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Spill Contingency Plan

Izok Corridor Project
Nunavut, Canada

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Prepared by: Stantec Consulting Ltd.



Revisions

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1. Introduction

A Spill Contingency Plan outlines the methods for preventing and responding to spills and is a necessary part for any exploration activities to proceed responsibly. MMG Resources Inc. (MMG) is undertaking mineral exploration activities on their Izok Corridor Project (the Project) and has drafted the following Spill Contingency Plan (Plan) to support those activities. This Plan was compiled with MMG’s internal environmental policies and in close alignment with the Government of Nunavut’s (GN) Spill Contingency Planning and Reporting Regulations and the Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) Guidelines for Spill Contingency Planning.

A prior version of this Plan was in place for MMG’s past seasonal exploration programs from 2010 to 2014 wherein a pause in activities occurred. In 2015, MMG completed reclamation work on their two existing exploration camps located at High Lake and Ham (Izok) Lake camps before placing both on long term care and maintenance. In 2024, MMG renewed their mineral exploration activities and focus in Nunavut, necessitating an update to the Plan, which is documented herein.

This Plan applies to MMG’s Izok Corridor Project worksites and Project-related work camps and includes Izok Lake Camp and High Lake Camp, and any temporary fly camps operated by MMG, or contractors working on behalf of MMG, in the Kitikmeot Region of Nunavut.

It is MMG’s strict policy to comply with all existing laws and regulations to help ensure the protection of the environment. This includes working and cooperating with other relevant groups focused on protection of the environment to keep government officials, the public, contractors, and employees informed on our environmental practices.

This Plan is part of the induction process upon arrival in camp. Induction also includes instruction on how to properly handle and store fuel and other hazardous substances, the location of emergency equipment and where a graphical representation of the Plan is posted within the camp areas.

2. MMG’s Plan Purpose and Scope

The Plan provides for methods and strategies to prevent, and respond to, potential spill events at Project worksites. At the time of writing, this Plan applies to all MMG’s Izok Corridor Project worksites and Project-related work camps. Such work camps include those that are established (Izok Lake Camp and High Lake Camp), and those that are temporary/fly camps operated by MMG, or contractors working on behalf of MMG, in the Kitikmeot Region of Nunavut.

The plan takes into consideration the types of materials that will be utilized during the MMG’s operations and contemplates different environmental mediums they could impact (i.e. land, water, rivers, ice, and snow). The Plan also allocates specific methods for some identified hazardous materials and makes for designated precautions and actions in the event of a spill.

Roles and responsibilities of key response personnel responding to a spill are defined in the Plan as well as the procedures required that will avoid or minimize potential health and safety hazards, environmental damage and remediation costs.

The objectives of the Plan are to:

- Define the reporting procedures and communication network to be used in the event of a system failure or material spill.
- Define procedures for the safe and effective containment and clean-up/disposal of a system failure or material spill.
- Define specific individuals and their responsibilities with respect to responding to a spill.



3. MMG’s Plan Management

This Plan will be reviewed on an annual basis and updated and revised as needed to reflect changes to the Project’s activities and scope, terms and requirements of Project permits, authorizations and community and regulatory engagement outcomes.

4. MMG’s Environmental Policy

MMG aims for a high standard of care for the natural environment in all of its exploration activities and to minimize impact on the environment.

To achieve this, MMG will:

- Conduct operations in compliance with all relevant environmental legislation, licenses and permits as a minimum condition.
- Identify, continuously monitor and manage environmental risks arising from operations.
- Continuously improve environmental performance, production processes, waste management and the use of resources.
- Provide relevant training and awareness for all employees and contractors on environmental matters and how to maintain and protect the local environment.
- Communicate and follow up regularly with employees and contractors regarding individual responsibilities.

4.1 Training in Spill Response and Environmental Policy

Training in the contents of this Plan, spill response, and MMG’s environmental policy will occur for all persons working at a Project worksite. If not completed in a separate training session, it will be included in a project induction. Additionally, all individuals working on the Project, at the Project worksite, will have valid basic first aid and Workplace Hazardous Materials and Information System (WHMIS) prior to arrival. Any persons that will be handling dangerous goods will also hold a valid Transportation of Dangerous Goods certificate.

Training will also include exercises that will cover the proper use of spill kits, and hands-on training with the contents of the kits. Knowledge of not just the Plan, but the contents of spill kits, and when and where they are used, is vital for effective execution of the Plan, should a spill occur. Such training exercises will be held during the project induction, at a stand-alone training session or at another time for individuals directly involved with handling of hazardous materials.

Once a person has been trained, they will be knowledgeable of the following aspects of spill response:

- Individuals’ roles and responsibilities in regard to spill prevention, detection, response and clean-up.
- Location(s) of hard copies of the Plan, Safety Data Sheets (SDS) of all materials on site, site maps and spill kits.
- Equipment available for spill response and proper Personal Protective Equipment (PPE).
- Content of the spill kits.
- Initial actions and spill reporting procedures.
- Spill response and clean-up actions.
- Completed mock simulated exercises.



5. Site Description

MMG’s Izok Corridor Project is located within the western portion of the Kitikmeot Region of Nunavut. To execute mineral exploration activities on the Project, two established work sites (camps) will be primarily used. At times, there may be the need to use small temporary fly camps.

5.1 Izok Lake Camp

Izok Lake Camp is located approximately 260 km southeast of Kugluktuk, NU. The Camp was placed in care and maintenance from 2015 until July of 2025. During June 2025, the camp underwent a process of recommissioning in anticipation of supporting mineral exploration activities on MMG’s existing mineral leases and mineral claims within the CIRNAC LUP and Water licence boundary areas for the latter part of 2025. While camp occupancy levels will vary depending on the specific exploration program activities, the maximum camp capacity is 40 people. Izok Lake Camp is accessed by fixed-wing aircraft, using the 1,000 m gravel airstrip located approximately one kilometer from camp.

Fuel and propane are transported to site as needed on re-supply flights throughout the season, landing on the gravel airstrip before being transported by helicopter to fuel caches at camp.

Following is a list of the main components currently (at the time of writing) at Izok Lake Camp.

Table 1. Izok Lake Camp Infrastructure

Quantity	Description
9	14 X 16 Four-person accommodation tent (Weather haven style)
1	24 X 68 Dorm style accommodation tent (sleeps 15 and medic station)
1	24 X 32 Large Office Building
1	24 X 48 Large Dinning / kitchen
1	Large truck shop
1	16 X 20 ski-doo storage building
3	Helicopter pads
1	8 X 20 Shipping container gen shack
5	10,000 Litre Baulk fuel storage tanks (3 new & 2 Older)
1	Recreation room
1	12 X 20 Storage room
1	12 X 20 Core logging facility
1	14 X 16 Woman's Dry
1	16 X 24 Men's Dry/ Water room
1	16 X 40 Drillers Dry
13	Travco trailer units
1	Diesel fired incinerator



Spill Contingency Plan – Izok Corridor Project

Table 2. Izok Lake Camp Equipment

Unit Name	Description	Year	Serial #	Make	Model
Main Camp Gen#1	Electricity Generator	2005	46565913	Cummins	6CTA8.3-G2
Main Camp Gen#2	Electricity Generator	2005	46520657	Cummins	6CTA8.3-G2
Loader #1	Wheel Loader	2007	KMTWA056J57A79255	Komatsu	WA-250PT-5L
Bobcat #1	Skidsteer	2007	*531616486	Bobcat	T-190 Track
Truck Unit # 2	Pick up truck	2008	1FTWW31R88EC86105	Ford	F-350
Truck Unit # 1	Pick up truck	2008	1FTWW31R88EC86104	Ford	F-350
Zoom Boom #1	Telehandler	1999	567675	JCB	525-67
Loader #2	Wheel Loader	1976	6K7400-2955	Caterpillar	930
Grader #1	Grader	1994	87V09881	Caterpillar	120G
Grader #2	Grader	1988	740-23-118-13554	Champion	740
Frost Fighter #1	Diesel fired heater 320,000 BTU		7031323	ICE	OHV-350-II
Frost Fighter #2	Diesel fired heater 500,000 BTU		7120575	ICE	IDF-500
Bowzer #1	Bulk fuel trailer			Honda	GX120
Arctic Cat	Snowmobile	2008	4UF08SNW48T118217	Arctic Cat	T-570
Ski-doo#1 (Unit13)	Snowmobile	2008	2BPSKA8A18V000491	Ski-doo (BRP)	Expedition
Ski-doo#2 (Unit13)	Snowmobile	2008		Ski-doo (BRP)	Expedition
Caterpillar Dozer	Bull Dozer	~1981		Caterpillar	D-6
Brown Ford	Pick up truck	1992	2FTJW36M2NCA50395	Ford	F-350

Table 3. Izok Lake Camp Fuel Storage

Type	Max Quantity	Description
Bulk Fuel	5	11,000 L double-walled portable fuel tanks – currently 100% empty
Drummed Fuel	200	Any drummed fuel is stacked at a maximum of 3 high and located in secondary containment and sorted based on type (diesel, gasoline and jet fuel) Currently has 15 diesel, 48 Jet.
Propane	-	Currently 6 new 100 lb propane on site



5.2 High Lake Camp

High Lake Camp is located approximately 50 km south of Grays Bay, NU and is currently in care and maintenance since 2015. At the time of writing, MMG has proposed plans to recommission the camp during the spring of 2026. Like Izok Lake Camp, High Lake Camp occupancy will vary from year to year depending on the planned exploration activities. The maximum occupancy of this camp is 40 people. The High Lake Camp is accessed in the summer by fixed-wing aircraft on floats or vis Hercules aircraft in the winter landing on Iznogoughd Lake frozen surface. A helicopter is normally stationed on site during camp occupancy.

Fuel and propane will be transported to site seasonally via Hercules aircraft.

Following is a list of the main components currently (at the time of writing) at High Lake Camp.

