin Damage/Irritation – Category 2 Eye Damage/Irritation – Category 2B Acute Toxicity (oral) – Category 4
<b>Signal Word</b>	Warning
<b>Hazard Statement</b>	Causes skin irritation. Causes eye irritation. Harmful if swallowed.
<b>Precautionary Prevention Statement</b>	Wash hands thoroughly after handling. Wear protective gloves. Do not eat, drink or smoke when using this product.
<b>Precautionary Response Statement</b>	IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse Specific treatment: treat as a thermal burn after decontamination. Do not induce vomiting unless directed by medical personnel. 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. IF SWALLOWED: Call a doctor if you feel unwell. Rinse mouth.



# Safety Data Sheet

<b>Precautionary Storage Statement</b>	None
<b>Precautionary Disposal Statement</b>	Dispose of contents/container in accordance with local regulations.
<b>Other Hazards</b>	None

## Section 3. Composition / Information on Ingredients

Chemical Name	Common Name or Synonyms	CAS NO. and Other Unique Identifiers	% by weight
Calcium Chloride	None	10043-52-4	90

## Section 4. First-Aid Measures

<b>Eye Contact</b>	Flush eyes with water for 15 minutes. Seek medical attention.
<b>Skin Contact</b>	Flush area with water. If irritation persists seek medical attention. Launder clothing before reuse.
<b>Inhalation</b>	Remove victim to fresh air. If there is difficulty breathing, seek immediate medical attention.
<b>Ingestion</b>	Remove victim to fresh air. If there is difficulty breathing, seek immediate medical attention.
<b>Most Important Symptoms and Effects Both Acute and Delayed</b>	May cause skin and eye burns.
<b>Immediate Medical Attention and Special Treatment</b>	If burns are presented, treat as a thermal burn after decontamination.

## Section 5. Fire-Fighting Measures

<b>Suitable and Unsuitable Extinguishing Media</b>	Use extinguishing media suitable for surrounding fire. Do not use direct water jet.
<b>Hazardous Combustion Products</b>	None known.
<b>Specific Hazards Arising From the Product</b>	Dissolves exothermically in water.



Manufacturer of Specialty Chemicals

## Safety Data Sheet

<b>Special Protective Equipment and Precautions for Fire-Fighting</b>	Fire-fighters should wear self-contained breathing apparatus and full protective clothing. Use water spray to cool containers and structures exposed to fire.
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### Section 6. Accidental Release Measures

<b>Personal Precautions, Protective Equipment and Emergency Procedures</b>	Gloves, coveralls, safety glasses. Evacuate all unnecessary personnel, secure area and carefully sweep up spilt material.
<b>Environmental Precautions</b>	Do not allow spilled material to enter sewers and surface watercourses.
<b>Methods and Materials for containment and Clean-Up</b>	Carefully sweep up spilled material, avoid creating dust. Place material in a suitable container for disposal. Wash area thoroughly with water to remove residues.

### Section 7. Handling and Storage

<b>Precautions For Safe Handling</b>	Handle with care. Heat is generated in contact with water, this can be extremely high – try and keep temperature below 27 °C.
<b>Conditions For Safe Storage</b>	Store in a cool dry place. Keep containers tightly closed when not in use. Protect against moisture.

### Section 8. Exposure Controls / Personal Protection

Control Parameters	TWA: 8 Hr	STEL: 15 min	Ceiling	IDLH *
Calcium Chloride	15 mg/m <sup>3</sup> (Total)	5 mg/m <sup>3</sup> (Respirable)		OSHA
	* Immediately Dangerous to Life and Health			
<b>Exposure Controls</b>	Local exhaust ventilation			
<b>Appropriate Engineering Controls</b>	Ensure eye wash station and safety shower are available.			
<b>Individual Protective Measures</b>				
<b>Eye / Face Protections</b>	Safety glasses			
<b>Skin Protection</b>	Chemical resistant coveralls and gloves			
<b>Respiratory Protection</b>	Dust mask.			

<b>Section 9. Physical and Chemical Properties</b>	
<b>Appearance</b>	White pellets
<b>Odour</b>	No odour
<b>Odour Threshold</b>	Not applicable.
<b>pH</b>	No data.
<b>Flash Point</b>	No data
<b>Boiling Point and Boiling Range</b>	>815 °C
<b>Melting Point / Freezing Point</b>	260 °C
<b>Evaporation Rate</b>	Not applicable.
<b>Flammability (solid, gas)</b>	Not flammable
<b>Upper and Lower flammability or Explosive Limits</b>	No data
<b>Vapour Pressure</b>	Not applicable.
<b>Vapour Density</b>	Not applicable.
<b>Relative Density</b>	2.2
<b>Solubility</b>	Soluble
<b>Partition co-efficient, n-Octanol/Water</b>	No data
<b>Auto-ignition Temperature</b>	No data
<b>Decomposition Temperature</b>	No data
<b>Viscosity</b>	No data

<b>Section 10. Stability and Reactivity</b>	
<b>Reactivity</b>	Stable
<b>Chemical Stability</b>	Stable
<b>Possibility of Hazardous Reactions</b>	Will not occur
<b>Conditions to Avoid</b>	Exposure to moisture.
<b>Incompatible Materials</b>	Heat is generated when mixed with water. Spattering and boiling can occur. Sulphur acid. Flammable hydrogen gas may be generated from contact with metals such as zinc or sodium. Reaction of bromide impurity with oxidizing metals may generate trace levels of impurities such as bromate.



# Safety Data Sheet

<b>Hazardous Decomposition Products</b>	Not expected to decompose under normal conditions of use.
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Section 11. Toxicological Information	
<b>Component Toxicity</b>	<b>LD50 Oral</b> <b>LD50 Dermal</b> <b>LC50 Inhalation</b>
Calcium Chloride	1.0g/kg (Rat)      2.63g/kg (Rabbit)
<b>Likely Routes of Exposure</b>	
<b>Skin:</b>	Prolonged and repeated exposure may cause irritation especially if the skin is damp. May present as a thermal burn.
<b>Eyes:</b>	May cause severe irritation. May cause corneal injury. Effects may be slow to heal.
<b>Inhalation:</b>	Dust may be irritating to the respiratory tract.
<b>Ingestion:</b>	Harmful if ingested in large quantities. May cause digestive tract irritation and ulceration.
<b>Acute Toxicity Estimates (ATE)</b>	Not classified
<b>STOT (Specific Target Organ Toxicity) – Single Exposure</b>	Not classified
<b>Aspiration Toxicity</b>	Not classified
<b>STOT (Specific Target Organ Toxicity) – Repeated</b>	Not classified
<b>Skin Corrosion / Irritation</b>	Corrosive
<b>Serious Eye Damage / Irritation</b>	Corrosive
<b>Respiratory or Skin Sensitization</b>	Not classified
<b>Carcinogenicity</b>	Not listed
<b>Reproductive Toxicity</b>	
- <b>Sexual Function and Fertility</b>	Not classified
- <b>Development of Offspring</b>	Not classified
- <b>Effects on or via Lactation</b>	Not classified
<b>Germ Cell Mutagenicity</b>	Not classified
<b>Interactive Effects</b>	Not classified
<b>Other Information</b>	None known



## Safety Data Sheet

<b>Section 12. Ecological Information</b>	
<b>Ecotoxicity</b>	LC50: 10650 mg/L (Lepomis macrochirus)
<b>Persistence and Degradability</b>	Not readily degradable
<b>Bioacumulative Potential</b>	No data
<b>Biodegradability</b>	No data
<b>Mobility in Soil</b>	Not available
<b>Other Adverse Effects</b>	None

<b>Section 13. Disposal Considerations</b>	
<b>Disposal Considerations</b>	Dispose of contents/container in accordance with local, provincial and federal regulations

<b>Section 14. Transport Information</b>	
<b>UN Number</b>	Not applicable
<b>UN Proper Shipping Name</b>	Not applicable
<b>Transport Hazard Class(es)</b>	Not applicable
<b>Packaging Group</b>	Not applicable
<b>Environmental Hazards</b>	Not applicable
<b>Bulk Transport</b>	Not applicable
<b>Special Precaution</b>	Not applicable
<b>DOT Erg#</b>	Not applicable

<b>Section 15. Regulatory Information</b>	
<b>Canada – DSL Inventory</b>	All components of this product are either on the Domestic Substances List (DSL), Non-Domestic Substances List (NDSL) or exempt
<b>TSCA</b>	All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt
<b>Additional Information</b>	None



## Safety Data Sheet

Section 16. Other Information	
<b>NFPA Rating</b>	Health-1/ Flammability-0/Reactivity-0/Special Hazard-Not applicable
<b>HMIS Rating</b>	Health-1/Flammability-0/Reactivity-0/Personal Protection-See Section 8.
<b>Prepared by:</b>	Chemfax Products Ltd., Technical Department
<b>Date Prepared:</b>	27 September, 2012
<b>Date of Latest Revision:</b>	25 January 2021
<b>Disclaimer</b> 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.  Chemfax Products Ltd. expressly disclaims all expressed or implied warranties of merchantability and fitness for a particular purpose with respect to the product provided.	



## CDF Bit-Clean

### Extreme pressure lubricant

#### Description

CDF Bit-Clean is a vegetable-based soluble oil developed for the diamond drilling industry. Extreme pressure lubrication properties designed for operating parameters at the face of an impregnated diamond bit for improved penetration rates and extended bit life.

#### Application

CDF Bit-Clean eliminates rod vibration in diamond drilling by producing a soft tenacious film of grease on the drill string and the borehole. The concentrated wetting agents in the product enhance the cooling and wetting of the impregnated diamond particles and accelerate removal of cuttings improving penetration rates and extending bit life. CDF Bit-Clean has proven to be extremely beneficial when encountering sticky clays and shale and is known to improve penetration rates when drilling ultramafic formations.

#### Advantages

- Cost effective, efficient at low concentrations, compatible with existing mud systems, environmentally friendly.
- Improves penetration, Eliminates rod vibration, Enhances the cooling action of the circulating fluid, Produces a fine lubricating film over the metal surfaces.
- Neutralises clay and shale from balling and becoming sticky, Stable in a wide range of water conditions, Improves Drill-Pipe, reamer and bit life and will not contribute to core staining.

#### Typical Properties

Appearance: Translucent amber coloured liquid

pH (10 % solution): 8.5 – 9.0

#### Recommended Treatment

To eliminate vibration and torque in diamond drill holes 2.5 – 5.0kg / 1000-litres.

To retard the stickiness and balling of persistent clays and shale 3.0 – 6.0kg / 1000-litres.

To improve bit and reamer life in extremely hard abrasive ground 3.0 – 8.0kg / 1000-litres.

CDF Bit-Clean mixes very easily to form a stable emulsion.

#### Packaging

20 L pail

*Several factors will dictate the most appropriate concentration rate. Please contact your nearest Canadian Drilling Fluids representative for the best results.*

#### [cdfmud.ca](http://cdfmud.ca)

Terry Carson (Central Canada)

Cell: 1-306-717-3370

Email: [tcarson@cdfmud.ca](mailto:tcarson@cdfmud.ca)

Tony McWhinney (Western Canada)

Cell: 1-250-877-8409

Email: [tony@cdfmud.ca](mailto:tony@cdfmud.ca)

Robert Collard (Eastern Canada)

Cell: 1-819-334-3225

Email: [rollard@cdfmud.ca](mailto:rollard@cdfmud.ca)



## CDF Core-It Pac-L

Fluid Loss Control Agent.

### Description

CDF Core-It PAC L is a new generation, highly dispersive low viscosity polyanionic cellulose polymer used for improving filtration control in most water based drilling fluid systems without appreciably increasing viscosity. CDF Core-It PAC L will not fisheye and has been designed to disperse rapidly into any make-up water even under the poorest conditions. The mixing efficiencies of CDF Core-It PAC L reduces wastage and promotes lower mud costs and total hole costs.