Table 4. High Lake Camp Infrastructure

Quantity	Description
1	Plywood construction Kitchen, mess, dry combo facility
1	Plywood construction pacto (Toilet) facility
1	Plywood construction Camp manager office
1	Plywood construction Geo Office building
1	Plywood construction recreation / enviro building
1	Plywood construction repair shop
4	Plywood construction storage buildings

Table 5. High Lake Camp Equipment

Quantity	Description
1	Diesel fired incinerator
2	Diesel generator – 60 kW
1	D6 Caterpillar Dozer

Table 6. High Lake Camp Fuel Storage

Type	Max Quantity	Description
Bulk Fuel	-	No bulk fuel tanks on site.
Drummed Fuel	800	Any drummed fuel is stacked at a maximum of 3 high and located in secondary containment and sorted based on type (diesel, gasoline and jet fuel)
Propane	30	ALL 100 lb propane tanks stored in an area designated away from camp infrastructure Currently on site has 8 old propane tanks



5.3 Fly Camps

Small temporary fly camps may also be used periodically to support limited remote seasonal exploration activities. Should a temporary fly camp need to be established, it will be located on well drained ground near areas of mineral exploration interest. These camps would utilize tent-based infrastructure to minimize footprint and disturbance and allow for quick set up and removal. A maximum capacity for such fly camps is 10 people.

5.4 Storage

Fuel at all sites is stored in 205L drums that are securely stacked no more than 3 high in secondary containment berms and may include diesel, aviation fuel, gasoline and propane. Bungs are positioned to allow inspection of the drums and to avoid leakage. The fuel caches allow for the storage of up to 800 drums on site.

Propane is stored in 100lb cylinders within a designated area away from camp. Cylinders are secured to prevent accidental tipping. The total number of cylinders stored at any one site will not exceed 30.

Each tent contains a drum of fuel supported on wooden crib to fuel tent heaters. A plastic spill container is placed below each drum with absorbent matting fixed around each bung/fuel supply assembly.

All other chemicals are securely stored in the camp area, primarily within the drill foreman’s work area.

Material and waste that does not contain hazardous material and is not harmful to the environment, including drill and core cutting waste, greywater and blackwater will be disposed of as per the Waste Management Plan. The Waste Management Plan will also outline waste that will be incinerated, or open air burnt, or backhauled to Yellowknife, NT for disposal at an approved waste management facility.

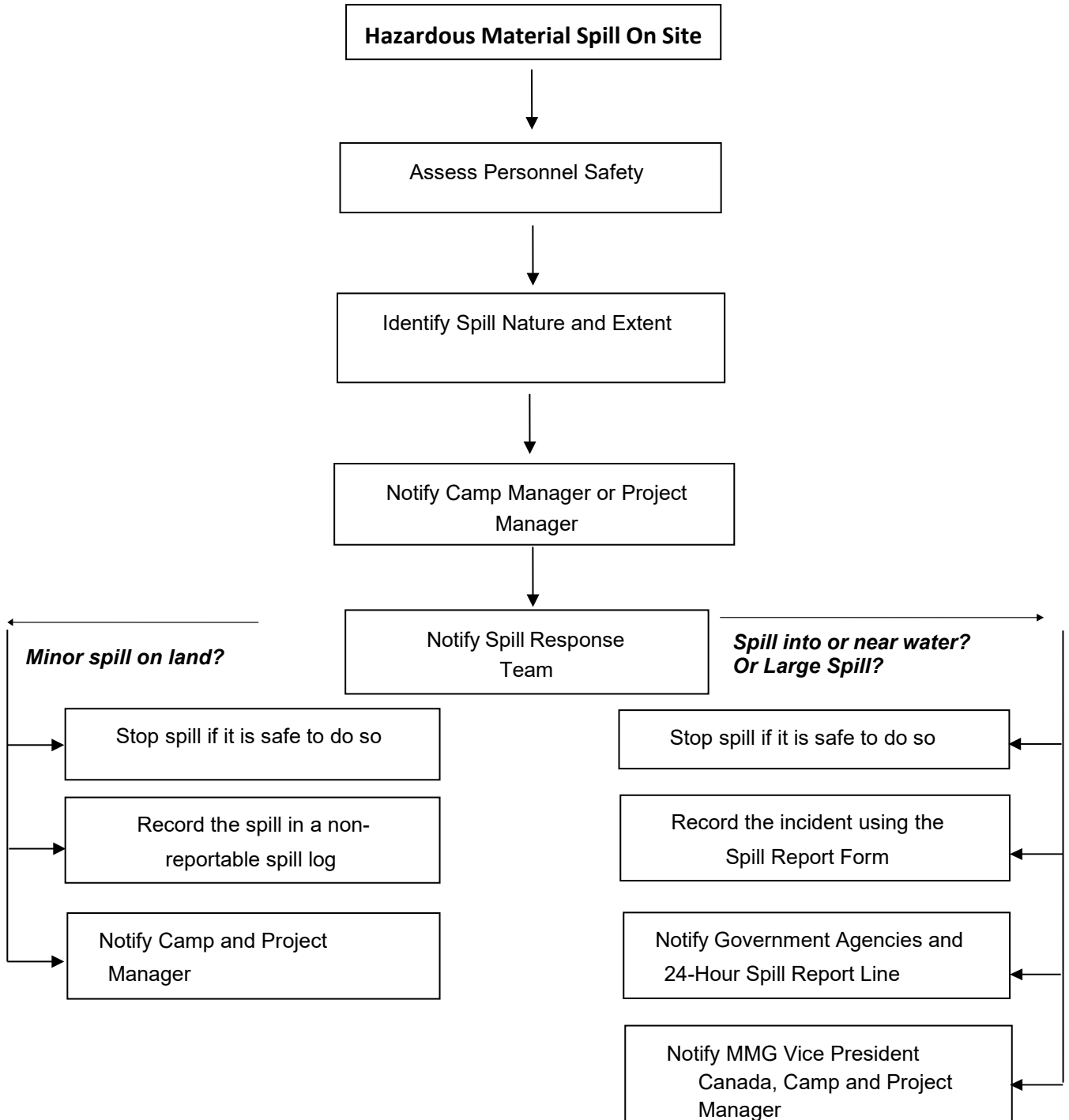
6. Key Personnel Contact Information

The following list of people and organizations are the key contacts for the Project.

Role/Organization	Name/Company	Contact Information
MMG Vice President Canada	Cathy Knight	(604) 218-1921
Camp Manager	Akokli Construction	(250) 977-5264
Project/Field Manager	Aurora Geosciences	(867) 920-2729
Kitikmeot Inuit Association	Cory Barker	(867) 983-2458
Nunavut Water Board	Richard Dwyer	(867) 360-6338 (867) 360-6369 (fax)
24-Hour Spill Report Line	Government of Nunavut	(867)-920-8130 (phone) (867)-873-6924 (fax) spills@gov.nt.ca (email)
Government of Canada – Department of Environment and Natural Resources, Government of the Northwest Territories		(867) 920-8130
Resource Management/Water Resource Officer CIRNAC – Kitikmeot Region	Isaiah James Bolt	(867) 982-4306 (343) 597-9472
WSCC 24-Hour Incident Reporting Line		1-800-661-0792
Kugluktuk Health Centre		(867) 982-4531
Kugluktuk RCMP	Emergency line Non-emergency	(867) 982-1111 (867) 982-0123

7. Spill Response Flow Chart

The following is a flow chart to illustrate the sequence of events if a hazardous material spill occurs in the Izok Corridor Project area.





8. Spill Response Team

All MMG personnel on a Project work site will be informed of the contents of the Spill Contingency Plan and trained in the safe use of relevant spill prevention and clean up equipment. The Camp Manager or Project Manager will appoint and train two people to be the Spill Response Team. They will also be responsible to carry out the daily inspections of the fuel storage areas and equipment. Personnel on site will be limited, so for any large spill more people will be brought in to help, from surrounding exploration operations and from Yellowknife.

Spill Response Team Responsibilities

- Perform weekly formal inspections and daily informal maintenance at the fuel and chemical storage areas and fuel hoses.
- Report any spill to the Project Manager, Camp Manager or designate.
- Containment of spills and site remediation.

Field Managers Responsibilities

- Assume complete authority over the spill scene and coordinate all personnel involved.
- Evaluate spill situation and develop overall plan of action.
- Activate the Spill Contingency Plan
- For spills that meet Reportable Spill Volumes (Appendix A)
 - Immediately report the spill to the 24-Hour Spill Report Line and regulatory agencies.
 - Fill out the Spill Report Form
 - Report the spill to the MMG Vice President Canada.
- If required, obtain additional manpower, equipment, and material if not available on site for spill response.

MMG Vice President Canada Responsibilities

- Provide regulatory agencies and MMG management with information regarding the spill and status of the clean-up activities.
- Prepare and submit a report on the spill incident to regulatory agencies within 30 days of the event.

9. Spill Prevention

The first line of defence against spills is spill prevention. All efforts to avoid spills will be made by prioritizing controls and preventative measures such as:

- Equipment maintenance, servicing and vehicle refueling is conducted in designated areas. Containment procedures are in place to manage motor fluids and other potential spills.
- Refueling of equipment occurs at a minimum of 31 m away from the high-water mark of any water body.
- All secondary containment is sized to be 110% the volume of the largest tank it is to contain, or 100% of the largest tank plus 10% of the aggregate capacity of the stored tanks, whichever is greater.



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- Fuel is stored in designated and marked fuel storage facilities. Flags, posts, or similar is used so that the facility is always visible.
- Spill kits are located wherever fuel is stored and/or handled.
- Inspections of all fuel storage containers for leaks and damage is conducted at least once every 7 days during operations and recorded, including any corrective actions.
- Regular maintenance and oil checks on all motorized equipment is undertaken.
- All outlets of fuel storage containers are sealed except those actively in use.
- All fuel storage containers are clearly marked belonging to MMG with the appropriate Land Use Permit number posted on a sign at the fuel storage cache.
- All fuel storage containers will be flagged and contained in covered secondary containment during the winter months or when daily monitoring is not possible.
- All chemical storage containers are marked and separated for storage to limit incompatibility of different chemicals.

9.1 Spill of Fuel on Land

To prevent a spill of fuel on land, the following preventative steps will occur:

- Steel drums will be stored in such a manner that they will not be susceptible to tipping over, rolling or otherwise being unstable.
- Care will be exercised so that nothing can cause damage to steel fuel drums by falling or rolling onto or into them.
- When unloading steel fuel drums from aircraft, the use of a ramp or a cushion (automotive tire) will ensure that the drums are not damaged.

9.2 Leak of Fuel from Reservoir and Distribution Lines

To prevent a leak from a fuel reservoir and distribution lines, stability of all reservoir and distribution assemblies is of utmost importance. To achieve this, the following preventative steps will occur:

- All stands for reservoir will be constructed to strength standards beyond those required.
- Distribution lines from reservoirs to appliances will be fitted with an appropriate shut-off valve immediately downstream from the reservoir.
- The distribution lines will be installed in such a way to prevent being chafed in the wind, chewed on by animals or tripped on by humans. To accomplish this, lines will be secured to rigid structures, encased in armour or another effective manner.

9.3 Spill of Fuel on Water

To prevent a spill of fuel on water, or entering water, the following actions will occur:

- All fuel will be stored at least 31 m away from the closest ordinary high-water mark of the closest water body.
- Should float planes need refuelling at site, a high amount of care will be taken. This will include the following:
 - Fuel will only be brought down to the dock when fuelling is imminent.



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- Partially used drums will be removed from the dock immediately upon completion of fuelling and stored with the empty drums until sent off site for reuse or waste disposal.
- Absorbent pads will be used both around the rim of the fuel drum and the rim of the aircraft's fuel tank to ensure that any overflow does not enter the body of water.
- Any spill into a water body, regardless of volume, will be reported immediately.

9.4 Release of Propane

To prevent a release of propane, the following actions will occur:

- Propane will be stored in appropriate, certified containers.
- Propane containers will be inspected and monitored on a regular basis for any signs of deterioration or corrosion.
- Containers will be secured and fastened in an upright position to ensure there is no danger of tipping and eliminating the risk of damage to the regulator in the event of a fall.

9.5 Spill of Battery Acid

To prevent a spill of batter acid, the following actions will occur:

- All batteries will be protected from damage by fastening them into the space designed for them when in use and stored safely when not in use.
- Batteries will be transported in appropriate containers as stipulated under the dangerous goods requirements.
- Batteries that no longer hold a charge will be flown out and disposed of in the appropriate facilities.

10. Spill Response Initial Action

The instructions below are to be followed by the first person on the spill scene.

1. Prioritize your safety and the safety of your coworkers first.
2. Assess the situation, including the presence of any hazards.
3. Remove all sources of ignition, if safe to do so.
4. If substance has been identified and if possible and safe to do so, try to stop the flow of material.
 - Ensure you are using appropriate PPE.
 - If filling is in progress, stop it at once.
 - If seeping through a small hole, use a patch kit if practical to do so.
 - If necessary and practical, pump the fuel from the leaking container into a refuge container.
5. Immediately report the spill to the Camp Manager and Spill Response Team by radio, satellite phone or in person.
6. Resume any effective action to contain, mitigate, or terminate the flow of the spilled material.
7. Consult Safety Data Sheets (SDS) for exposure risk (Appendix D – SDS INFORMATION).



11. Spill Reporting

The person who notices the spill must immediately notify the Camp Manager. Should the spill meet the Reportable Spill Volume requirements (Appendix A – REPORTABLE SPILL VOLUMES), or if the release occurs in near or into a water body, the spill must be immediately reported to:

- The 24-Hour Spill Report Line Phone (867) 920-8130; and
- The Land Use Inspector at (867) 975-4295
- The Camp Manager must complete and submit the NT/NU Spill Report Form (Appendix B – SPILL REPORT FORM)

No later than thirty (30) days after initially reporting the spill event, a detailed follow-up report must be submitted including the amount and type of spilled product, the GPS location of the spill and the measures taken to contain and clean up the spill.

12. Spill Kit Inventory

A spill kit with a capacity of 240 L will be located at any bulk fuel tank or drummed fuel cashe area and will contain the following:

- 1 – 360 litre/79 gallon polyethylene drum
- 4 – oil absorbent booms (5" X 10')
- 100 – oil absorbent sheets (16.5" X 20" X 3/8")
- 1 – drain cover (36" X 36" X 1/16")
- 1 – Caution tape (3" X 500')
- 1 – 1 lb plugging compound
- 2 – pair Nitrile gloves
- 2 – pair Safety goggles 2 – pair Tyvek coveralls 1 – instruction booklet
- 10 – printed disposable bags (24" X 48") 1- shovel (in remote spill kit only)
- 1- plastic tarp

A spill kits with a capacity of 25 L will be located at each drill site and will contain the following:

- 10 - Pads (17"x19"x2/8")
- 3 -Socks (3"x4')
- 1 -Pair of Gloves
- 1 -Disposal Bags
- 1 -Warning Sign
- 1 -Literature (Inventory List, MSDS, Instructions)



In addition to the above spill kits, shovels, water pumps, plastic pails, garbage bags, extra absorbent pads, and drip pans will be available at the camps office and kitchen. Fire extinguishers are available throughout the camp facility.

13. Hazardous Material Inventory

This following section lists health hazards, spill procedure and disposal procedures for each hazardous material at the Project sites. Detailed information can be found in specific material Safety Data Sheets (SDS).

13.1 Diesel Fuel, Jet-B, Gasoline Highly Flammable

13.1.1 General Precautions

- Do not smoke near by.
- Material can be easily ignited by heat, sparks or flames.
- Gasoline and Jet-B fuel are more volatile than diesel fuel.
- Each material is an explosion hazard indoors, in confined spaces and outdoors.
- Vapours may form explosive mixtures with air.
- Vapours may travel to source of ignition and flash back.
- Most vapours are heavier than air and will spread along ground and collect in low or confined areas.
- Keep pump or electrical equipment far away and be very careful with metallic tools that could create sparks.
- Inhalation may cause central nervous effects.
- Aspiration into lungs may cause pneumonitis which can be fatal.
- Eye and skin irritation can occur if in contact.
- Prolonged exposure has caused cancers in laboratory animals.

13.1.2 Response to Spill on Land

- Build a containment berm downslope using peat moss, soil material, or bags filled with sand or rocks and place a plastic tarp at the foot of the berm to pool the spill. Spill can be pumped if in a large amount.
- Soak up spilled substance by using absorbent pads.
- Excavate the surface soil if necessary. If large excavation is needed, first contact regulatory agencies for approval.
- Remove spill substance splashed on vegetation by applying a thin dusting of Spag-zorb or other ultra-dry absorbent.
- Dispose hydrocarbons, absorbent pad, contaminated soil and cleaning material in an empty drum, seal it and label it.
- On marshy zones, don't destroy vegetal cover, limit personnel and equipment. Remove pooled oil with absorbent pads and/or skimmer.
- Record actions taken to clean up the spill, including names of personal, locations, times, and photographs. Documents will be made available to an Inspector upon request.



13.1.3 Response to Spill on Water

- Contain spill as close to release point as possible.
- On small spill, deploy hydrophobic absorbent pads.
- On larger spill and weather conditions permitting, use containment boom to limit fuel dispersion. Use a skimmer, pump or hydrophobic absorbent pads to remove fuel inside the boom.
- Dispose hydrocarbons, absorbent pad, contaminated soil and cleaning material in an empty drum, seal it and label it.
- Record actions taken to clean up the spill, including names of personal, locations, times, and photographs. Documents will be made available to an Inspector upon request.

13.1.4 Response to Spill on Rivers and Streams

- Prevent entry into water, if possible, by building a berm or trench.
- Intercept moving slicks in quiet areas using (absorbent) booms.
- Do not use absorbent booms/pads in fast currents and turbulent water.
- Record actions taken to clean up the spill, including names of personal, locations, times, and photographs. Documents will be made available to an Inspector upon request.

13.1.5 Response to Spill on Ice and Snow

- Build a containment berm of compacted snow around spill.
- If hydrocarbons are pooling on ice, pump large amount or use hydrophobic absorbent pads.
- Don't delay removing the spill as hydrocarbons could seep through cracks into the water.
- Scrape ice, shovel all contaminated snow in plastic buckets with lids or in drums. Dispose absorbent pads and other contaminated equipment in separated containers. Label and seal the containers.
- Record actions taken to clean up the spill, including names of personal, locations, times, and photographs. Documents will be made available to an Inspector upon request.

13.2 Propane Extremely Flammable

13.2.1 General Precautions

- Do not smoke near propane.
- Propane cylinders may explode when heated.
- Propane cylinders may rocket if ruptured.
- Propane can be easily ignited by heat, sparks or flames.
- Propane is an explosion hazard indoors, in confined spaces and outdoors.
- Vapours may form explosive mixtures with air.



- Vapours may travel to source of ignition and flash back.
- Vapours from liquefied gas are initially heavier than air and spread along ground.
- Contact with propane gas or liquefied gas may cause burns, severe injuries and/or frostbite.
- Keep pump or electrical equipment far away from propane cylinders and be very careful with metallic tools that could spark.
- Liquid propane may cause frostbites and blisters if in contact with skin.
- Blurred vision can result if propane goes in the eyes.
- Inhalation of propane can cause narcotic asphyxiation.
- Dizziness, disorientation, excitation, headache, vomiting, and unconsciousness can occur if propane is inhaled.

13.2.2 Response to Spill on Land, Water, Ice and Snow

- Eliminate all sources of ignition.
- Do not attempt to contain the propane release if not absolutely sure on what to do.
- Do not touch or walk through spilled propane material.
- Stop leak if can be done without risk to personal safety. If there is an active leak, cryogenic gloves are required.
- Water spray can be used to knock down vapours but don't direct water at spill or source of leak.
- If or when possible, confine spill by roping it off or clearly mark the spill to alert others.
- Small fire can be extinguished with dry chemical or CO₂ extinguisher.
- Dispose contaminated materials in a labelled drum.
- Record actions taken to clean up the spill, including names of personal, locations, times, and photographs. Documents will be made available to an Inspector upon request.

13.3 Motor Oil, Hydraulic Oil, Transmission Fluid

13.3.1 General Precautions

- Avoid breathing in fumes or mists as it may cause lung irritation.
- If material gets on skin, it may cause mild irritation. Consult specific SDS (Appendix D – SDS INFORMATION) for treatment and removal.
- Keep chemical substance types separated to limit incompatible potential mixing.

13.3.2 Response to Spill Action

- Soak up the spill with absorbent material.
- Dispose of old contaminated soil or snow in sealed and labelled container.



Spill Contingency Plan – Izok Corridor Project

- A small amount can be incinerated.
- A large amount must be disposed as hazardous waste.
- Record actions taken to clean up the spill, including names of personnel, locations, times, and photographs. Documents will be made available to an Inspector upon request.

13.4 Antifreeze

13.4.1 General Precautions

- Respiratory irritation can occur with prolonged exposure to vapours.
- Kidney, liver and bladder problems have been reported in animals if ingested.

13.4.2 Response to Spill on Land

- Soak up the spill by using absorbent pads.
- Dispose antifreeze, absorbent pad, contaminated soil and cleaning material in an empty drum, seal it and label it.
- On marshy zones, don't destroy vegetal cover, limit personnel and equipment. If possible, remove pooled antifreeze with absorbent pads.