### Application

CDF Core-It PAC L has applications in most drilling mediums and has the ability to improve core recovery in diamond drilling, can be added to enhance a bentonite base system and is compatible with most polymers and lubricants.

### Advantages

- Very economical, Eliminates wastage “no fish eyes”, Easily mixed into low shear environments.
- Effective in fresh, hard and saline environments, Promotes a thin, slick, robust filter cake.
- Controls fluid loss without significantly increasing fluid viscosity, Reduces friction and frequency of differential sticking.
- Compatible with all water based drilling fluid systems polymers and lubricants, Supplements the properties of a bentonite base drilling fluid and Improves core recovery and penetration rates.

### Typical Physical Properties Appearance:

White, free flowing powder  
pH (0.2 % solution): 8.5 – 9.5

### Recommended Treatment

CDF Core-It PAC L is used from 1.0kg – 6.0kg / 1000-litres depending on the nature of the mud system and salt concentration. CDF Core-It PAC L can be slowly introduced into mechanical agitation, through water discharge or through a mud hopper.

*Several factors will dictate the most appropriate concentration rate. Please contact your nearest Canadian Drilling Fluids representative for the best results.*

### [cdfmud.ca](http://cdfmud.ca)

Terry Carson (Central Canada)

Cell: 1-306-717-3370

Email: [tcarson@cdfmud.ca](mailto:tcarson@cdfmud.ca)

Tony McWhinney (Western Canada)

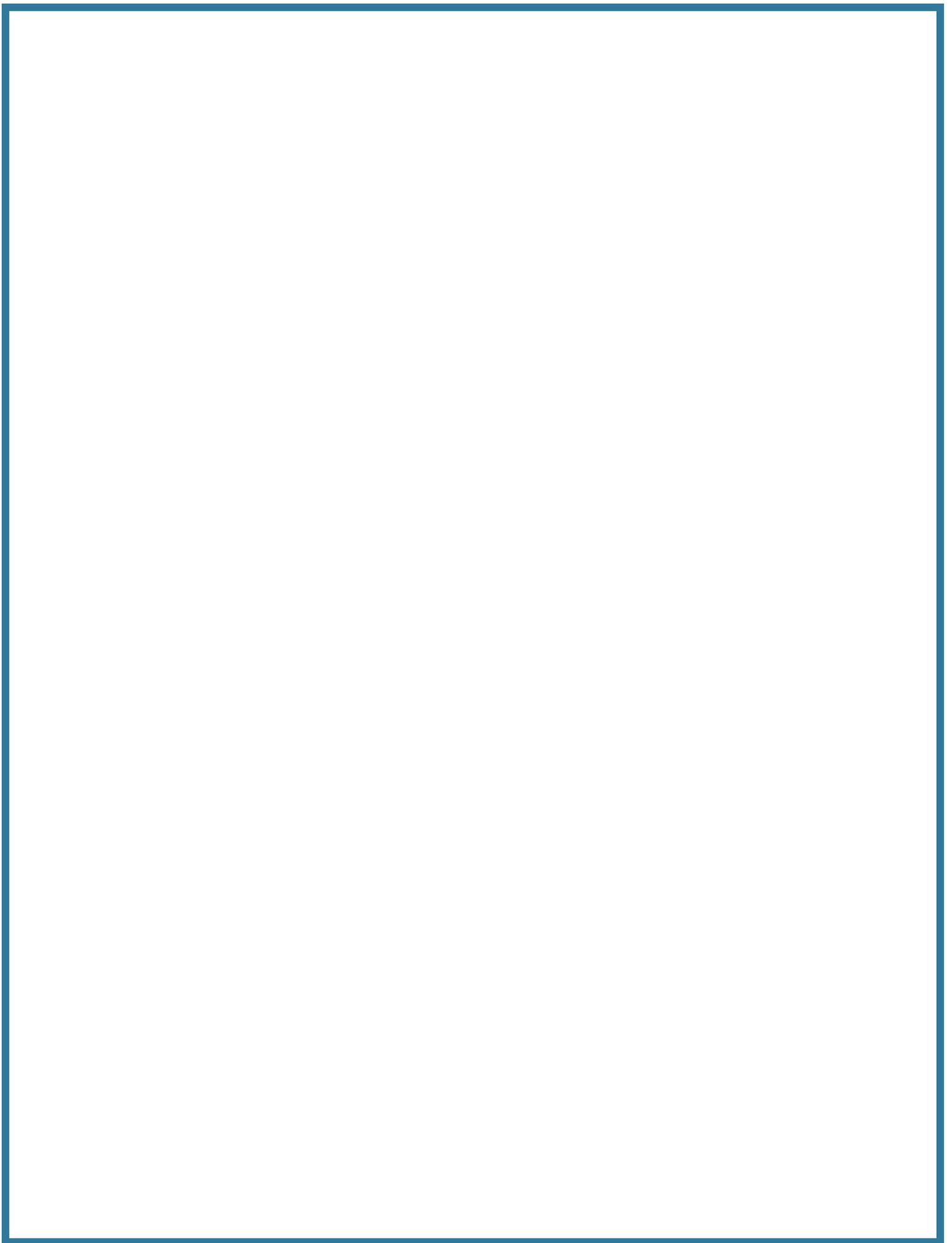
Cell: 1-250-877-8409

Email: [tony@cdfmud.ca](mailto:tony@cdfmud.ca)

Robert Collard (Eastern Canada)

Cell: 1-819-334-3225

Email: [rollard@cdfmud.ca](mailto:rollard@cdfmud.ca)





## CDF Xan-Core

**Biodegradable Viscosifier for fresh, Saline & Salt Brine systems.**

### Description

CDF XAN-CORE is a premium high-quality biopolymer powder designed to provide maximum solids suspension and hole cleaning in vertical and highly deviated holes, and is often used in HDD applications.

XAN-CORE is a distinctive product able to produce a thixotropic shear thinning fluid. XAN-BORE also acts as a very effective mud filtrate Viscosifier.

### Application

CDF XAN-CORE can be blended with a pre-hydrated bentonite based fluid or can be used as a single viscosifying additive in fresh, brackish or saturated salt water. CDF XAN-CORE fluids are highly shear thinning which improves bit cleaning and significantly reduces torque. The fluid will revert to higher viscosities at low shear rates. This unique property provides significant benefits in highly deviated wells and in HDD bores by providing excellent carrying capacity of coarse cuttings, sand and gravel.

### Typical Properties

Appearance: Cream coloured powder

pH (1% solution): 6.0 – 8.0

Specific gravity: 0.65

### Recommended Treatment

CDF Xan-Core - Add 1 – 3 kg / m<sup>3</sup> of water through a mud hopper or a high shear mixer.

*Several factors will dictate the most appropriate concentration rate. Please contact your nearest Canadian Drilling Fluids representative for the best results.*

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### [cdfmud.ca](http://cdfmud.ca)

Terry Carson (Central Canada)

Cell: 1-306-717-3370

Email: [tcarson@cdfmud.ca](mailto:tcarson@cdfmud.ca)

Tony McWhinney (Western Canada)

Cell: 1-250-877-8409

Email: [tony@cdfmud.ca](mailto:tony@cdfmud.ca)

Robert Collard (Eastern Canada)

Cell: 1-819-334-3225

Email: [rollard@cdfmud.ca](mailto:rollard@cdfmud.ca)

# Core Wrap

## Control Chemical (1989)

Chemwatch: 97-00620  
Version No: 6.1  
Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 13/12/2021  
Print Date: 16/06/2023  
L.GHS.CAN.EN

### SECTION 1 Identification

#### Product Identifier

**Product name:** Core Wrap  
**Chemical Name:** Not Applicable  
**Synonyms:** Not Available  
**Chemical formula:** Not Applicable  
**Other means of identification:** Not Available

#### Recommended use of the chemical and restrictions on use

**Relevant identified uses:** Drilling fluid additive.

#### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	Control Chemical (1989)	Epiroc Customer Center Canada
Address	7016 - 30 Street SE Calgary AB T2C 1N9 Canada	1025 Tristar Drive Mississauga Ontario L5T1L8 Canada
Telephone	+1 403 720 7044 +1 800 267 6840	+1 289 562 0100
Fax	+1 403 720 4951	Not Available
Website	<a href="http://www.matexdrillingfluids.ca/">http://www.matexdrillingfluids.ca/</a>	<a href="http://www.epiroc.com">www.epiroc.com</a>
Email	orders@matexdrillingfluids.ca	midwestcanadamr.mbsknu@epiroc.com

#### Emergency phone number

Association / Organisation	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	+1 867 670 2867
Other emergency telephone numbers	+61 3 9573 3188

Once connected and if the message is not in your preferred language then please dial 01

Une fois connecté et si le message n'est pas dans votre langue préférée alors s'il vous plaît cadran 07

### SECTION 2 Hazard(s) identification

#### Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

#### Canadian WHMIS Symbols

Classification	Not Applicable
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#### Label elements

##### Hazard pictogram(s)

Not Applicable

**Signal word:** Not Applicable

##### Hazard statement(s)

Not Applicable

##### Physical and Health hazard(s) not otherwise classified

Not Applicable

##### Precautionary statement(s) Prevention

Not Applicable

##### Precautionary statement(s) Response

Not Applicable

##### Precautionary statement(s) Storage

Not Applicable

##### Precautionary statement(s) Disposal

Not Applicable

### SECTION 3 Composition / information on ingredients

## Substances

See section below for composition of Mixtures

## Mixtures

CAS No	%[weight]	Name
Not Available	100	Ingredients determined not to be hazardous

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

## SECTION 4 First-aid measures

### Description of first aid measures

#### Eye Contact

If this product comes in contact with eyes:

- Wash out immediately with water.
- If irritation continues, seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

#### Skin Contact

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

#### Inhalation

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

#### Ingestion

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5 Fire-fighting measures

### Extinguishing media

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

### Special hazards arising from the substrate or mixture

#### Fire Incompatibility

- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

### Special protective equipment and precautions for fire-fighters

#### Fire Fighting

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.

#### Fire/Explosion Hazard

- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.
- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.

Combustion products include:

carbon monoxide (CO)

carbon dioxide (CO<sub>2</sub>)

other pyrolysis products typical of burning organic material.

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

#### Minor Spills

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.

#### Major Spills

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact with the substance, by using protective equipment and dust respirator.

- Prevent spillage from entering drains, sewers or water courses.
- Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

### Precautions for safe handling

#### Safe handling

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)
- Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.
- Establish good housekeeping practices.
- Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.

#### Other information

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry area protected from environmental extremes.
- Store away from incompatible materials and foodstuff containers.

### Conditions for safe storage, including any incompatibilities

#### Suitable container

- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

#### Storage incompatibility

- Avoid reaction with oxidising agents

## SECTION 8 Exposure controls / personal protection

### Control parameters

#### Occupational Exposure Limits (OEL)

#### INGREDIENT DATA

Not Available

#### MATERIAL DATA

### Exposure controls

#### Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

#### Individual protection measures, such as personal protective equipment



#### Eye and face protection

- Safety glasses with side shields
- Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience.

#### Skin protection

See Hand protection below

#### Hands/feet protection

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene.
- nitrile rubber.
- butyl rubber.

#### Body protection

See Other protection below

#### Other protection

## Core Wrap

No special equipment needed when handling small quantities.

**OTHERWISE:**

- Overalls.
- Barrier cream.
- Eyewash unit.