13.4.3 Response to Spill on Rivers and Streams

- If possible, prevent entry into water by building a berm or trench.
- Use absorbent pads to sop up material from water.
- Dispose absorbent pads and other contaminated equipment in separated containers. Label and seal the containers.
- Record actions taken to clean up the spill, include names of personnel, locations, times, and photographs. This documented material is to be made available to an Inspector upon request.

13.4.4 Response to Spill on Ice and Snow

- Build a containment berm of compacted snow around spill.
- If pooling on ice, pump large amount or use absorbent pads.
- Don't delay removing the spill as it can seep through cracks into the water.
- Scrape ice, shovel all contaminated snow into plastic buckets with lids or in drums.
- Dispose absorbent pads and other contaminated equipment in separated containers. Label and seal the containers.
- Record actions taken to clean up the spill, include names of personnel, locations, times, and photographs. This documented material is to be made available to an Inspector upon request.



13.5 Battery Acid

13.5.1 General Precautions

- Battery acid poses a fire and explosion hazard.
- If a fire has started from battery acid, it can be extinguished with a dry chemical fire extinguisher.
- Ventilate the area where the battery acid has been spilled.
- Remove combustible materials from the spilled area.
- Mist inhalation is a hazard when a battery is being charged or when battery acid has spilled.
- Acid burns will result if in contact with skin and cause severe irritation to eyes.

13.5.2 Response to Spill

- Locate an eye wash station and bring it to the area if one is not already nearby.
- Gather the following necessary PPE to handle a battery acid spill: chemical resistant gloves (nitrile, neoprene, or butyl rubber), chemical resistant apron or suit, chemical splash goggles, shoe covers (neoprene, rubber, or PVC), respiratory protection and/or face shield.
- Use baking soda or lime to neutralize the battery acid spill.
- Dispose of battery and neutralized contaminated material in a sealed and labeled container.
- Dispose as a hazardous waste.
- Record actions taken to clean up the spill, include names of personnel, locations, times, and photographs. This documented material is to be made available to an Inspector upon request.

13.6 Poly-Drill DR-133

13.6.1 General Precautions

- May cause skin and eye irritation.

13.6.2 Response to Spill

- Soak up the spill with an absorbent pad.
- Dispose of any residue, contaminated soil and material in labeled containers.
- Solidify the area with sand.
- A small amount can be incinerated, otherwise dispose as hazardous waste.
- Record actions taken to clean up the spill, include names of personnel, locations, times, and photographs. This documented material is to be made available to an Inspector upon request.



13.7 550-X Polymer

13.7.1 General Precautions

- Prolonged skin contact may cause irritation.
- Could cause possible eye irritation.
- Ingestion may cause nausea, vomiting, cramps, and diarrhea.

13.7.2 Response to Spill

- Clean up the spill with gloves.
- Scrape soil or surface and disposed in labelled containers.
- Dispose as hazardous waste.
- Record actions taken to clean up the spill, include names of personal, locations, times, and photographs. This documented material is to be made available to an Inspector upon request.



Appendix A: Reportable Spill Volumes

Item #	TDG Class	Description	Reportable Amount
1	1	Explosives	Any amount
2	2.1	Compressed Gas (Flammable)	Any amount of gas from containers with a capacity greater than 100 L
3	2.2	Compressed Gas (Non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100 L
4	2.3	Compressed Gas (Toxic)	Any amount
5	2.4	Compressed Gas (Corrosive)	Any amount
6	3.1, 3.2, 3.3	Flammable Liquid	100 L
7	4.1	Flammable Solid	25 kg
8	4.2	Spontaneously Combustible Solids	25 kg
9	4.3	Water Reactant Solids	25 kg
10	5.1	Oxidizing Substances	50 L or 50 kg
11	5.2	Organic Peroxides	1 L or 1 kg
12	6.1	Poisonous Substances	5 L or 5 kg
13	6.2	Infectious Substances	Any amount
14	7	Radioactive	Any amount
15	8	Corrosive Substances	5L or 5 kg
16	9.1 (in part)	Miscellaneous Products or Substances, Excluding PCB Mixtures	50 L or 50 kg
17	9.2	Environmentally Hazardous	1 L or 1 kg
18	9.3	Dangerous Wastes	5 L or 5 kg
19	9.1 (in part)	PCB Mixtures of 5 or more ppm	0.5 L or 0.5 kg
20	None	Other Contaminants	100 L or 100 kg

Taken from Schedule B of the *Spill Contingency Planning and Reporting Regulations* that outlines the minimum reportable quantities by type of contaminant, required under the *Environmental Protection Act* in the Nunavut and Northwest Territories.



Appendix B: Spill Report Form



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

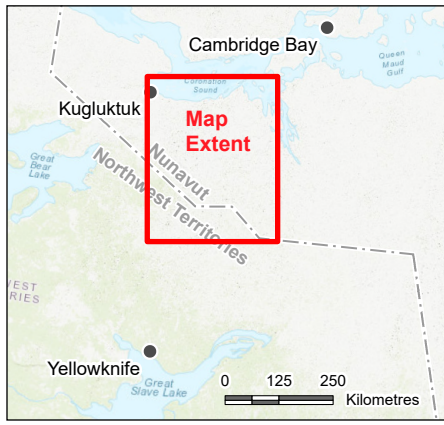
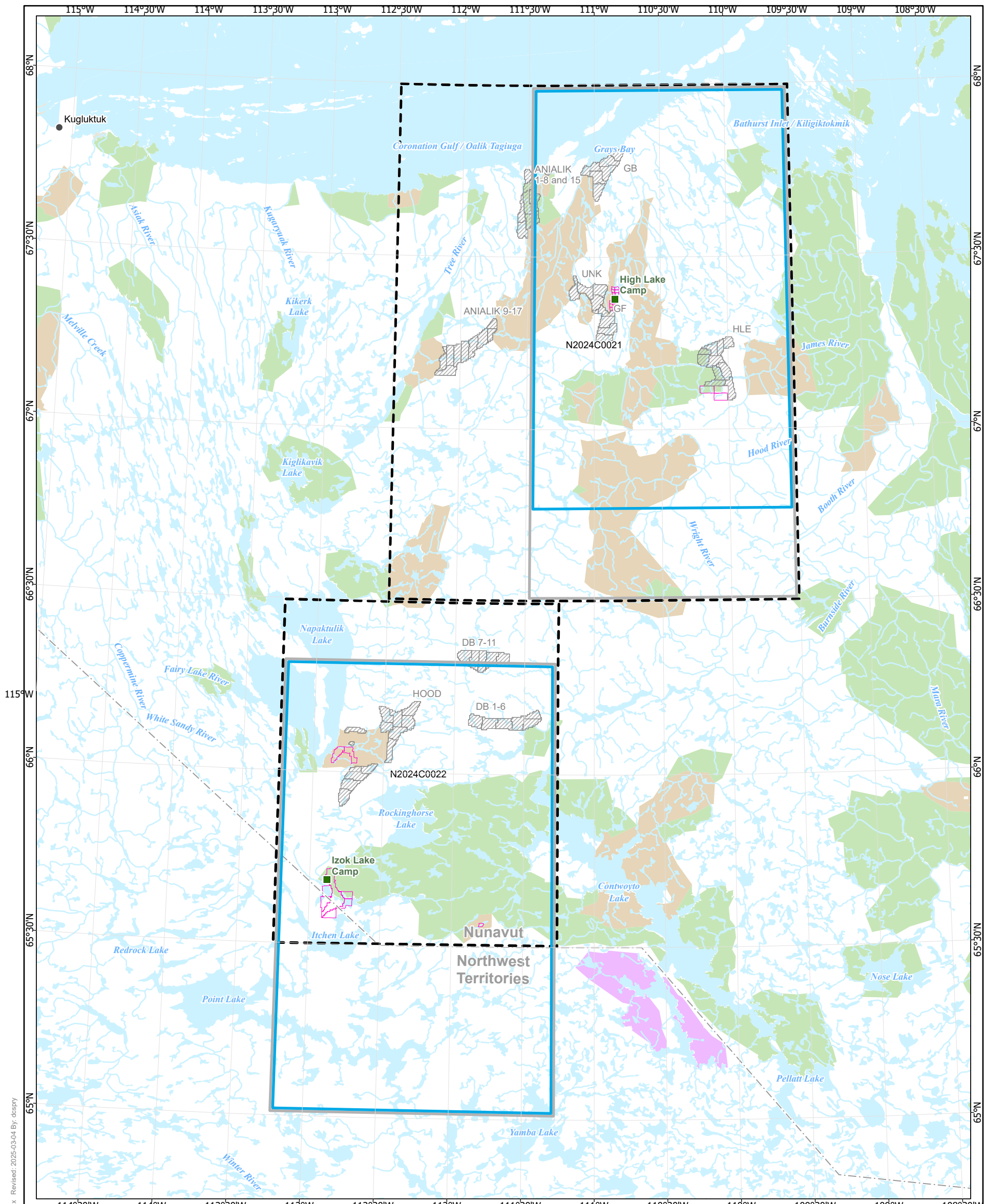
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

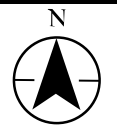
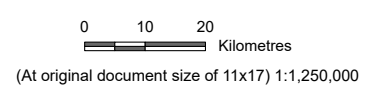
A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____
	B		OCCURRENCE DATE: MONTH – DAY – YEAR			
C	LAND USE PERMIT NUMBER (IF APPLICABLE)			WATER LICENCE NUMBER (IF APPLICABLE)		
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
REPORT LINE USE ONLY						
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						



Appendix C: Project Figures



- Camp
- Proposed Land Use Permit and Water Licence Extent
- Current Land Use Permit Extent
- Current Water License Extent
- CIRNAC Mining Claim
- CIRNAC Mineral Lease
- Community
- Territorial Boundary
- Watercourse
- Inuit Owned Land**
- Article 41
- Municipal
- Subsurface
- Surface Only
- Waterbody



Project Location: West Kitikmeot Region, Nunavut Northwest Territories
 Prepared by DSPRY on 2024-12-04 TR by JDAGDICK on 2024-12-04
 Client/Project: 123221786_001

Izok Corridor Project
 MMG Resources Inc

Figure No.
1

Title
MMG Overview

ICA0002-PPFSS05GEOIMATCS\Clients\MMG\MMG_Nunavut_Exploration\Figures\123221786_001_Overview.aspx Revised: 2025-03-04 By: despy

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.



Appendix D: SDS Information

A complete set of SDS information is kept in hardcopy on site.



IZOK SDS INVENTORY

ITEM	SIZE	QUANTITY
Power Steering Fluid	1L	5
True Valve Weather All Gloss Finish		4
Synthetic Diesel Engine Oil 15w40	20L	4
Mobil Delvac HDEO 15w40		3
Jerry Cans w/ Gas	20L	4
Antifreeze extended life	20L	1
RV Plumbing Antifreeze	20L	2
WD40	311g	32
WD40	342g	5
Starting Fluid KLEEN FLO		19
Moto Master Quick Start		2
Gas Line Anti Freeze KLEEN FLO		2
Master Metallic pipe thread sealant	850g	2
Permatex Pipe Joint Compound	473g	1
Opti 2 Engine Lube	473ml	1
Plastic Steel Putty	1lb	1
Hydraulic Oil Chevron AW ISO 32		2
AMC Linseed Oil	20kg	8
Motosel Synthetic HD 15w40		1
Traxon	80w90	1
Klondike Hydraulic Fluid		1
Chain Oil	3.78L	1
Precision XL EP1 grease tubes	400g	27
Engine Degreaser		1
Jet Lube Anti Sieze compound	225ml	2
Electro Aid rust and corrosion protector		4
UBS AEROSOL		3
Dry Graphite Lube		2
Tech Fast Dry Chemical vulcanizing fluid	8oz	6
Butane fuel	8oz	4
Primus power gas	7,8oz	2
Rotella T HDEO	18.9L	1
Komatsu Genuine Oil 15w40		1
Murphy's Tire and Tube mount	25lbs	1

April 8, 2025

Crown Indigenous Relations and Northern Affairs
 PO Box 2200
 Iqaluit, NU
 X0A 0H0
 Phone: 867-975-4500
 Fax: 867-975-4560

Dear Tracey McCaie;

Re: Notifications as per Land Use Permit N2024C0021 – High Lake

Acting on behalf of MMG Resources Inc., and pursuant to their Land Use Permit (LUP) N2024C0021 – High Lake, Aurora Geosciences Ltd. (Aurora) would like to inform you of their upcoming exploration program on their High Lake property that will include diamond drilling and geophysics.

As per Condition 43 in the LUP, Aurora would like to make you aware of the additives that will be used in connection with the drilling aspect of the land use operation planned to start on, or about, April 19th, 2025. As requested, our drill contractor (Northtech Drilling Ltd.) has informed us the materials listed in Table 1 will be onsite for use to ensure an efficient and effective drilling operation.

Table 1. List of Drilling Additives for 2025 MMG Exploration Program

Manufacturer	Material Name	Material Type	Date of SDS
AMC	133X	Additive	March, 2023
AMC	CR 650	Additive	February, 2023
AMC	Purevis	Additive	March, 2023
AMC	Rod Grease	Lubricant	March, 2023
Panther Industries Inc.	Anhydrous Calcium Chloride 94% - 97% Mini-Pellets	Additive	February, 2023
Canadian Drilling Fluids Inc.	Flock Block A	Flocculant Agent	July, 2023
Canadian Drilling Fluids Inc.	NC Mud	Additive	April, 2023

Attached to this letter are copies of the most recent revisions of the Safety Data Sheets (SDS) currently on file.

I trust the foregoing is satisfactory to satisfy the notification requirement in the LUP and that you have the information required to make a timely assessment regarding these commonly used drilling materials and their use on the upcoming program. Should you have any questions or concerns please do not hesitate to be in touch.

Sincerely,



Eileen Lyon, PGeo.
Senior Project Manager

/Enclosures



AMC 133X

AMC

Chemwatch Hazard Alert Code: 1

Chemwatch: 15-6631
Version No: 7.1
Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 12/23/2022
Print Date: 03/15/2023
L.GHS.CAN.EN.E

SECTION 1 Identification

Product Identifier

Product name	AMC 133X
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.
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	AMC
Address	1220 N. 2200 W. Suite# 600, Salt Lake City UT 84116 United States
Telephone	801-364-0233
Fax	801-364-0278
Website	www.amcmud.com
Email	amc@imdexlimited.com

Emergency phone number

Association / Organisation	AMC	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	Chemwatch - (1) 877 715 9305	+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) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

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
63748-98-1		<u>mineral oil</u>
Not Available		anionic polymer

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	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ 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	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ 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	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor.

Ingestion	<ul style="list-style-type: none"> ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.
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Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

- ▶ Heavy and persistent skin contamination over many years may lead to dysplastic changes. Pre-existing skin disorders may be aggravated by exposure to this product.
- ▶ In general, emesis induction is unnecessary with high viscosity, low volatility products, i.e. most oils and greases.
- ▶ High pressure accidental injection through the skin should be assessed for possible incision, irrigation and/or debridement.

NOTE: Injuries may not seem serious at first, but within a few hours tissue may become swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Product may be forced through considerable distances along tissue planes.

SECTION 5 Fire-fighting measures

Extinguishing media

- ▶ Foam.
- ▶ Dry chemical powder.

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
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Special protective equipment and precautions for fire-fighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Combustible. ▶ Slight fire hazard when exposed to heat or flame. <p>Combustion products include: carbon dioxide (CO₂) nitrogen oxides (NO_x) other pyrolysis products typical of burning organic material.</p> <p>CARE: Water in contact with hot liquid may cause foaming and a steam explosion with wide scattering of hot oil and possible severe burns. Foaming may cause overflow of containers and may result in possible fire.</p>

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	<p>Slippery when spilt.</p> <ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately.
Major Spills	<p>Slippery when spilt. Moderate hazard.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind.

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.
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	<ul style="list-style-type: none"> ▶ Wear protective clothing when risk of exposure occurs.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Metal can or drum ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<p>Avoid contamination of water, foodstuffs, feed or seed.</p> <ul style="list-style-type: none"> • CARE: Water in contact with heated material may cause foaming or a steam explosion with possible severe burns from wide scattering of hot material. Resultant overflow of containers may result in fire. ▶ 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	mineral oil	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	mineral oil	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Manitoba Occupational Exposure Limits	mineral oil	Not Available	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Manitoba Occupational Exposure Limits	mineral oil	Not Available	Not Available	Not Available	Not Available	TLV® Basis: URT irr
Canada - Prince Edward Island Occupational Exposure Limits	mineral oil	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	mineral oil	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	mineral oil	Oil mist - mineral, mildly refined	0.2 mg/m3	Not Available	Not Available	Not Available
Canada - British Columbia Occupational Exposure Limits	mineral oil	Oil mist - mineral, severely refined	1 mg/m3	Not Available	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	mineral oil	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	mineral oil	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Northwest Territories Occupational Exposure Limits	mineral oil	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Quebec Permissible Exposure Values for Airborne Contaminants	mineral oil	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

AMC 133X

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


Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
mineral oil	140 mg/m3	1,500 mg/m3	8,900 mg/m3

Ingredient	Original IDLH	Revised IDLH
mineral oil	2,500 mg/m3	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.
Individual protection measures, such as personal protective equipment	
Eye and face protection	<ul style="list-style-type: none"> Safety glasses with side shields Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.
Skin protection	See Hand protection below
Hands/feet protection	Wear general protective gloves, eg. light weight rubber gloves.
Body protection	See Other protection below
Other protection	No special equipment needed when handling small quantities. OTHERWISE: <ul style="list-style-type: none"> Overalls.

Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS	-	A-PAPR-AUS / Class 1
up to 50 x ES	-	A-AUS / Class 1	-
up to 100 x ES	-	A-2	A-PAPR-2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Liquid with a hydrocarbon odour, emulsifies with water.		
Physical state	Liquid	Relative density (Water = 1)	1.08
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature (°C)	Not Available

Continued...

Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Applicable	Molecular weight (g/mol)	Not Available
Flash point (°C)	>100	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Partly miscible	pH as a solution (1%)	8.1
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable.
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	Inhalation hazard is increased at higher temperatures. Not normally a hazard due to non-volatile nature of product Inhalation of oil droplets/ aerosols may cause discomfort and may produce chemical pneumonitis.
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.
Skin Contact	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
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 health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

AMC 133X	TOXICITY	IRRITATION
	Not Available	Not Available
mineral oil	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	

MINERAL OIL	<p>The materials included in the Lubricating Base Oils category are related from both process and physical-chemical perspectives; The potential toxicity of a specific distillate base oil is inversely related to the severity or extent of processing the oil has undergone, since:</p> <ul style="list-style-type: none"> · The adverse effects of these materials are associated with undesirable components, and · The levels of the undesirable components are inversely related to the degree of processing; · Distillate base oils receiving the same degree or extent of processing will have similar toxicities;
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AMC 133X

· The potential toxicity of *residual base oils* is independent of the degree of processing the oil receives.
· The reproductive and developmental toxicity of the distillate base oils is inversely related to the degree of processing. The degree of refining influences the carcinogenic potential of the oils. Whereas mild acid / earth refining processes are inadequate to substantially reduce the carcinogenic potential of lubricant base oils, hydrotreatment and / or solvent extraction methods can yield oils with no carcinogenic potential.
Unrefined and mildly refined distillate base oils contain the highest levels of undesirable components, have the largest variation of hydrocarbon molecules and have shown the highest potential carcinogenic and mutagenic activities.

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

AMC 133X	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

mineral oil	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.

May be harmful to fauna if not disposed of according to Section 13 and legislative requirements. [AMC]

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"> ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal.

SECTION 14 Transport information

Labels Required

Marine Pollutant	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
mineral oil	Not Available

Transport in bulk in accordance with the IGC Code

Product name	Ship Type
mineral oil	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.

mineral oil is found on the following regulatory lists

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

National Inventory Status

National Inventory	Status
Australia - AIC / Australia Non-Industrial Use	No (mineral oil)
Canada - DSL	No (mineral oil)
Canada - NDSL	No (mineral oil)
China - IECSC	No (mineral oil)
Europe - EINEC / ELINCS / NLP	No (mineral oil)
Japan - ENCS	Yes
Korea - KECI	No (mineral oil)
New Zealand - NZIoC	No (mineral oil)
Philippines - PICCS	No (mineral oil)
USA - TSCA	No (mineral oil)
Taiwan - TCSI	No (mineral oil)
Mexico - INSQ	No (mineral oil)
Vietnam - NCI	No (mineral oil)
Russia - FBEPH	No (mineral oil)
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	12/23/2022
Initial Date	06/09/2008

SDS Version Summary

Version	Date of Update	Sections Updated
6.1	11/01/2019	One-off system update. NOTE: This may or may not change the GHS classification
7.1	12/23/2022	Classification review due to GHS Revision change.