**SECTION 9 Physical and chemical properties****Information on basic physical and chemical properties**

**Appearance:** White Powder

<b>Physical state</b>	Divided Solid	<b>Relative density (Water = 1)</b>	Not Available
<b>Odour</b>	No Odour	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Applicable
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature (°C)</b>	Not Available
<b>Melting point / freezing point (°C)</b>	>350	<b>Viscosity (cSt)</b>	Not Applicable
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Applicable
<b>Flash point (°C)</b>	Not Applicable	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Applicable	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Applicable	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Applicable	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Applicable
<b>Lower Explosive Limit (%)</b>	Not Applicable	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Applicable	<b>Gas group</b>	Not Available
<b>Solubility in water</b>	Miscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Applicable	<b>VOC g/L</b>	Not Available

**SECTION 10 Stability and reactivity**

**Reactivity:** See section 7

**Chemical stability :**

- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

**Possibility of hazardous reactions :** See section 7

**Conditions to avoid :** See section 7

**Incompatible materials :** See section 7

**Hazardous decomposition products :** See section 5

**SECTION 11 Toxicological information****Information on toxicological effects****Inhaled**

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.

**Ingestion**

The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health).

**Skin Contact**

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

**Eye**

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

**Chronic**

Long-term exposure to the product is not thought to produce chronic effects adverse to health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

Core Wrap	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

<b>Acute Toxicity</b>	✘	<b>Carcinogenicity</b>	✘
<b>Skin Irritation/Corrosion</b>	✘	<b>Reproductivity</b>	✘

## Core Wrap

Serious Eye Damage/Irritation	✗	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

## Legend:

- ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

Core Wrap	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

**DO NOT discharge into sewer or waterways.**

## Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

## Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

## Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

## SECTION 13 Disposal considerations

## Waste treatment methods

## Product / Packaging disposal

- **DO NOT allow wash water from cleaning or process equipment to enter drains.**
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.

## SECTION 14 Transport information

## Labels Required

## Marine Pollutant

NO

	Land transport (TDG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
UN number: <b>Not Applicable</b>			
UN proper shipping name: <b>Not Applicable</b>			
Transport hazard class(es): <b>Not Applicable</b>			
Subsidiary risk: <b>Not Applicable</b>			
Packing group: <b>Not Applicable</b>			

## Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group

## Transport in bulk in accordance with the IGC Code

Product name	Ship Type

## SECTION 15 Regulatory information

## Safety, health and environmental regulations / legislation specific for the substance or mixture

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

## National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Not Available
Canada - DSL	Not Available
Canada - NDSL	Not Available
China - IECSC	Not Available
Europe - EINEC / ELINCS / NLP	Not Available
Japan - ENCS	Not Available
Korea - KECI	Not Available
New Zealand - NZIoC	Not Available
Philippines - PICCS	Not Available
USA - TSCA	Not Available
Mexico - INSQ	Not Available
Vietnam - NCI	Not Available
Russia - FBEPH	Not Available
<b>Legend:</b>	<p><i>Yes = All CAS declared ingredients are on the inventory</i></p> <p><i>No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.</i></p>

## SECTION 16 Other information

**Revision Date:** 13/12/2021

**Initial Date:** 28/04/2021

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average  
 PC - STEL: Permissible Concentration-Short Term Exposure Limit  
 IARC: International Agency for Research on Cancer  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 STEL: Short Term Exposure Limit  
 TEEL: Temporary Emergency Exposure Limit  
 IDLH: Immediately Dangerous to Life or Health Concentrations  
 ES: Exposure Standard  
 OSF: Odour Safety Factor  
 NOAEL :No Observed Adverse Effect Level  
 LOAEL: Lowest Observed Adverse Effect Level  
 TLV: Threshold Limit Value  
 LOD: Limit Of Detection  
 OTV: Odour Threshold Value  
 BCF: BioConcentration Factors  
 BEI: Biological Exposure Index  
 AIIC: Australian Inventory of Industrial Chemicals  
 DSL: Domestic Substances List  
 NDSL: Non-Domestic Substances List  
 IECSC: Inventory of Existing Chemical Substance in China  
 EINECS: European INventory of Existing Commercial chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 NLP: No-Longer Polymers  
 ENCS: Existing and New Chemical Substances Inventory  
 KECI: Korea Existing Chemicals Inventory  
 NZIoC: New Zealand Inventory of Chemicals  
 PICCS: Philippine Inventory of Chemicals and Chemical Substances  
 TSCA: Toxic Substances Control Act  
 TCSI: Taiwan Chemical Substance Inventory  
 INSQ: Inventario Nacional de Sustancias Químicas  
 NCI: National Chemical Inventory  
 FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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TEL (+61 3) 9572 4700.

# DD 955

## Control Chemical (1989)

Chemwatch: 603-206

Version No: 5.1

Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 15/12/2021

Print Date: 16/06/2023

L.GHS.CAN.EN

### SECTION 1 Identification

#### Product Identifier

**Product name:** DD 955

**Chemical Name:** Not Applicable

**Synonyms:** Not Available

**Chemical formula:** Not Applicable

**Other means of identification:** Not Available

#### Recommended use of the chemical and restrictions on use

**Relevant identified uses:** Drilling additive - Forage additive - Perforación additive.

#### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	Control Chemical (1989)	Epiroc Drilling Tools AB
Address	7016 - 30 Street SE Calgary AB T2C 1N9 Canada	Box 521 Fagersta 73275 Sweden
Telephone	+1 403 720 7044 +1 800 267 6840	+46 233 46100
Fax	+1 403 720 4951	Not Available
Website	<a href="http://www.matexdrillingfluids.ca/">http://www.matexdrillingfluids.ca/</a>	<a href="http://www.epiroc.com/sds">www.epiroc.com/sds</a>
Email	orders@matexdrillingfluids.ca	fredrik.gransell@epiroc.com

#### Emergency phone number

Association / Organisation	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	+1 867 670 2867
Other emergency telephone numbers	+61 3 9573 3188

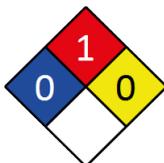
Once connected and if the message is not in your preferred language then please dial 01

Une fois connecté et si le message n'est pas dans votre langue préférée alors s'il vous plaît cadran 07

### SECTION 2 Hazard(s) identification

#### Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

#### Canadian WHMIS Symbols

Classification	Not Applicable
----------------	----------------

#### Label elements

##### Hazard pictogram(s)

Not Applicable

**Signal word:** Not Applicable

##### Hazard statement(s)

Not Applicable

##### Physical and Health hazard(s) not otherwise classified

Not Applicable

##### Precautionary statement(s) Prevention

Not Applicable

##### Precautionary statement(s) Response

Not Applicable

##### Precautionary statement(s) Storage

Not Applicable

##### Precautionary statement(s) Disposal

Not Applicable

### SECTION 3 Composition / information on ingredients

## Substances

See section below for composition of Mixtures

### Mixtures

CAS No	%[weight]	Name
64742-47-8	20-45	<u>distillates_petroleum_light_hydro-treated</u>
69011-36-5	1-5	<u>tridecanol_branched_ethoxylated</u>

## SECTION 4 First-aid measures

### Description of first aid measures

#### Eye Contact

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

#### Skin Contact

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

#### Inhalation

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

#### Ingestion

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.
- If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5 Fire-fighting measures

### Extinguishing media

- Foam.
- Dry chemical powder.
- Carbon dioxide.
- Water spray or fog - Large fires only.

### Special hazards arising from the substrate or mixture

#### Fire Incompatibility

- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

### Special protective equipment and precautions for fire-fighters

#### Fire Fighting

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.

#### Fire/Explosion Hazard

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

Combustion products include:

carbon dioxide (CO<sub>2</sub>)

other pyrolysis products typical of burning organic material.

May emit corrosive fumes.

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

#### Minor Spills

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.

#### Major Spills

Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.

- Wear breathing apparatus plus protective gloves.
- Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

### Precautions for safe handling

#### Safe handling

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

#### Other information

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.

### Conditions for safe storage, including any incompatibilities

#### Suitable container

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

#### Storage incompatibility

- Avoid reaction with oxidising agents

## SECTION 8 Exposure controls / personal protection

### Control parameters

#### Occupational Exposure Limits (OEL)

#### INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	distillates, petroleum, light, hydrotreated	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	distillates, petroleum, light, hydrotreated	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Manitoba Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Not Available	Not Available	Not Available	Not Available	TLV® Basis: URT irr
Canada - Manitoba Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Not Available	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Prince Edward Island Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Mineral oil, excluding metal working fluids - Pure, highly and severely refined	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Prince Edward Island Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Mineral oil, excluding metal working fluids - Poorly and mildly refined	Not Available	Not Available	Not Available	TLV® Basis: URT irr
Canada - British Columbia Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Oil mist - mineral, mildly refined	0.2 mg/m3	Not Available	Not Available	Not Available
Canada - British Columbia Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Oil mist - mineral, severely refined	1 mg/m3	Not Available	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Jet fuels	200 mg/m3	Not Available	Not Available	Measured as total hydrocarbon vapor. TLV Basis: skin irritation; CNS impairment; upper respiratory tract irritation TLV Basis/Critical Effect(s): Irritation; CNS; skin. Application restricted to conditions in which there are negligible aerosol exposures.
Canada - Nova Scotia Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Oil mist - mineral	5 mg/m3	10 mg/m3	Not Available	TLV Basis: lung. As sampled by method that does not collect vapor.
Canada - Alberta Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Northwest Territories Occupational Exposure Limits	distillates, petroleum, light, hydrotreated	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Quebec Permissible Exposure Values for Airborne Contaminants	distillates, petroleum, light, hydrotreated	Mineral oil (mist): Little or unrefined	Not Available	Not Available	Not Available	C2: carcinogenic effect suspected in humans EM: A substance to which exposure must be reduced to a minimum RP: A substance which may not be recirculated

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Canada - Quebec Permissible Exposure Values for Airborne Contaminants	distillates, petroleum, light, hydrotreated	Mineral oil (mist): Pure, highly and ultra-refined - inhalable dust	5 mg/m3	Not Available	Not Available	Not Available

**Occupational Exposure Banding**

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
tridecanol, branched, ethoxylated	E	≤ 0.1 ppm
<b>Notes:</b>	<i>Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.</i>	

**MATERIAL DATA****Exposure controls****Appropriate engineering controls**

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

**Individual protection measures, such as personal protective equipment****Eye and face protection**

- Safety glasses with side shields.
- Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.

**Skin protection**

See Hand protection below

**Hands/feet protection**

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care.

**Body protection**

See Other protection below

**Other protection**

- Overalls.
- P.V.C apron.
- Barrier cream.
- Skin cleansing cream.

**SECTION 9 Physical and chemical properties****Information on basic physical and chemical properties**

**Appearance:** Light brown liquid.

<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	0.98
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature (°C)</b>	Not Available
<b>Melting point / freezing point (°C)</b>	Not Available	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Applicable
<b>Flash point (°C)</b>	>93.3 (CC)	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Applicable	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available
<b>Solubility in water</b>	Not Available	<b>pH as a solution (1%)</b>	7-9 (0.6%)
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available

**SECTION 10 Stability and reactivity**

**Reactivity:** See section 7

**Chemical stability :**

- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

**Possibility of hazardous reactions :** See section 7

**Conditions to avoid :** See section 7

**Incompatible materials :** See section 7

**Hazardous decomposition products :** See section 5

## SECTION 11 Toxicological information

### Information on toxicological effects

#### Inhaled

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Inhalation hazard is increased at higher temperatures.

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

High inhaled concentrations of mixed hydrocarbons may produce narcosis characterised by nausea, vomiting and lightheadedness. Inhalation of aerosols may produce severe pulmonary oedema, pneumonitis and pulmonary haemorrhage. Inhalation of petroleum hydrocarbons consisting substantially of low molecular weight species (typically C2-C12) may produce irritation of mucous membranes, incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and anaesthetic stupor. Massive exposures may produce central nervous system depression with sudden collapse and deep coma; fatalities have been recorded.

Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.

Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination

#### Ingestion

The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health).

Ingestion of petroleum hydrocarbons may produce irritation of the pharynx, oesophagus, stomach and small intestine with oedema and mucosal ulceration resulting; symptoms include a burning sensation in the mouth and throat. Large amounts may produce narcosis with nausea and vomiting, weakness or dizziness, slow and shallow respiration, swelling of the abdomen, unconsciousness and convulsions. Myocardial injury may produce arrhythmias, ventricular fibrillation and electrocardiographic changes. Central nervous system depression may also occur.

#### Skin Contact

Open cuts, abraded or irritated skin should not be exposed to this material

The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives .

The material may accentuate any pre-existing dermatitis condition

Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

#### Eye

Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

Petroleum hydrocarbons may produce pain after direct contact with the eyes. Slight, but transient disturbances of the corneal epithelium may also result. The aromatic fraction may produce irritation and lachrymation.

#### Chronic

Long-term exposure to the product is not thought to produce chronic effects adverse to health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

Repeated or prolonged exposure to mixed hydrocarbons may produce narcosis with dizziness, weakness, irritability, concentration and/or memory loss, tremor in the fingers and tongue, vertigo, olfactory disorders, constriction of visual field, paraesthesias of the extremities, weight loss and anaemia and degenerative changes in the liver and kidney. Chronic exposure by petroleum workers, to the lighter hydrocarbons, has been associated with visual disturbances, damage to the central nervous system, peripheral neuropathies (including numbness and paraesthesias), psychological and neurophysiological deficits, bone marrow toxicities (including hypoplasia possibly due to benzene) and hepatic and renal involvement. Chronic dermal exposure to petroleum hydrocarbons may result in defatting which produces localised dermatoses. Surface cracking and erosion may also increase susceptibility to infection by microorganisms.

DD 955	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
distillates, petroleum, light, hydrotreated	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >2000 mg/kg <sup>[2]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
	Inhalation(Rat) LC50: >4.3 mg/4h <sup>[1]</sup>	Skin: adverse effect observed (irritating) <sup>[1]</sup>
	Oral (Rat) LD50: >5000 mg/kg <sup>[2]</sup>	
tridecanol, branched, ethoxylated	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>	Eye (rabbit): irritant *
	Oral (Rat) LD50: 1080 mg/kg <sup>[2]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
		Skin (rabbit): non-irritating *
		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

**DISTILLATES, PETROLEUM, LIGHT, HYDROTREATED**

No significant acute toxicological data identified in literature search.

Studies indicate that normal, branched and cyclic paraffins are absorbed from the mammalian gastrointestinal tract and that the absorption of n-paraffins is inversely proportional to the carbon chain length, with little absorption above C30. With respect to the carbon chain lengths likely to be present in mineral oil, n-paraffins may be absorbed to a greater extent than iso- or cyclo-paraffins.

The major classes of hydrocarbons have been shown to be well absorbed by the gastrointestinal tract in various species. In many cases, the hydrophobic hydrocarbons are ingested in association with dietary lipids. The dependence of hydrocarbon absorption on concomitant triglyceride digestion and absorption, is known as the "hydrocarbon continuum hypothesis", and asserts that a series of solubilising phases in the intestinal lumen, created by dietary triglycerides and their digestion products, afford hydrocarbons a route to the lipid phase of the intestinal absorptive cell (enterocyte) membrane.

For "kerosenes"

**Acute toxicity:** Oral LD50s for three kerosenes (Jet A, CAS No. 8008-20-6 and CAS No. 64742-81-0) ranged from > 2 to >20 g/kg. The dermal LD50s of the same three kerosenes were all >2.0 g/kg. Inhalation LC50 values in Sprague-Dawley rats for straight run kerosene (CAS No. 8008-20-6) and hydrodesulfurised kerosene (CAS No. 64742-81-0) were reported to be > 5 and > 5.2 mg/l, respectively. No mortalities in rats were reported in rats when exposed for eight hours to saturated vapor of deodorised kerosene (probably a desulfurised kerosene). Six hour exposures of cats to the same material produced an LC50 of >6.4 mg/l

When tested in rabbits for skin irritation, straight run kerosene (CAS No. 8008-20-6) produced "moderate" to "severe" irritation.

**TRIDECANOL, BRANCHED, ETHOXYLATED**

\* [BASF Canada]

Human beings have regular contact with alcohol ethoxylates through a variety of industrial and consumer products such as soaps, detergents, and other cleaning products. Exposure to these chemicals can occur through ingestion, inhalation, or contact with the skin or eyes. Studies of acute toxicity show that volumes well above a reasonable intake level would have to occur to produce any toxic response. Moreover, no fatal case of poisoning with alcohol ethoxylates has ever been reported.

Alcohol ethoxylates are according to CESIO (2000) classified as Irritant or Harmful depending on the number of EO-units:

EO < 5 gives Irritant (Xi) with R38 (Irritating to skin) and R41 (Risk of serious damage to eyes)

EO > 5-15 gives Harmful (Xn) with R22 (Harmful if swallowed) - R38/41

EO > 15-20 gives Harmful (Xn) with R22-41

>20 EO is not classified (CESIO 2000)

Oxo-AE, C13 EO10 and C13 EO15, are Irritating (Xi) with R36/38 (Irritating to eyes and skin).

AE are not included in Annex 1 of the list of dangerous substances of the Council Directive 67/548/EEC

In general, alcohol ethoxylates (AE) are readily absorbed through the skin of guinea pigs and rats and through the gastrointestinal mucosa of rats. AE are quickly eliminated from the body through the urine, faeces, and expired air (CO<sub>2</sub>). Orally dosed AE was absorbed rapidly and extensively in rats, and more than 75% of the dose was absorbed. When applied to the skin of humans, the doses were absorbed slowly and incompletely (50% absorbed in 72 hours). Half of the absorbed surfactant was excreted promptly in the urine and smaller amounts of AE appeared in the faeces and expired air (CO<sub>2</sub>).

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✗	Reproductivity	✗
Serious Eye Damage/Irritation	✗	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

**Legend:**

- ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

**SECTION 12 Ecological information****Toxicity**

DD 955	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

distillates, petroleum, light, hydrotreated	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	3072h	Fish	1mg/l	1
	LC50	96h	Fish	2.2mg/l	4

tridecanol, branched, ethoxylated	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50(ECx)	48h	Crustacea	1-10mg/l	Not Available
	LC50	96h	Fish	2.3mg/l	Not Available
	EC50	72h	Algae or other aquatic plants	1-10mg/l	Not Available
	EC50	48h	Crustacea	1-10mg/l	Not Available

**Legend:** 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

**Persistence and degradability**

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

**Bioaccumulative potential**

Ingredient	Bioaccumulation
distillates, petroleum, light, hydrotreated	LOW (BCF = 159)

**Mobility in soil**

Ingredient	Mobility
	No Data available for all ingredients

**SECTION 13 Disposal considerations**

**Waste treatment methods****Product / Packaging disposal**

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.

- **DO NOT allow wash water from cleaning or process equipment to enter drains.**
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

**SECTION 14 Transport information****Labels Required****Marine Pollutant**

NO

	Land transport (TDG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
UN number: <b>Not Applicable</b>			
UN proper shipping name: <b>Not Applicable</b>			
Transport hazard class(es): <b>Not Applicable</b>			
Subsidiary risk: <b>Not Applicable</b>			
Packing group: <b>Not Applicable</b>			

**Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code**

Product name	Group
distillates, petroleum, light, hydrotreated	Not Available
tridecanol, branched, ethoxylated	Not Available

**Transport in bulk in accordance with the IGC Code**

Product name	Ship Type
distillates, petroleum, light, hydrotreated	Not Available
tridecanol, branched, ethoxylated	Not Available

**SECTION 15 Regulatory information****Safety, health and environmental regulations / legislation specific for the substance or mixture**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

**distillates, petroleum, light, hydrotreated is found on the following regulatory lists**

- Canada Categorization decisions for all DSL substances
- Canada Domestic Substances List (DSL)
- Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS GHS
- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

**tridecanol, branched, ethoxylated is found on the following regulatory lists**

- Canada Categorization decisions for all DSL substances
- Canada Domestic Substances List (DSL)

**National Inventory Status**

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (distillates, petroleum, light, hydrotreated; tridecanol, branched, ethoxylated)
China - IECSC	Yes

National Inventory	Status
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Mexico - INSQ	No (tridecanol, branched, ethoxylated)
Vietnam - NCI	Yes
Russia - FBEPH	Yes
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

## SECTION 16 Other information

**Revision Date:** 15/12/2021

**Initial Date:** 01/05/2021

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average  
 PC - STEL: Permissible Concentration-Short Term Exposure Limit  
 IARC: International Agency for Research on Cancer  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 STEL: Short Term Exposure Limit  
 TEEL: Temporary Emergency Exposure Limit  
 IDLH: Immediately Dangerous to Life or Health Concentrations  
 ES: Exposure Standard  
 OSF: Odour Safety Factor  
 NOAEL :No Observed Adverse Effect Level  
 LOAEL: Lowest Observed Adverse Effect Level  
 TLV: Threshold Limit Value  
 LOD: Limit Of Detection  
 OTV: Odour Threshold Value  
 BCF: BioConcentration Factors  
 BEI: Biological Exposure Index  
 AIIC: Australian Inventory of Industrial Chemicals  
 DSL: Domestic Substances List  
 NDSL: Non-Domestic Substances List  
 IECSC: Inventory of Existing Chemical Substance in China  
 EINECS: European INventory of Existing Commercial chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 NLP: No-Longer Polymers  
 ENCS: Existing and New Chemical Substances Inventory  
 KECI: Korea Existing Chemicals Inventory  
 NZIoC: New Zealand Inventory of Chemicals  
 PICCS: Philippine Inventory of Chemicals and Chemical Substances  
 TSCA: Toxic Substances Control Act  
 TCSI: Taiwan Chemical Substance Inventory  
 INSQ: Inventario Nacional de Sustancias Químicas  
 NCI: National Chemical Inventory  
 FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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TEL (+61 3) 9572 4700.



## DD2000

### Fordia

Chemwatch: 5481-08

Version No: 4.1

Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 14/04/2022

Print Date: 16/06/2023

S.GHS.CAN.EN.E

#### SECTION 1 Identification

##### Product Identifier

Product name	DD2000
Chemical Name	Not Applicable
Synonyms	Not Available
Chemical formula	Not Applicable
Other means of identification	9469709658

##### Recommended use of the chemical and restrictions on use

Relevant identified uses	Drilling fluid additive.
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##### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	Fordia	Control Chemical (1989)
Address	3, Hôtel-de-Ville, Dollard-des-Ormeaux QC H9B 3G4 Canada	7016 - 30 Street SE, Calgary AB T2C 1N9 Canada
Telephone	+1 514 336 9211 +1 800 768 7274	+1 403 720 7044 +1 800 267 6840
Fax	Not Available	+1 403 720 4951
Website	<a href="http://www.fordia.com">www.fordia.com</a>	<a href="http://www.matexdrillingfluids.ca/">http://www.matexdrillingfluids.ca/</a>
Email	info@fordia.com	orders@matexdrillingfluids.ca

##### Emergency phone number

Association / Organisation	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	+1 867 670 2867
Other emergency telephone numbers	+61 3 9573 3188

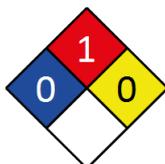
Once connected and if the message is not in your preferred language then please dial 01

Une fois connecté et si le message n'est pas dans votre langue préférée alors s'il vous plaît cadran 07

#### SECTION 2 Hazard(s) identification

##### Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

##### Canadian WHMIS Symbols

Classification	Not Applicable
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##### Label elements

Hazard pictogram(s)	Not Applicable
Signal word	Not Applicable

**Hazard statement(s)**

Not Applicable

**Physical and Health hazard(s) not otherwise classified**

Not Applicable

**Precautionary statement(s) Prevention**

Not Applicable

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

**SECTION 3 Composition / information on ingredients****Substances**

See section below for composition of Mixtures

**Mixtures**

CAS No	%[weight]	Name
Not Available	100	Ingredients determined not to be hazardous

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

**SECTION 4 First-aid measures****Description of first aid measures**

<b>Eye Contact</b>	If this product comes in contact with eyes: <ul style="list-style-type: none"> <li>▶ Wash out immediately with water.</li> <li>▶ If irritation continues, seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	If skin or hair contact occurs: <ul style="list-style-type: none"> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area.</li> <li>▶ Other measures are usually unnecessary.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ Immediately give a glass of water.</li> <li>▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.</li> </ul>

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5 Fire-fighting measures****Extinguishing media**

- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ Carbon dioxide.
- ▶ Water spray or fog - Large fires only.