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.

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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AMC CR 650™

AMC

Chemwatch: 4902-92

Version No: 16.1

Safety Data Sheet according to WHMIS 2015 requirements

Chemwatch Hazard Alert Code: 0

Issue Date: 12/23/2022

Print Date: 02/14/2023

L.GHS.CAN.EN.E

SECTION 1 Identification

Product Identifier

Product name	AMC CR 650™
Chemical Name	Not Applicable
Synonyms	PHPA
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.
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	AMC
Address	1220 N. 2200 W. Suite# 600, Salt Lake City UT 84116 United States
Telephone	801-364-0233
Fax	801-364-0278
Website	www.amcmud.com
Email	amc@imdexlimited.com

Emergency phone number

Association / Organisation	AMC	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	Chemwatch - (1) 877 715 9305	+1 867 670 2867
Other emergency telephone numbers	-	+61 3 9573 3188

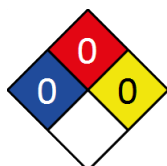
Once connected and if the message is not in your preferred language then please dial 01

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) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

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	<p>If this product comes in contact with eyes:</p> <ul style="list-style-type: none"> ▶ 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	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If dust is inhaled, remove from contaminated area. ▶ Encourage patient to blow nose to ensure clear passage of breathing. ▶ If irritation or discomfort persists seek medical attention.
Ingestion	<ul style="list-style-type: none"> ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Continued...

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	None known.
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Special protective equipment and precautions for fire-fighters

Fire Fighting	<ul style="list-style-type: none"> ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves in the event of a fire.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▸ Non combustible. ▸ Not considered a significant fire risk, however containers may burn. <p>Decomposes on heating and produces toxic fumes of: carbon monoxide (CO) carbon dioxide (CO₂) nitrogen oxides (NO_x)</p>

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	<ul style="list-style-type: none"> ▸ Clean up all spills immediately. ▸ Avoid contact with skin and eyes.
Major Spills	<ul style="list-style-type: none"> ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▸ Limit all unnecessary personal contact. ▸ Wear protective clothing when risk of exposure occurs.
Other information	<ul style="list-style-type: none"> ▸ Store in original containers. ▸ Keep containers securely sealed.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▸ Lined metal can, lined metal pail/ can. ▸ Plastic pail.
Storage incompatibility	Avoid contamination of water, foodstuffs, feed or seed.

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Emergency Limits


Continued...

Ingredient	TEEL-1	TEEL-2	TEEL-3
AMC CR 650™	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
AMC CR 650™	Not Available	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.
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.
Skin protection	See Hand protection below
Hands/feet protection	<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>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"> ▶ polychloroprene.
Body protection	See Other protection below
Other protection	<p>No special equipment needed when handling small quantities.</p> <p>OTHERWISE:</p> <ul style="list-style-type: none"> ▶ Overalls.

Respiratory protection

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

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	- -	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3 Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	White powder, soluble in water.		
Physical state	Divided Solid	Relative density (Water = 1)	Not Available
Odour	Not Available	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

Continued...

Melting point / freezing point (°C)	>150	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	Miscible	pH as a solution (1%)	5.0-9.0 (@ 5 g/L)
Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Product is considered stable and 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.
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.
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 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.

AMC CR 650™	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

AMC CR 650™	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.

May be harmful to fauna if not disposed of according to Section 13 and legislative requirements. [AMC]

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"> ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Management Authority for disposal.

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

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 - 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
Taiwan - TCSI	Not Available
Mexico - INSQ	Not Available
Vietnam - NCI	Not Available
Russia - FBEPH	Not Available
Legend:	<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	12/23/2022
Initial Date	09/16/2002

SDS Version Summary

Version	Date of Update	Sections Updated
15.1	11/01/2019	One-off system update. NOTE: This may or may not change the GHS classification
16.1	12/23/2022	Classification review due to GHS Revision change.

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.

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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The product is with a concentration less than 5% in a drilling fluid as a non-hazardous chemical classified.



AMC PURE VIS™

AMC

Chemwatch Hazard Alert Code: 1

Chemwatch: 17-8713
Version No: 11.1
Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 12/23/2022
Print Date: 03/15/2023
L.GHS.CAN.EN.E

SECTION 1 Identification

Product Identifier

Product name	AMC PURE VIS™
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	AMC
Address	1220 N. 2200 W. Suite# 600, Salt Lake City UT 84116 United States
Telephone	801-364-0233
Fax	801-364-0278
Website	www.amcmud.com
Email	amc@imdexlimited.com

Emergency phone number

Association / Organisation	AMC	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	Chemwatch - (1) 877 715 9305	+1 867 670 2867
Other emergency telephone numbers	-	+61 3 9573 3188

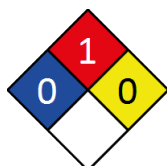
Once connected and if the message is not in your preferred language then please dial 01

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) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

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	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ 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	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ 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	<ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.
Ingestion	<ul style="list-style-type: none"> ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

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

- ▶ Foam.
- ▶ Dry chemical powder.

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
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Special protective equipment and precautions for fire-fighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Combustible. ▶ Slight fire hazard when exposed to heat or flame. Combustion products include: carbon dioxide (CO ₂) acrolein other pyrolysis products typical of burning organic material. CARE: Water in contact with hot liquid may cause foaming and a steam explosion with wide scattering of hot oil and possible severe burns. Foaming may cause overflow of containers and may result in possible fire.

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	Slippery when spilt. <ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately.
Major Spills	Slippery when spilt. Moderate hazard. <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind.

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

SECTION 7 Handling and storage**Precautions for safe handling**

Safe handling	<ul style="list-style-type: none"> ▶ DO NOT allow clothing wet with material to stay in contact with skin Rags wet / soaked with unsaturated hydrocarbons / drying oils may auto-oxidise; generate heat and, in-time, smoulder and ignite. This is especially the case where oil-soaked materials are folded, bunched, compressed, or piled together - this allows the heat to accumulate or even accelerate the reaction Oily cleaning rags should be collected regularly and immersed in water, or spread to dry in safe-place away from direct sunlight or stored, immersed, in solvents in suitably closed containers. <ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed.

Conditions for safe storage, including any incompatibilities

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

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
AMC PURE VIS™	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
AMC PURE VIS™	Not Available	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.
Individual protection measures, such as personal protective equipment	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.
Skin protection	See Hand protection below
Hands/feet protection	<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>
Body protection	See Other protection below
Other protection	<p>No special equipment needed when handling small quantities.</p> <p>OTHERWISE:</p> <ul style="list-style-type: none"> ▶ Overalls.

Respiratory protection

- ▶ 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

Appearance	Yellow liquid; mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available

pH (as supplied)	Not Available	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (1%)	7.0-9.0
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable.
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. Fine mists generated from plant/ vegetable (or more rarely from animal) oils may be hazardous. Extreme heating for prolonged periods, at high temperatures, may generate breakdown products which include acrolein and acrolein-like substances.
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.
Skin Contact	The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis.
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 health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

AMC PURE VIS™	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	✗

AMC PURE VIS™

Mutagenicity **X**

Aspiration Hazard **X**

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

SECTION 12 Ecological information

Toxicity

AMC PURE VIS™	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.

May be harmful to fauna if not disposed of according to Section 13 and legislative requirements. [AMC]

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	Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. <ul style="list-style-type: none"> ▶ 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. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal.
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SECTION 14 Transport information

Labels Required

Marine Pollutant	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
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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 - KECI	Not Available
New Zealand - NZIoC	Not Available
Philippines - PICCS	Not Available
USA - TSCA	Not Available
Taiwan - TCSI	Not Available
Mexico - INSQ	Not Available
Vietnam - NCI	Not Available
Russia - FBEPH	Not Available
Legend:	<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	12/23/2022
Initial Date	10/09/2008

SDS Version Summary

Version	Date of Update	Sections Updated
10.1	11/01/2019	One-off system update. NOTE: This may or may not change the GHS classification
11.1	12/23/2022	Classification review due to GHS Revision change.

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.

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
AII: 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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AMC ROD GREASE XTRA TACKY

AMC

Chemwatch Hazard Alert Code: 2

Chemwatch: 7641-76
Version No: 17.1
Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 07/15/2021
Print Date: 03/15/2023
L.GHS.CAN.EN.E

SECTION 1 Identification

Product Identifier

Product name	AMC ROD GREASE XTRA TACKY
Chemical Name	Not Applicable
Synonyms	Barium Grease
Chemical formula	Not Applicable
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses	Grease, lubricant for diamond drills.
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	AMC
Address	1220 N. 2200 W. Suite# 600, Salt Lake City UT 84116 United States
Telephone	801-364-0233
Fax	801-364-0278
Website	www.amcmud.com
Email	amc@imdexlimited.com

Emergency phone number

Association / Organisation	AMC	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	Chemwatch - (1) 877 715 9305	+1 867 670 2867
Other emergency telephone numbers	-	+61 3 9573 3188

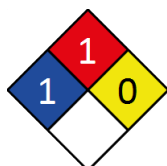
Once connected and if the message is not in your preferred language then please dial 01

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	Acute Toxicity (Oral) Category 4
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AMC ROD GREASE XTRA TACKY

Label elements

Hazard pictogram(s)	
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Signal word	Warning
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Hazard statement(s)

H302	Harmful if swallowed.
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Physical and Health hazard(s) not otherwise classified

Not Applicable

Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

Precautionary statement(s) Prevention

P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.

Precautionary statement(s) Response

P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
P330	Rinse mouth.

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
64742-52-5.	10-30	<u>naphthenic distillate, heavy, hydrotreated (severe)</u>
68201-19-4	10-30	<u>barium, acetate tallow fatty acid complexes</u>

SECTION 4 First-aid measures

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ 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	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.