**Special hazards arising from the substrate or mixture**

<b>Fire Incompatibility</b>	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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**Special protective equipment and precautions for fire-fighters**

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>▶ Avoid spraying water onto liquid pools.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▶ Non combustible.</li> <li>▶ Not considered to be a significant fire risk.</li> <li>▶ Expansion or decomposition on heating may lead to violent rupture of containers.</li> <li>▶ Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).</li> <li>▶ May emit acrid smoke.</li> </ul> Decomposes on heating and produces: carbon dioxide (CO <sub>2</sub> ) nitrogen oxides (NO <sub>x</sub> ) other pyrolysis products typical of burning organic material.

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

<b>Minor Spills</b>	<ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>▶ Wipe up.</li> <li>▶ Place in a suitable, labelled container for waste disposal.</li> </ul>
<b>Major Spills</b>	<p>Moderate hazard.</p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Stop leak if safe to do so.</li> <li>▶ Contain spill with sand, earth or vermiculite.</li> <li>▶ Collect recoverable product into labelled containers for recycling.</li> <li>▶ Absorb remaining product with sand, earth or vermiculite.</li> <li>▶ Collect solid residues and seal in labelled drums for disposal.</li> <li>▶ Wash area and prevent runoff into drains.</li> <li>▶ If contamination of drains or waterways occurs, advise emergency services.</li> </ul>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

### Precautions for safe handling

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ Prevent concentration in hollows and sumps.</li> <li>▶ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>▶ Avoid smoking, naked lights or ignition sources.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ When handling, <b>DO NOT eat, drink or smoke.</b></li> <li>▶ Keep containers securely sealed when not in use.</li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately.</li> <li>▶ Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.</li> </ul>
<b>Other information</b>	<ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>

### Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	<ul style="list-style-type: none"> <li>▶ Metal can or drum</li> <li>▶ Packaging as recommended by manufacturer.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Avoid reaction with oxidising agents</li> </ul>

## SECTION 8 Exposure controls / personal protection

### Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
DD2000	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
DD2000	Not Available	Not Available

Continued...

## Exposure controls

<p><b>Appropriate engineering controls</b></p>	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p> <table border="1" data-bbox="384 533 1489 790"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>solvent, vapours, degreasing etc., evaporating from tank (in still air)</td> <td>0.25-0.5 m/s (50-100 f/min)</td> </tr> <tr> <td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s (100-200 f/min.)</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table> <p>Within each range the appropriate value depends on:</p> <table border="1" data-bbox="384 846 1126 1014"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood - local control only</td> </tr> </tbody> </table> <p>Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.</p>	Type of Contaminant:	Air Speed:	solvent, vapours, degreasing etc., evaporating from tank (in still air)	0.25-0.5 m/s (50-100 f/min)	aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min)	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)	Lower end of the range	Upper end of the range	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity	3: Intermittent, low production.	3: High production, heavy use	4: Large hood or large air mass in motion	4: Small hood - local control only
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<p><b>Individual protection measures, such as personal protective equipment</b></p>																					
<p><b>Eye and face protection</b></p>	<ul style="list-style-type: none"> <li>▶ Safety glasses with side shields</li> <li>▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].</li> </ul>																				
<p><b>Skin protection</b></p>	<p>See Hand protection below</p>																				
<p><b>Hands/feet protection</b></p>	<p>Wear general protective gloves, eg. light weight rubber gloves.</p> <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>· frequency and duration of contact,</li> <li>· chemical resistance of glove material,</li> <li>· glove thickness and</li> <li>· dexterity</li> </ul> <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> <li>· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>· Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>· Contaminated gloves should be replaced.</li> </ul> <p>As defined in ASTM F-739-96 in any application, gloves are rated as:</p> <ul style="list-style-type: none"> <li>· Excellent when breakthrough time &gt; 480 min</li> <li>· Good when breakthrough time &gt; 20 min</li> <li>· Fair when breakthrough time &lt; 20 min</li> <li>· Poor when glove material degrades</li> </ul> <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation</p>																				

	<p>efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> <li>· Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.</li> <li>· Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential</li> </ul> <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<p>No special equipment needed when handling small quantities.</p> <p><b>OTHERWISE:</b></p> <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ Barrier cream.</li> <li>▶ Eyewash unit.</li> </ul>

### Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

<b>Appearance</b>	Divided Solid		
<b>Physical state</b>	Divided Solid	<b>Relative density (Water = 1)</b>	0.75
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Applicable
<b>pH (as supplied)</b>	Not Applicable	<b>Decomposition temperature (°C)</b>	Not Available
<b>Melting point / freezing point (°C)</b>	Not Available	<b>Viscosity (cSt)</b>	Not Applicable
<b>Initial boiling point and boiling range (°C)</b>	Not Applicable	<b>Molecular weight (g/mol)</b>	Not Applicable
<b>Flash point (°C)</b>	>93.3	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Applicable	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Applicable	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Applicable
<b>Lower Explosive Limit (%)</b>	Not Applicable	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Applicable	<b>Gas group</b>	Not Available
<b>Solubility in water</b>	Miscible	<b>pH as a solution (1%)</b>	3-5 (0.5%)
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available

### SECTION 10 Stability and reactivity

<b>Reactivity</b>	See section 7
<b>Chemical stability</b>	<ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul>
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

### SECTION 11 Toxicological information

#### Information on toxicological effects

<b>Inhaled</b>	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
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<b>Ingestion</b>	The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.	
<b>Skin Contact</b>	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.	
<b>Eye</b>	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).	
<b>Chronic</b>	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.	
<b>DD2000</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>Legend:</b>	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

<b>Acute Toxicity</b>	<b>×</b>	<b>Carcinogenicity</b>	<b>×</b>
<b>Skin Irritation/Corrosion</b>	<b>×</b>	<b>Reproductivity</b>	<b>×</b>
<b>Serious Eye Damage/Irritation</b>	<b>×</b>	<b>STOT - Single Exposure</b>	<b>×</b>
<b>Respiratory or Skin sensitisation</b>	<b>×</b>	<b>STOT - Repeated Exposure</b>	<b>×</b>
<b>Mutagenicity</b>	<b>×</b>	<b>Aspiration Hazard</b>	<b>×</b>

**Legend:** **×** – Data either not available or does not fill the criteria for classification  
**✓** – Data available to make classification

## SECTION 12 Ecological information

### Toxicity

<b>DD2000</b>	<b>Endpoint</b>	<b>Test Duration (hr)</b>	<b>Species</b>	<b>Value</b>	<b>Source</b>
		Not Available	Not Available	Not Available	Not Available
<b>Legend:</b>	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

**DO NOT** discharge into sewer or waterways.

### Persistence and degradability

<b>Ingredient</b>	<b>Persistence: Water/Soil</b>	<b>Persistence: Air</b>
	No Data available for all ingredients	No Data available for all ingredients

### Bioaccumulative potential

<b>Ingredient</b>	<b>Bioaccumulation</b>
	No Data available for all ingredients

### Mobility in soil

<b>Ingredient</b>	<b>Mobility</b>
	No Data available for all ingredients

## SECTION 13 Disposal considerations

### Waste treatment methods

<b>Product / Packaging disposal</b>	<ul style="list-style-type: none"> <li>▶ <b>DO NOT</b> allow wash water from cleaning or process equipment to enter drains.</li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Where in doubt contact the responsible authority.</li> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Authority for disposal.</li> <li>▶ Bury or incinerate residue at an approved site.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul>
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## SECTION 14 Transport information

### Labels Required

<b>Marine Pollutant</b>	NO
-------------------------	----

Land transport (TDG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code**

Product name	Group
--------------	-------

**Transport in bulk in accordance with the IGC Code**

Product name	Ship Type
--------------	-----------

## SECTION 15 Regulatory information

### Safety, health and environmental regulations / legislation specific for the substance or mixture

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

### National Inventory Status

National Inventory	Status
Australia - AIC / Australia Non-Industrial Use	Not Available
Canada - DSL	Not Available
Canada - NDSC	Not Available
China - IECSC	Not Available
Europe - EINEC / ELINCS / NLP	Not Available
Japan - ENCS	Not Available
Korea - KECI	Not Available
New Zealand - NZIoC	Not Available
Philippines - PICCS	Not Available
USA - TSCA	Not Available
Mexico - INSQ	Not Available
Vietnam - NCI	Not Available
Russia - FBEPH	Not Available
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

## SECTION 16 Other information

<b>Revision Date</b>	14/04/2022
<b>Initial Date</b>	02/12/2021

### SDS Version Summary

Version	Date of Update	Sections Updated
3.1	03/12/2021	Physical and chemical properties - Appearance
4.1	14/04/2022	Physical and chemical properties - Appearance

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average  
 PC - STEL: Permissible Concentration-Short Term Exposure Limit  
 IARC: International Agency for Research on Cancer  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 STEL: Short Term Exposure Limit  
 TEEL: Temporary Emergency Exposure Limit  
 IDLH: Immediately Dangerous to Life or Health Concentrations  
 ES: Exposure Standard  
 OSF: Odour Safety Factor  
 NOAEL :No Observed Adverse Effect Level  
 LOAEL: Lowest Observed Adverse Effect Level  
 TLV: Threshold Limit Value  
 LOD: Limit Of Detection  
 OTV: Odour Threshold Value  
 BCF: BioConcentration Factors  
 BEI: Biological Exposure Index

AIIC: Australian Inventory of Industrial Chemicals  
DSL: Domestic Substances List  
NDSL: Non-Domestic Substances List  
IECSC: Inventory of Existing Chemical Substance in China  
EINECS: European Inventory of Existing Commercial chemical Substances  
ELINCS: European List of Notified Chemical Substances  
NLP: No-Longer Polymers  
ENCS: Existing and New Chemical Substances Inventory  
KECI: Korea Existing Chemicals Inventory  
NZIoC: New Zealand Inventory of Chemicals  
PICCS: Philippine Inventory of Chemicals and Chemical Substances  
TSCA: Toxic Substances Control Act  
TCSI: Taiwan Chemical Substance Inventory  
INSQ: Inventario Nacional de Sustancias Químicas  
NCI: National Chemical Inventory  
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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TEL (+61 3) 9572 4700.

## “ENVIRO MELT “



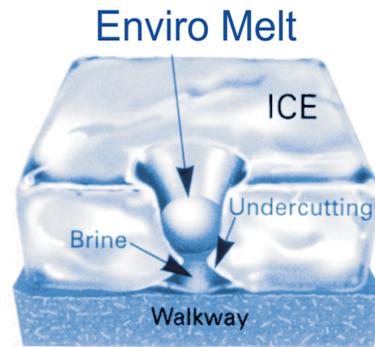
An extremely effective ice melter that eliminates ice in hazardous areas. 100% biodegradable and environmentally friendly Enviro Melt is designed to prevent damage to concrete in the freeze thaw cycles that occur with water in the pores of concrete. Formulated with ingredients that melt ice and snow at temperatures of below -36°C.

Applications: Sidewalks, steps, parking lots and anywhere ice and snow needs to be removed.

Directions / Dilutions: Use as is. Apply at the rate of 100 grams per metre on area to be de-iced. Spread by hand or fertilizer spreader on area to be de-iced.

### Laboratory Analysis:

Odour:	None
Appearance:	Green crystals
Flammability:	Non flammable
Solid Content:	100%
Solubility:	Excellent



Packaging: 20 Kg. pail

For further information consult the safety data sheet and label.

Visit us at our website [www.chemfax.com](http://www.chemfax.com)



# Safety Data Sheet

Section 1. Identification		
<b>Product Identifier</b>	<b>Liquid Fire</b>	<b>Version: 7</b> <b>Effective Date: 15 January 2021</b>
<b>Other Means Of Identification</b>	None	
<b>Initial Supplier Identifier</b>	Chemfax Products Ltd. 11444 – 42 Street SE Calgary, AB T2C 5C4 Tel: 403-287-2055	
<b>Recommended Use and Restrictions On Use</b>	Liquid Ice Melt. No restrictions.	
<b>Product Family</b>	Blend	
<b>Emergency Phone</b>	1-855-887-2055 Monday - Friday 8:00am - 4:30pm MST	

Section 2. Hazard Identification	
<b>Hazard Classification</b>	Not a regulated product
<b>Signal Word</b>	None
<b>Hazard Statement</b>	None
<b>Precautionary Prevention Statement</b>	Non Hazardous.
<b>Precautionary Response Statement</b>	Non Hazardous.
<b>Precautionary Storage Statement</b>	Non Hazardous.
<b>Precautionary Disposal Statement</b>	Non Hazardous.
<b>Other Hazards</b>	None

Section 3. Composition / Information on Ingredients			
Chemical Name	Common Name or Synonyms	CAS NO. and Other Unique Identifiers	% by weight
Ingredients are considered non-hazardous and constitute a proprietary blend			

# Safety Data Sheet

<b>Section 4. First-Aid Measures</b>	
<b>Eye Contact</b>	Flush eyes with water for 15 minutes. Seek medical attention.
<b>Skin Contact</b>	Flush area with water. If irritation persists seek medical attention. Launder clothing before reuse.
<b>Inhalation</b>	Remove victim to fresh air. If there is difficulty breathing, seek immediate medical attention.
<b>Ingestion</b>	Rinse mouth with water if conscious. Do not induce vomiting. Lay victim on left side to prevent aspiration of any vomit. Seek immediate medical attention.
<b>Most Important Symptoms and Effects Both Acute and Delayed</b>	Not hazardous
<b>Immediate Medical Attention and Special Treatment</b>	If in eyes rinse with plenty of water.

<b>Section 5. Fire-Fighting Measures</b>	
<b>Suitable and Unsuitable Extinguishing Media</b>	Use extinguishing media suitable for surrounding fire.
<b>Hazardous Combustion Products</b>	None known
<b>Specific Hazards Arising From the Product</b>	None known
<b>Special Protective Equipment and Precautions For Fire-Fighters</b>	Fire-fighters should wear self-contained breathing apparatus and full protective clothing.

<b>Section 6. Accidental Release Measures</b>	
<b>Personal Precautions, Protective Equipment and Emergency Procedures</b>	For clean-up, gloves and safety glasses should be worn.
<b>Environmental Precautions</b>	Do not allow large quantities of product to enter surface watercourse and sewer systems.
<b>Methods and Materials For Containment and Clean-Up</b>	Sweep up spilled material with care to avoid dust formation. Wash area with water to remove residues.

# Safety Data Sheet

<b>Section 7. Handling and Storage</b>	
<b>Precautions For Safe Handling</b>	Handle with care.
<b>Conditions For Safe Storage</b>	Store in a dry place. Keep containers closed when not in use.

<b>Section 8. Exposure Controls / Personal Protection</b>				
<b>Control Parameters</b>	<b>TWA: 8 Hr</b>	<b>STEL: 15 min</b>	<b>Ceiling</b>	<b>IDLH *</b>
All component ingredients of this product are considered non-hazardous and do not have exposure limits established.				
<b>Exposure Controls</b>	Local exhaust ventilation			
<b>Appropriate Engineering Controls</b>				
<b>Individual Protective Measures</b>	Not required under normal conditions of use.			
<b>Eye / Face Protection</b>	In case of spillage, wear safety glasses			
<b>Skin Protection</b>	In case of spillage, wear gloves			
<b>Respiratory Protection</b>	Not required			

<b>Section 9. Physical and Chemical Properties</b>	
<b>Appearance</b>	Slightly hazy and colourless.
<b>Odour</b>	Odourless
<b>Odour Threshold</b>	Not available.
<b>pH</b>	>7
<b>Flash Point</b>	> 93 °C
<b>Boiling Point and Boiling Range</b>	100 °C
<b>Melting Point and Freezing Point</b>	-51 °C
<b>Evaporation Rate</b>	Not determined
<b>Flammability (solid, gas)</b>	Not applicable
<b>Upper and Lower Flammability or Explosive Limits</b>	No data
<b>Vapour Pressure</b>	Not determined
<b>Vapour Density</b>	Not determined
<b>Relative Density</b>	1.329
<b>Solubility</b>	Completely soluble



## Safety Data Sheet

<b>Partition co-efficient, n-Octanol/Water</b>	No data
<b>Auto-ignition Temperature</b>	Not determined
<b>Decomposition Temperature</b>	No data
<b>Viscosity</b>	No data

Section 10. Stability and Reactivity	
<b>Reactivity</b>	The product is stable
<b>Chemical Stability</b>	The product is stable
<b>Possibility of Hazardous Reactions</b>	None
<b>Conditions to Avoid</b>	None
<b>Incompatible Materials</b>	Methyl vinyl ether and Furan-2-peroxy carboxylic acid
<b>Hazardous Decomposition Products</b>	Hydrogen and chlorine gases

Section 11. Toxicological Information			
Component Toxicity	LD50 Oral	LD50 Dermal	LC50 Inhalation
The ingredients are not hazardous.			
<b>Likely Routes of Exposure</b>			
<b>Skin:</b>	May cause stinging if in contact with open wounds.		
<b>Eyes:</b>	May cause stinging if in contact with eyes.		
<b>Inhalation:</b>	No hazard expected under normal conditions of use.		
<b>Ingestion:</b>	No hazard expected under normal conditions of use.		
<b>Acute Toxicity Estimates (ATE)</b>	Not hazardous		
<b>STOT (Specific Target Organ Toxicity) – Single Exposure</b>	Not hazardous		
<b>Aspiration Toxicity</b>	Not hazardous		
<b>STOT (Specific Target Organ Toxicity) – Repeated Exposure</b>	Not hazardous		
<b>Skin Corrosion / Irritation</b>	Not hazardous		
<b>Serious Eye Damage / Irritation</b>	Not hazardous		
<b>Respiratory or Skin Sensitization</b>	Not hazardous		
<b>Carcinogenicity</b>	Not listed.		



# Safety Data Sheet

<b>Reproductive Toxicity</b>	
- <b>Sexual Function and Fertility</b>	Not hazardous
- <b>Development of Offspring</b>	Not hazardous
- <b>Effects on or via Lactation</b>	Not hazardous
<b>Germ Cell Mutagenicity</b>	Not hazardous
<b>Interactive Effects</b>	Not hazardous
<b>Other Information</b>	Not applicable

<b>Section 12. Ecological Information</b>	
<b>Ecotoxicity</b>	LC50: 4600 mg/L ( <i>Oncorhynchus mykiss</i> ) LC50: 3500 mg/L ( <i>Daphnia Magna</i> )
<b>Persistence and Degradability</b>	Readily degradable
<b>Bioaccumulative Potential</b>	Not expected
<b>Biodegradability</b>	Expected to be completely biodegradable
<b>Mobility in Soil</b>	No data
<b>Special Remarks</b>	B.O.D. <1.0 mg/L C.O.D 264 mg/L
<b>Other Adverse Effects</b>	Not applicable

<b>Section 13. Disposal Considerations</b>	
<b>Disposal Considerations</b>	Dispose of contents/container in accordance with local regulations.

<b>Section 14. Transport Information</b>	
<b>UN Number</b>	None
<b>UN Proper Shipping Name</b>	None
<b>Transport Hazard Class(es)</b>	None
<b>Packaging Group</b>	None
<b>Environmental Hazards</b>	Not applicable
<b>Bulk Transport</b>	Not applicable
<b>Special Precaution</b>	Not applicable
<b>DOT Erg#</b>	Not applicable

# Safety Data Sheet

<b>Section 15. Regulatory Information</b>	
<b>Canada – DSL Inventory</b>	All components of this product are either on the Domestic Substances List (DSL), Non-Domestic Substances List (NDSL), or exempt
<b>TSCA</b>	All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt
<b>Additional Information</b>	None

<b>Section 16. Other Information</b>	
<b>NFPA Rating</b>	Health-0/ Flammability-0/Reactivity-0/Special Hazard-Not applicable
<b>HMIS Rating</b>	Health-0/Flammability-0/Reactivity-0/Personal Protection-See Section 8.
<b>Prepared by:</b>	Chemfax Products Ltd., Technical Department
<b>Date Prepared:</b>	15 January, 2013
<b>Date of Latest Revision:</b>	15 January 2021
<p><b>Disclaimer</b>            Notice to reader</p> <p>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.</p> <p>Chemfax Products Ltd. expressly disclaims all expressed or implied warranties of merchantability and fitness for a particular purpose with respect to the product provided.</p>	



## Epiroc Sand Drill

### Fordia

Chemwatch: 5481-16

Version No: 3.1

Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 07/12/2021

Print Date: 16/06/2023

S.GHS.CAN.EN.E

#### SECTION 1 Identification

##### Product Identifier

Product name	Epiroc Sand Drill
Chemical Name	Not Applicable
Synonyms	Not Available
Chemical formula	Not Applicable
Other means of identification	9469709635

##### Recommended use of the chemical and restrictions on use

Relevant identified uses	Drilling fluid additive.
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##### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	Fordia	Control Chemical (1989)
Address	3, Hôtel-de-Ville, Dollard-des-Ormeaux QC H9B 3G4 Canada	7016 - 30 Street SE, Calgary AB T2C 1N9 Canada
Telephone	+1 514 336 9211 +1 800 768 7274	+1 403 720 7044 +1 800 267 6840
Fax	Not Available	+1 403 720 4951
Website	<a href="http://www.fordia.com">www.fordia.com</a>	<a href="http://www.matexdrillingfluids.ca/">http://www.matexdrillingfluids.ca/</a>
Email	info@fordia.com	orders@matexdrillingfluids.ca

##### Emergency phone number

Association / Organisation	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	+1 867 670 2867
Other emergency telephone numbers	+61 3 9573 3188

Once connected and if the message is not in your preferred language then please dial 01

Une fois connecté et si le message n'est pas dans votre langue préférée alors s'il vous plaît cadran 07

#### SECTION 2 Hazard(s) identification

##### Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

##### Canadian WHMIS Symbols

Classification	Not Applicable
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##### Label elements

Hazard pictogram(s)	Not Applicable
Signal word	Not Applicable

**Hazard statement(s)**

Not Applicable

**Physical and Health hazard(s) not otherwise classified**

Not Applicable

**Precautionary statement(s) Prevention**

Not Applicable

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

**SECTION 3 Composition / information on ingredients****Substances**

See section below for composition of Mixtures

**Mixtures**

CAS No	%[weight]	Name
Not Available	100	Ingredients determined not to be hazardous

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

**SECTION 4 First-aid measures****Description of first aid measures**

<b>Eye Contact</b>	If this product comes in contact with eyes: <ul style="list-style-type: none"> <li>▶ Wash out immediately with water.</li> <li>▶ If irritation continues, seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	If skin or hair contact occurs: <ul style="list-style-type: none"> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area.</li> <li>▶ Other measures are usually unnecessary.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ Immediately give a glass of water.</li> <li>▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.</li> </ul>

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5 Fire-fighting measures****Extinguishing media**

- ▶ There is no restriction on the type of extinguisher which may be used.
- ▶ Use extinguishing media suitable for surrounding area.