AMC ROD GREASE XTRA TACKY

Ingestion

- ▶ If swallowed do **NOT** induce vomiting.
- ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- ▶ Observe the patient carefully.
- ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- ▶ Seek medical advice.
- ▶ Avoid giving milk or oils.
- ▶ Avoid giving alcohol.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For petroleum distillates

- In case of ingestion, gastric lavage with activated charcoal can be used promptly to prevent absorption - decontamination (induced emesis or lavage) is controversial and should be considered on the merits of each individual case; of course the usual precautions of an endotracheal tube should be considered prior to lavage, to prevent aspiration.
- Individuals intoxicated by petroleum distillates should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function.
- Positive pressure ventilation may be necessary.
- Acute central nervous system signs and symptoms may result from large ingestions of aspiration-induced hypoxia.
- After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary oedema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated.
- Gastrointestinal symptoms are usually minor and pathological changes of the liver and kidneys are reported to be uncommon in acute intoxications.
- Chlorinated and non-chlorinated hydrocarbons may sensitize the heart to epinephrine and other circulating catecholamines so that arrhythmias may occur. Careful consideration of this potential adverse effect should precede administration of epinephrine or other cardiac stimulants and the selection of bronchodilators.

SECTION 5 Fire-fighting measures

Extinguishing media

- ▶ Foam.
- ▶ Dry chemical powder.

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.

Fire/Explosion Hazard

Combustible. Will burn if ignited.
 Combustion products include:
 carbon dioxide (CO₂)
 other pyrolysis products typical of burning organic material.
 Decomposes at high temperatures to produce barium oxide. Barium oxide is strongly alkaline and, upon contact with water, is exothermic.

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.

Major Spills

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

AMC ROD GREASE XTRA TACKY

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ 17 kg steel drums. ▶ Metal can or drum ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> • CARE: Water in contact with heated material may cause foaming or a steam explosion with possible severe burns from wide scattering of hot material. Resultant overflow of containers may result in fire. ▶ 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	naphthenic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	naphthenic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Manitoba Occupational Exposure Limits	naphthenic distillate, heavy, hydrotreated (severe)	Not Available	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - Prince Edward Island Occupational Exposure Limits	naphthenic distillate, heavy, hydrotreated (severe)	Mineral oil, excluding metal working fluids - Pure, highly and severely refined	5 mg/m3	Not Available	Not Available	TLV® Basis: URT irr
Canada - British Columbia Occupational Exposure Limits	naphthenic distillate, heavy, hydrotreated (severe)	Oil mist - mineral, severely refined	1 mg/m3	Not Available	Not Available	Not Available
Canada - Nova Scotia Occupational Exposure Limits	naphthenic distillate, heavy, hydrotreated (severe)	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	naphthenic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Northwest Territories Occupational Exposure Limits	naphthenic distillate, heavy, hydrotreated (severe)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	Not Available
Canada - Quebec Permissible Exposure Values for Airborne Contaminants	naphthenic distillate, heavy, hydrotreated (severe)	Mineral oil (mist): Pure, highly and ultra-refined - inhalable dust	5 mg/m3	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
naphthenic distillate, heavy, hydrotreated (severe)	140 mg/m3	1,500 mg/m3	8,900 mg/m3

Ingredient	Original IDLH	Revised IDLH
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AMC ROD GREASE XTRA TACKY

Ingredient	Original IDLH	Revised IDLH
naphthenic distillate, heavy, hydrotreated (severe)	2,500 mg/m ³	Not Available
barium, acetate tallow fatty acid complexes	Not Available	Not Available

MATERIAL DATA

NOTE L: The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3% DMSO extract as measured by IP 346. European Union (EU) List of harmonised classification and labelling hazardous substances, Table 3.1, Annex VI, Regulation (EC) No 1272/2008 (CLP) - up to the latest ATP

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.
Individual protection measures, such as personal protective equipment	
Eye and face protection	<ul style="list-style-type: none"> ▸ Safety glasses with side shields ▸ Chemical goggles. ▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▸ Wear chemical protective gloves, e.g. PVC. ▸ Wear safety footwear or safety gumboots, e.g. Rubber
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▸ Overalls. ▸ P.V.C apron.

Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS	-	A-PAPR-AUS / Class 1
up to 50 x ES	-	A-AUS / Class 1	-
up to 100 x ES	-	A-2	A-PAPR-2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- 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

Appearance	Light brown semi-solid grease with a petroleum-like odour; does not mix with water.		
Physical state	Non Slump Paste	Relative density (Water = 1)	0.939
Odour	Not Available	Partition coefficient n-octanol / water	Not Available

AMC ROD GREASE XTRA TACKY

Odour threshold	Not Available	Auto-ignition temperature (°C)	>315
pH (as supplied)	Not Applicable	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	370	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	175	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Product is considered stable and 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	Inhalation hazard is increased at higher temperatures. 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.
Ingestion	Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. 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.
Skin Contact	Open cuts, abraded or irritated skin should not be exposed to this material The material may accentuate any pre-existing dermatitis condition Aromatic hydrocarbons may produce skin irritation, vasodilation with erythema and changes in endothelial cell permeability. Systemic intoxication, resulting from contact with the light aromatics, is unlikely due to the slow rate of permeation.
Eye	Although the material 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). Petroleum hydrocarbons may produce pain after direct contact with the eyes. Slight, but transient disturbances of the corneal epithelium may also result.
Chronic	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.

AMC ROD GREASE XTRA TACKY	TOXICITY	IRRITATION
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AMC ROD GREASE XTRA TACKY

	Inhalation (ATE) LC50: 44 mg/l/4h ^[2]	Not Available
	Oral (ATE) LD50: 2000 mg/kg ^[2]	
naphthenic distillate, heavy, hydrotreated (severe)	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2000 mg/kg ^[2]	Eye: no adverse effect observed (not irritating) ^[1]
	Inhalation(Rat) LC50: 2.18 mg/l/4h ^[2]	Skin: no adverse effect observed (not irritating) ^[1]
	Oral (Rat) LD50: >5000 mg/kg ^[2]	
barium, acetate tallow fatty acid complexes	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	

NAPHTHENIC DISTILLATE, HEAVY, HYDROTREATED (SEVERE)	<p>Exposure to the material may result in a possible risk of irreversible effects. The material may produce mutagenic effects in man. 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.</p> <p>The major classes of hydrocarbons have been shown to be well absorbed by the gastrointestinal tract in various species. The materials included in the Lubricating Base Oils category are related from both process and physical-chemical perspectives; The potential toxicity of a specific distillate base oil is inversely related to the severity or extent of processing the oil has undergone, since:</p> <ul style="list-style-type: none"> · The adverse effects of these materials are associated with undesirable components, and · The levels of the undesirable components are inversely related to the degree of processing; · Distillate base oils receiving the same degree or extent of processing will have similar toxicities; · The potential toxicity of <i>residual base oils</i> is independent of the degree of processing the oil receives. · The reproductive and developmental toxicity of the distillate base oils is inversely related to the degree of processing. <p>The degree of refining influences the carcinogenic potential of the oils. Whereas mild acid / earth refining processes are inadequate to substantially reduce the carcinogenic potential of lubricant base oils, hydrotreatment and / or solvent extraction methods can yield oils with no carcinogenic potential.</p> <p>Unrefined and mildly refined distillate base oils contain the highest levels of undesirable components, have the largest variation of hydrocarbon molecules and have shown the highest potential carcinogenic and mutagenic activities.</p> <p>Highly and Severely Refined Distillate Base Oils</p> <p>Acute toxicity: Multiple studies of the acute toxicity of highly & severely refined base oils have been reported. Irrespective of the crude source or the method or extent of processing, the oral LD50s have been observed to be >5 g/kg (bw) and the dermal LD50s have ranged from >2 to >5g/kg (bw).</p> <p>NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.</p> <p>The substance is classified by IARC as Group 3:</p> <p>NOT classifiable as to its carcinogenicity to humans.</p> <p>Evidence of carcinogenicity may be inadequate or limited in animal testing.</p>
	BARIUM, ACETATE TALLOW FATTY ACID COMPLEXES
NAPHTHENIC DISTILLATE, HEAVY, HYDROTREATED (SEVERE) & BARIUM, ACETATE TALLOW FATTY ACID COMPLEXES	No significant acute toxicological data identified in literature search.

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

Continued...

AMC ROD GREASE XTRA TACKY

AMC ROD GREASE XTRA TACKY	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

naphthenic distillate, heavy, hydrotreated (severe)	Endpoint	Test Duration (hr)	Species	Value	Source
	ErC50	72h	Algae or other aquatic plants	>1000mg/l	1
	NOEC(ECx)	504h	Crustacea	>1mg/l	1
	EC50	96h	Algae or other aquatic plants	>1000mg/l	1
	EC50	48h	Crustacea	>1000mg/l	1

barium, acetate tallow fatty acid complexes	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.

May be harmful to fauna if not disposed of according to Section 13 and legislative requirements. [AMC]

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"> ▶ 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. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal.

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

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

Product name	Group
naphthenic distillate, heavy, hydrotreated (severe)	Not Available
barium, acetate tallow fatty acid complexes	Not Available

Transport in bulk in accordance with the IGC Code

Product name	Ship Type
naphthenic distillate, heavy, hydrotreated (severe)	Not Available
barium, acetate tallow fatty acid complexes	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.

naphthenic distillate, heavy, hydrotreated (severe) is found on the following regulatory lists

Canada Categorization decisions for all DSL substances

Canada Domestic Substances List (DSL)

Chemical Footprint Project - Chemicals of High Concern List

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

barium, acetate tallow fatty acid complexes 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 (naphthenic distillate, heavy, hydrotreated (severe); barium, acetate tallow fatty acid complexes)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (barium, acetate tallow fatty acid complexes)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	No (barium, acetate tallow fatty acid complexes)
USA - TSCA	Yes
Taiwan - TCSI	No (barium, acetate tallow fatty acid complexes)
Mexico - INSQ	No (barium, acetate tallow fatty acid complexes)
Vietnam - NCI	No (barium, acetate tallow fatty acid complexes)
Russia - FBEPH	No (barium, acetate tallow fatty acid complexes)
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	07/15/2021
Initial Date	01/17/2007

SDS Version Summary

Version	Date of Update	Sections Updated
15.1	11/01/2019	One-off system update. NOTE: This may or may not change the GHS classification

AMC ROD GREASE XTRA TACKY

Version	Date of Update	Sections Updated
17.1	07/15/2021	Identification of the substance / mixture and of the company / undertaking - Supplier Information, Name

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.

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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SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Product name : Floc Block A
Product code : ANIONIC Wide pH

1.2. Recommended use and restrictions on use

Recommended uses and restrictions : Flocculation Agent

1.3. Supplier

Supplier
Canadian Drilling Fluids Ltd
31 Prestwick Place SE
Calgary, AB, T2Z 4P4
Canada
T +1 306 717 3370

1.4. Emergency telephone number

Emergency number : +1 306 717 3370

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)

Not classified.