**Do not** use water jets.**Special hazards arising from the substrate or mixture**

<b>Fire Incompatibility</b>	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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**Special protective equipment and precautions for fire-fighters**

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves in the event of a fire.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Use fire fighting procedures suitable for surrounding area.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> <li>▶ Equipment should be thoroughly decontaminated after use.</li> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▶ Solid which exhibits difficult combustion or is difficult to ignite.</li> <li>▶ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion.</li> <li>▶ Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited; once initiated larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.</li> <li>▶ A dust explosion may release large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.</li> <li>▶ Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large scale explosions have resulted from chain reactions of this</li> </ul>

## Epiroc Sand Drill

	<p>type.</p> <ul style="list-style-type: none"> <li>▶ Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.</li> <li>▶ Build-up of electrostatic charge may be prevented by bonding and grounding.</li> <li>▶ Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.</li> <li>▶ All movable parts coming in contact with this material should have a speed of less than 1-metre/sec.</li> </ul> <p>Combustion products include: carbon monoxide (CO) carbon dioxide (CO<sub>2</sub>) other pyrolysis products typical of burning organic material.</p>
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## SECTION 6 Accidental release measures

## Personal precautions, protective equipment and emergency procedures

See section 8

## Environmental precautions

See section 12

## Methods and material for containment and cleaning up

<b>Minor Spills</b>	<ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid contact with skin and eyes.</li> <li>▶ Wear impervious gloves and safety glasses.</li> <li>▶ Use dry clean up procedures and avoid generating dust.</li> <li>▶ Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).</li> <li>▶ Do NOT use air hoses for cleaning</li> <li>▶ Place spilled material in clean, dry, sealable, labelled container.</li> </ul> <p>Slippery when spilt.</p>
<b>Major Spills</b>	<ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Control personal contact with the substance, by using protective equipment and dust respirator.</li> <li>▶ Prevent spillage from entering drains, sewers or water courses.</li> <li>▶ Avoid generating dust.</li> <li>▶ Sweep, shovel up. Recover product wherever possible.</li> <li>▶ Put residues in labelled plastic bags or other containers for disposal.</li> <li>▶ If contamination of drains or waterways occurs, advise emergency services.</li> </ul> <p>Slippery when spilt.</p>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

## Precautions for safe handling

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ Limit all unnecessary personal contact.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ When handling, <b>DO NOT eat, drink or smoke.</b></li> <li>▶ Keep containers securely sealed when not in use.</li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately.</li> <li>▶ Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.</li> <li>▶ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)</li> <li>▶ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.</li> <li>▶ Establish good housekeeping practices.</li> <li>▶ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.</li> <li>▶ Use continuous suction at points of dust generation to capture and minimise the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimise the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area.</li> <li>▶ Do not use air hoses for cleaning.</li> <li>▶ Minimise dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used.</li> <li>▶ Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition.</li> <li>▶ Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance.</li> <li>▶ Do not empty directly into flammable solvents or in the presence of flammable vapors.</li> <li>▶ The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges.</li> </ul> <p>Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.</p> <ul style="list-style-type: none"> <li>▶ <b>Do NOT cut, drill, grind or weld such containers.</b></li> <li>▶ In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.</li> </ul>
<b>Other information</b>	<ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry area protected from environmental extremes.</li> </ul>

Continued...

## Epiroc Sand Drill

- ▶ Store away from incompatible materials and foodstuff containers.
- ▶ Protect containers against physical damage and check regularly for leaks.
- ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.

For major quantities:

- ▶ Consider storage in banded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams).
- ▶ Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.

## Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	<ul style="list-style-type: none"> <li>▶ Lined metal can, lined metal pail/ can.</li> <li>▶ Plastic pail.</li> <li>▶ Polyliner drum.</li> <li>▶ Packing as recommended by manufacturer.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Avoid storage with reducing agents.</li> <li>▶ Avoid reaction with oxidising agents</li> </ul>

## SECTION 8 Exposure controls / personal protection

## Control parameters

## Occupational Exposure Limits (OEL)

## INGREDIENT DATA

Not Available

## Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
Epiroc Sand Drill	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
Epiroc Sand Drill	Not Available	Not Available

## Exposure controls

<b>Appropriate engineering controls</b>	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <ul style="list-style-type: none"> <li>▶ Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.</li> <li>▶ If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.</li> </ul> <p>Such protection might consist of:</p> <p>(a): particle dust respirators, if necessary, combined with an absorption cartridge;</p> <p>(b): filter respirators with absorption cartridge or canister of the right type;</p> <p>(c): fresh-air hoods or masks.</p> <p>Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p> <table border="1"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min.)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table> <p>Within each range the appropriate value depends on:</p> <table border="1"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only.</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood-local control only</td> </tr> </tbody> </table> <p>Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.</p>	Type of Contaminant:	Air Speed:	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)	Lower end of the range	Upper end of the range	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity	3: Intermittent, low production.	3: High production, heavy use	4: Large hood or large air mass in motion	4: Small hood-local control only
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<b>Individual protection measures, such as personal protective equipment</b>																	

<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Safety glasses with side shields</li> <li>▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].</li> </ul>
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	<p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>· frequency and duration of contact,</li> <li>· chemical resistance of glove material,</li> <li>· glove thickness and</li> <li>· dexterity</li> </ul> <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> <li>· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>· Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>· Contaminated gloves should be replaced.</li> </ul> <p>As defined in ASTM F-739-96 in any application, gloves are rated as:</p> <ul style="list-style-type: none"> <li>· Excellent when breakthrough time &gt; 480 min</li> <li>· Good when breakthrough time &gt; 20 min</li> <li>· Fair when breakthrough time &lt; 20 min</li> <li>· Poor when glove material degrades</li> </ul> <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> <li>· Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.</li> <li>· Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential</li> </ul> <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.</p> <ul style="list-style-type: none"> <li>▶ polychloroprene.</li> <li>▶ nitrile rubber.</li> <li>▶ butyl rubber.</li> <li>▶ fluoroacoutchouc.</li> <li>▶ polyvinyl chloride.</li> </ul> <p>Gloves should be examined for wear and/ or degradation constantly.</p>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<p>No special equipment needed when handling small quantities.</p> <p><b>OTHERWISE:</b></p> <ul style="list-style-type: none"> <li>▶ Overalls.</li> <li>▶ Barrier cream.</li> <li>▶ Eyewash unit.</li> </ul>

### Respiratory protection

Type -P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

<b>Appearance</b>	Solid		
<b>Physical state</b>	Solid	<b>Relative density (Water = 1)</b>	Not Available

## Epiroc Sand Drill

Odour	No Odour	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Applicable
pH (as supplied)	Not Applicable	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water	Not Available	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Available

## SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul>
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

## SECTION 11 Toxicological information

## Information on toxicological effects

Inhaled	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Eye	Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

Epiroc Sand Drill	TOXICITY	IRRITATION
	Not Available	Not Available
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✗	Reproductivity	✗
Serious Eye Damage/Irritation	✗	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

Epiroc Sand Drill	Endpoint	Test Duration (hr)	Species	Value	Source
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Continued...

	Not Available	Not Available	Not Available	Not Available	Not Available
<b>Legend:</b>	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

**DO NOT** discharge into sewer or waterways.

#### Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

#### Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

#### Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

### SECTION 13 Disposal considerations

#### Waste treatment methods

<b>Product / Packaging disposal</b>	<ul style="list-style-type: none"> <li>▶ Recycle wherever possible.</li> <li>▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li> <li>▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material)</li> <li>▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.</li> </ul>
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### SECTION 14 Transport information

#### Labels Required

<b>Marine Pollutant</b>	NO
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**Land transport (TDG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code**

Product name	Group

**Transport in bulk in accordance with the IGC Code**

Product name	Ship Type

### SECTION 15 Regulatory information

#### Safety, health and environmental regulations / legislation specific for the substance or mixture

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

#### National Inventory Status

National Inventory	Status
Australia - AIC / Australia Non-Industrial Use	Not Available
Canada - DSL	Not Available
Canada - NDSL	Not Available
China - IECSC	Not Available
Europe - EINEC / ELINCS / NLP	Not Available
Japan - ENCS	Not Available
Korea - KECI	Not Available
New Zealand - NZIoC	Not Available
Philippines - PICCS	Not Available

National Inventory	Status
USA - TSCA	Not Available
Mexico - INSQ	Not Available
Vietnam - NCI	Not Available
Russia - FBEPH	Not Available

**Legend:** Yes = All CAS declared ingredients are on the inventory  
No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

## SECTION 16 Other information

Revision Date	07/12/2021
Initial Date	06/12/2021

### SDS Version Summary

Version	Date of Update	Sections Updated
3.1	07/12/2021	Physical and chemical properties - Appearance, Firefighting measures - Fire Fighter (extinguishing media), Accidental release measures - Spills (major), Accidental release measures - Spills (minor), Handling and storage - Storage (storage incompatibility)

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average  
 PC - STEL: Permissible Concentration-Short Term Exposure Limit  
 IARC: International Agency for Research on Cancer  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 STEL: Short Term Exposure Limit  
 TEEL: Temporary Emergency Exposure Limit  
 IDLH: Immediately Dangerous to Life or Health Concentrations  
 ES: Exposure Standard  
 OSF: Odour Safety Factor  
 NOAEL :No Observed Adverse Effect Level  
 LOAEL: Lowest Observed Adverse Effect Level  
 TLV: Threshold Limit Value  
 LOD: Limit Of Detection  
 OTV: Odour Threshold Value  
 BCF: BioConcentration Factors  
 BEI: Biological Exposure Index  
 AIIIC: Australian Inventory of Industrial Chemicals  
 DSL: Domestic Substances List  
 NDSL: Non-Domestic Substances List  
 IECSC: Inventory of Existing Chemical Substance in China  
 EINECS: European INventory of Existing Commercial chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 NLP: No-Longer Polymers  
 ENCS: Existing and New Chemical Substances Inventory  
 KECI: Korea Existing Chemicals Inventory  
 NZIoC: New Zealand Inventory of Chemicals  
 PICCS: Philippine Inventory of Chemicals and Chemical Substances  
 TSCA: Toxic Substances Control Act  
 TCSI: Taiwan Chemical Substance Inventory  
 INSQ: Inventario Nacional de Sustancias Químicas  
 NCI: National Chemical Inventory  
 FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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TEL (+61 3) 9572 4700.



## Epiroc Torqueless

### Fordia

Chemwatch: 5481-18

Version No: 2.1

Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 06/12/2021

Print Date: 16/06/2023

S.GHS.CAN.EN.E

#### SECTION 1 Identification

##### Product Identifier

Product name	Epiroc Torqueless
Chemical Name	Not Applicable
Synonyms	Not Available
Chemical formula	Not Applicable
Other means of identification	9469709669

##### Recommended use of the chemical and restrictions on use

Relevant identified uses	Drilling lubricant.
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##### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	Fordia	Control Chemical (1989)
Address	3, Hôtel-de-Ville, Dollard-des-Ormeaux QC H9B 3G4 Canada	7016 - 30 Street SE, Calgary AB T2C 1N9 Canada
Telephone	+1 514 336 9211 +1 800 768 7274	+1 403 720 7044 +1 800 267 6840
Fax	Not Available	+1 403 720 4951
Website	<a href="http://www.fordia.com">www.fordia.com</a>	<a href="http://www.matexdrillingfluids.ca/">http://www.matexdrillingfluids.ca/</a>
Email	info@fordia.com	orders@matexdrillingfluids.ca

##### Emergency phone number

Association / Organisation	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	+1 867 670 2867
Other emergency telephone numbers	+61 3 9573 3188

Once connected and if the message is not in your preferred language then please dial 01

Une fois connecté et si le message n'est pas dans votre langue préférée alors s'il vous plaît cadran 07

#### SECTION 2 Hazard(s) identification

##### Classification of the substance or mixture

NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

##### Canadian WHMIS Symbols

Classification	Not Applicable
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##### Label elements

Hazard pictogram(s)	Not Applicable
Signal word	Not Applicable

**Hazard statement(s)**

Not Applicable

**Physical and Health hazard(s) not otherwise classified**

Not Applicable

**Precautionary statement(s) Prevention**

Not Applicable

**Precautionary statement(s) Response**

Not Applicable

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

**SECTION 3 Composition / information on ingredients****Substances**

See section below for composition of Mixtures

**Mixtures**

CAS No	%[weight]	Name
Not Available	100	Ingredients determined not to be hazardous

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

**SECTION 4 First-aid measures****Description of first aid measures**

<b>Eye Contact</b>	If this product comes in contact with eyes: <ul style="list-style-type: none"> <li>▶ Wash out immediately with water.</li> <li>▶ If irritation continues, seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	If skin or hair contact occurs: <ul style="list-style-type: none"> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area.</li> <li>▶ Other measures are usually unnecessary.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ Immediately give a glass of water.</li> <li>▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.</li> </ul>

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5 Fire-fighting measures****Extinguishing media**

- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ Carbon dioxide.
- ▶ Water spray or fog - Large fires only.

**Special hazards arising from the substrate or mixture**

<b>Fire Incompatibility</b>	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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**Special protective equipment and precautions for fire-fighters**

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Use water delivered as a fine spray to control fire and cool adjacent area.</li> <li>▶ Avoid spraying water onto liquid pools.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▶ Combustible.</li> <li>▶ Slight fire hazard when exposed to heat or flame.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>▶ On combustion, may emit toxic fumes of carbon monoxide (CO).</li> <li>▶ May emit acrid smoke.</li> <li>▶ Mists containing combustible materials may be explosive.</li> </ul> Combustion products include: carbon dioxide (CO <sub>2</sub> ) sulfur oxides (SO <sub>x</sub> )

## Epiroc Torqueless

other pyrolysis products typical of burning organic material.

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

<b>Minor Spills</b>	<ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>▶ Wipe up.</li> <li>▶ Place in a suitable, labelled container for waste disposal.</li> </ul>
<b>Major Spills</b>	<p>Moderate hazard.</p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Stop leak if safe to do so.</li> <li>▶ Contain spill with sand, earth or vermiculite.</li> <li>▶ Collect recoverable product into labelled containers for recycling.</li> <li>▶ Absorb remaining product with sand, earth or vermiculite.</li> <li>▶ Collect solid residues and seal in labelled drums for disposal.</li> <li>▶ Wash area and prevent runoff into drains.</li> <li>▶ If contamination of drains or waterways occurs, advise emergency services.</li> </ul>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

### Precautions for safe handling

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ Prevent concentration in hollows and sumps.</li> <li>▶ <b>DO NOT enter confined spaces until atmosphere has been checked.</b></li> <li>▶ Avoid smoking, naked lights or ignition sources.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ When handling, <b>DO NOT eat, drink or smoke.</b></li> <li>▶ Keep containers securely sealed when not in use.</li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately.</li> <li>▶ Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.</li> </ul>
<b>Other information</b>	<ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>

### Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	<ul style="list-style-type: none"> <li>▶ Metal can or drum</li> <li>▶ Packaging as recommended by manufacturer.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Avoid reaction with oxidising agents</li> </ul>

## SECTION 8 Exposure controls / personal protection

### Control parameters

#### Occupational Exposure Limits (OEL)

#### INGREDIENT DATA

Not Available

#### Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
Epiroc Torqueless	Not Available	Not Available	Not Available

Continued...

Ingredient	Original IDLH	Revised IDLH
Epiroc Torqueless	Not Available	Not Available

### Exposure controls

<p><b>Appropriate engineering controls</b></p>	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p> <table border="1" data-bbox="384 613 1489 869"> <thead> <tr> <th>Type of Contaminant:</th> <th>Air Speed:</th> </tr> </thead> <tbody> <tr> <td>solvent, vapours, degreasing etc., evaporating from tank (in still air)</td> <td>0.25-0.5 m/s (50-100 f/min)</td> </tr> <tr> <td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td> <td>0.5-1 m/s (100-200 f/min.)</td> </tr> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td> <td>1-2.5 m/s (200-500 f/min)</td> </tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td> <td>2.5-10 m/s (500-2000 f/min.)</td> </tr> </tbody> </table> <p>Within each range the appropriate value depends on:</p> <table border="1" data-bbox="384 931 1125 1093"> <thead> <tr> <th>Lower end of the range</th> <th>Upper end of the range</th> </tr> </thead> <tbody> <tr> <td>1: Room air currents minimal or favourable to capture</td> <td>1: Disturbing room air currents</td> </tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only</td> <td>2: Contaminants of high toxicity</td> </tr> <tr> <td>3: Intermittent, low production.</td> <td>3: High production, heavy use</td> </tr> <tr> <td>4: Large hood or large air mass in motion</td> <td>4: Small hood - local control only</td> </tr> </tbody> </table> <p>Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.</p>	Type of Contaminant:	Air Speed:	solvent, vapours, degreasing etc., evaporating from tank (in still air)	0.25-0.5 m/s (50-100 f/min)	aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min)	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)	Lower end of the range	Upper end of the range	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity	3: Intermittent, low production.	3: High production, heavy use	4: Large hood or large air mass in motion	4: Small hood - local control only
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<p><b>Individual protection measures, such as personal protective equipment</b></p>																					
<p><b>Eye and face protection</b></p>	<ul style="list-style-type: none"> <li>▶ Safety glasses with side shields</li> <li>▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].</li> </ul>																				
<p><b>Skin protection</b></p>	<p>See Hand protection below</p>																				
<p><b>Hands/feet protection</b></p>	<p>Wear general protective gloves, eg. light weight rubber gloves.</p> <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>· frequency and duration of contact,</li> <li>· chemical resistance of glove material,</li> <li>· glove thickness and</li> <li>· dexterity</li> </ul> <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> <li>· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.</li> <li>· Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>· Contaminated gloves should be replaced.</li> </ul> <p>As defined in ASTM F-739-96 in any application, gloves are rated as:</p> <ul style="list-style-type: none"> <li>· Excellent when breakthrough time &gt; 480 min</li> <li>· Good when breakthrough time &gt; 20 min</li> <li>· Fair when breakthrough time &lt; 20 min</li> </ul>																				

	<ul style="list-style-type: none"> <li>· Poor when glove material degrades</li> </ul> <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> <li>· Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.</li> <li>· Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential</li> </ul> <p>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	No special equipment needed when handling small quantities. <b>OTHERWISE:</b> <ul style="list-style-type: none"> <li>▸ Overalls.</li> <li>▸ Barrier cream.</li> <li>▸ Eyewash unit.</li> </ul>

### Respiratory protection

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

<b>Appearance</b>	Brown Liquid		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	Not Available
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	7-7.2	<b>Decomposition temperature (°C)</b>	Not Available
<b>Melting point / freezing point (°C)</b>	-18	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	300	<b>Molecular weight (g/mol)</b>	Not Applicable
<b>Flash point (°C)</b>	290	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Applicable	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available
<b>Solubility in water</b>	Miscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available

## SECTION 10 Stability and reactivity

<b>Reactivity</b>	See section 7
<b>Chemical stability</b>	<ul style="list-style-type: none"> <li>▸ Unstable in the presence of incompatible materials.</li> <li>▸ Product is considered stable.</li> <li>▸ Hazardous polymerisation will not occur.</li> </ul>
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

## SECTION 11 Toxicological information

### Information on toxicological effects

## Epiroc Torqueless

Inhaled	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Eye	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

Epiroc Torqueless	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✗	Reproductivity	✗
Serious Eye Damage/Irritation	✗	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

Endpoint	Test Duration (hr)	Species	Value	Source
Epiroc Torqueless	Not Available	Not Available	Not Available	Not Available

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

**DO NOT** discharge into sewer or waterways.

## Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

## Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

## Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

## SECTION 13 Disposal considerations

## Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> <li>▶ <b>DO NOT</b> allow wash water from cleaning or process equipment to enter drains.</li> <li>▶ It may be necessary to collect all wash water for treatment before disposal.</li> <li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>▶ Where in doubt contact the responsible authority.</li> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Authority for disposal.</li> <li>▶ Bury or incinerate residue at an approved site.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul>
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## SECTION 14 Transport information

## Labels Required

Marine Pollutant	NO
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Continued...

**Land transport (TDG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code**

Product name	Group
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**Transport in bulk in accordance with the IGC Code**

Product name	Ship Type
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## SECTION 15 Regulatory information

### Safety, health and environmental regulations / legislation specific for the substance or mixture

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

### National Inventory Status

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	Not Available
Canada - DSL	Not Available
Canada - NDSL	Not Available
China - IECSC	Not Available
Europe - EINEC / ELINCS / NLP	Not Available
Japan - ENCS	Not Available
Korea - KECL	Not Available
New Zealand - NZIoC	Not Available
Philippines - PICCS	Not Available
USA - TSCA	Not Available
Mexico - INSQ	Not Available
Vietnam - NCI	Not Available
Russia - FBEPH	Not Available
<b>Legend:</b>	<i>Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.</i>

## SECTION 16 Other information

<b>Revision Date</b>	06/12/2021
<b>Initial Date</b>	06/12/2021

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average  
 PC - STEL: Permissible Concentration-Short Term Exposure Limit  
 IARC: International Agency for Research on Cancer  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 STEL: Short Term Exposure Limit  
 TEEL: Temporary Emergency Exposure Limit  
 IDLH: Immediately Dangerous to Life or Health Concentrations  
 ES: Exposure Standard  
 OSF: Odour Safety Factor  
 NOAEL :No Observed Adverse Effect Level  
 LOAEL: Lowest Observed Adverse Effect Level  
 TLV: Threshold Limit Value  
 LOD: Limit Of Detection  
 OTV: Odour Threshold Value  
 BCF: BioConcentration Factors  
 BEI: Biological Exposure Index  
 AIIIC: Australian Inventory of Industrial Chemicals  
 DSL: Domestic Substances List  
 NDSL: Non-Domestic Substances List  
 IECSC: Inventory of Existing Chemical Substance in China  
 EINECS: European Inventory of Existing Commercial chemical Substances

**Epiroc Torqueless**

ELINCS: European List of Notified Chemical Substances

NLP: No-Longer Polymers

ENCS: Existing and New Chemical Substances Inventory

KECI: Korea Existing Chemicals Inventory

NZIoC: New Zealand Inventory of Chemicals

PICCS: Philippine Inventory of Chemicals and Chemical Substances

TSCA: Toxic Substances Control Act

TCSI: Taiwan Chemical Substance Inventory

INSQ: Inventario Nacional de Sustancias Químicas

NCI: National Chemical Inventory

FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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TEL (+61 3) 9572 4700.