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling

No labelling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of WHMIS 2015

Floc Block A

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
First-aid measures after skin contact	: If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists.
First-aid measures after eye contact	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation. Repeated exposure may cause skin dryness or cracking.
Symptoms/effects after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/effects after ingestion	: May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment	: Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
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SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire.
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5.2. Unsuitable extinguishing media

Unsuitable extinguishing media	: Do not use water jet.
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5.3. Specific hazards arising from the hazardous product

Fire hazard	: Products of combustion may include, and are not limited to: oxides of carbon. May release toxic fumes.
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5.4. Special protective equipment and precautions for fire-fighters

Protection during firefighting	: Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
------------------	--

6.2. Methods and materials for containment and cleaning up

For containment	: Contain spill, then place in a suitable container. Minimize dust generation. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
Methods for cleaning up	: Sweep or shovel spills into appropriate container for disposal. Provide ventilation.

Floc Block A

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.
Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Keep container tightly closed. Store in a dry, cool and well-ventilated place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Wear suitable gloves. Consult glove manufacturer's product information on material suitability and material thickness.

Eye protection:

Safety glasses or goggles are recommended when using product.

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.

Other information:

Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Floc Block A

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Appearance	: No data available.
Colour	: White.
Odour	: Odourless
Odour threshold	: No data available
pH	: Approx 7
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Relative density	: 1000 kg/m ³
Solubility	: Water: Soluble
Partition coefficient n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

Reactivity	: No dangerous reactions known under normal conditions of use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Conditions to avoid	: Heat. Incompatible materials.
Incompatible materials	: Strong oxidizing agents. Strong acids.
Hazardous decomposition products	: May include, and are not limited to: oxides of carbon. May release toxic fumes.
Hardening time:	: No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified.
Acute toxicity (dermal)	: Not classified.
Acute toxicity (inhalation)	: Not classified.
Skin corrosion/irritation	: Not classified. pH: Approx 7
Serious eye damage/irritation	: Not classified. pH: Approx 7
Respiratory or skin sensitization	: Not classified.
Germ cell mutagenicity	: Not classified.
Carcinogenicity	: Not classified.
Reproductive toxicity	: Not classified.
STOT-single exposure	: Not classified.
STOT-repeated exposure	: Not classified.
Aspiration hazard	: Not classified.
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation. Repeated exposure may cause skin dryness or cracking.

Floc Block A

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Symptoms/effects after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/effects after ingestion	: May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Other information	: Likely routes of exposure: ingestion, inhalation, skin and eye.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: May cause long-term adverse effects in the aquatic environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified.
Hazardous to the aquatic environment, long-term (chronic)	: Not classified.

12.2. Persistence and degradability

Floc Block A

Persistence and degradability	Not established.
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12.3. Bioaccumulative potential

Floc Block A

Bioaccumulative potential	Not established.
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone	: Not classified.
Other information	: No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
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SECTION 14: Transport information

In accordance with TDG

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (TDG)	: Not applicable
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Floc Block A

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

14.3. Transport hazard class(es)

TDG

Transport hazard class(es) (TDG) : Not applicable

14.4. Packing group

Packing group (TDG) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

Special transport precautions : Do not handle until all safety precautions have been read and understood.

TDG

No data available

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

Not applicable

SECTION 15: Regulatory information

15.1. National regulations

All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories

15.2. International regulations

No additional information available

SECTION 16: Other information

Issue date : 07-28-2023

Revision date : 07-28-2023

Other information : None.

Prepared by : Nexreg Compliance Inc.

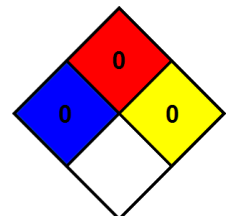
www.Nexreg.com



NFPA health hazard : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Safety Data Sheet (SDS), Canada - Nexreg 2022

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Product name : NC Mud

1.2. Recommended use and restrictions on use

Recommended use : Processing aid for industrial applications

1.3. Supplier

Supplier
Canadian Drilling Fluids Ltd
31 Prestwick Place SE
Calgary, AB, T2Z 4P4
Canada
T +1 306 717 3370

1.4. Emergency telephone number

Emergency number : +1 306 717 3370

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)
Not classified.

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling
No labelling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

NC Mud

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

3.2. Mixtures

Name	Chemical name / Synonyms	Product identifier	%
Petroleum distillates, hydrotreated light	Distillates (petroleum), hydrotreated light / Distillates, petroleum, hydrotreated light / Hydrotreated light distillate / Kerosene, hydrotreated / Petroleum distillates, hydrotreated light (A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C9-16 and boiling in the range of approximately 150-290°C.) / Odorless light petroleum hydrocarbons / Hydrocarbons, C11-14, n-alkanes, isoalkanes, cyclics, / Distillates (petroleum), hydro-treated light; Kerosine - unspecified [A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).] / Kerosene / c13-14 isoparaffin / Destillate (Erdöl), mit Wasserstoff behandelt leichte (C9-14 Aliphaten) / Light Aliphatic Hydrocarbon / Odourless light petroleum hydrocarbons	CAS-No.: 64742-47-8	10 - 30

Comments : *Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : If skin irritation occurs: Wash skin with plenty of water. Obtain medical attention if irritation persists.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : May cause skin irritation. Repeated exposure may cause skin dryness or cracking.

Symptoms/effects after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/effects after ingestion : May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Water spray. carbon dioxide (CO2). Foam. Dry powder.

NC Mud

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

5.2. Unsuitable extinguishing media

Unsuitable extinguishing media : Do not use water jet.

5.3. Specific hazards arising from the hazardous product

Fire hazard : Products of combustion may include, and are not limited to: oxides of carbon. Oxides of nitrogen. Hydrogen cyanide.

5.4. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2. Methods and materials for containment and cleaning up

For containment : Stop leak if safe to do so. Absorb and/or contain spill with inert material (sand, vermiculite or other appropriate material), then place in suitable container. Do not flush into surface water or sewer system. Wear recommended personal protective equipment.

Methods for cleaning up : Sweep or shovel spills into appropriate container for disposal. Provide ventilation.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.

Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

Additional hazards when processed : Spilled material may present a slipping hazard.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Keep container tightly closed. Keep away from heat. Keep away from ignition sources. Protect from freezing.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

NC Mud

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Wear suitable gloves. Consult glove manufacturer's product information on material suitability and material thickness.

Eye protection:

Safety glasses or goggles are recommended when using product.

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.

Other information:

Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Viscous.
Colour	: Milky white.
Odour	: Aliphatic
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: < 5 °C
Freezing point	: No data available
Boiling point	: > 100 °C
Flash point	: Does not flash
Auto-ignition temperature	: No data available
Decomposition temperature	: > 150 °C
Flammability (solid, gas)	: Not flammable
Vapour pressure	: 2.3 kPa at 20 °C
Relative vapour density at 20°C	: 0.804 g/L
Relative density	: 1 – 1.2
Solubility	: Completely miscible.
Partition coefficient n-octanol/water	: Not applicable
Viscosity, kinematic	: > 20.5 mm ² /s at 40°C
Explosive properties	: Not expected to create explosive atmospheres. (due to the chemical structure.)
Oxidising properties	: Not expected to be oxidising based on the chemical structure.
Explosive limits	: No data available

Petroleum distillates, hydrotreated light (64742-47-8)

Boiling point	146 – 299 °C Atm. press.: 101,325 kPa
Flash point	21 °C (closed cup)

NC Mud

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Petroleum distillates, hydrotreated light (64742-47-8)	
Auto-ignition temperature	> 200 °C (at 1013 hPa)
Vapour pressure	0.01 – 0.3 hPa (at 20 °C)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

Reactivity	: No dangerous reactions known under normal conditions of use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Conditions to avoid	: Heat. Incompatible materials. Do not freeze. Sunlight.
Incompatible materials	: Oxidizing agents.
Hazardous decomposition products	: May include, and are not limited to: oxides of carbon. Oxides of nitrogen. Hydrogen cyanide.
Hardening time:	: No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified.
Acute toxicity (dermal)	: Not classified.
Acute toxicity (inhalation)	: Not classified.

Petroleum distillates, hydrotreated light (64742-47-8)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat	> 5.2 mg/l/4h

Skin corrosion/irritation	: Not classified.
Serious eye damage/irritation	: Not classified.
Respiratory or skin sensitization	: Not classified.
Germ cell mutagenicity	: Not classified.
Carcinogenicity	: Not classified.
Reproductive toxicity	: Not classified.

Petroleum distillates, hydrotreated light (64742-47-8)	
NOAEL (animal/male, F0/P)	≥ 3000 mg/kg bodyweight Animal: rat, Animal sex: male

STOT-single exposure	: Not classified.
STOT-repeated exposure	: Not classified.

Petroleum distillates, hydrotreated light (64742-47-8)	
NOAEL (oral, rat, 90 days)	750 mg/kg bodyweight Animal: rat, Animal sex: female
NOAEC (inhalation, rat, vapour, 90 days)	≥ 0.024 mg/l air Animal: rat, Guideline: OECD Guideline 412 (Subacute Inhalation Toxicity: 28-Day Study)

Aspiration hazard	: Not classified.
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NC Mud	
Viscosity, kinematic	> 20.5 mm ² /s at 40°C

NC Mud

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Petroleum distillates, hydrotreated light (64742-47-8)	
Animal studies and expert judgment for classification	False
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation. Repeated exposure may cause skin dryness or cracking.
Symptoms/effects after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/effects after ingestion	: May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Other information	: Likely routes of exposure: ingestion, inhalation, skin and eye.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: May cause long-term adverse effects in the aquatic environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified.
Hazardous to the aquatic environment, long-term (chronic)	: Not classified.

NC Mud	
Partition coefficient n-octanol/water	Not applicable
Petroleum distillates, hydrotreated light (64742-47-8)	
LC50 - Fish [1]	45 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
LC50 - Fish [2]	2.2 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

12.2. Persistence and degradability

NC Mud	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

NC Mud	
Bioaccumulative potential	Not established.
Partition coefficient n-octanol/water	Not applicable
Petroleum distillates, hydrotreated light (64742-47-8)	
BCF - Fish [1]	61 – 159

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone	: Not classified.
Other information	: No other effects known.

NC Mud

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

SECTION 14: Transport information

In accordance with TDG

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (TDG) : Not applicable

14.3. Transport hazard class(es)

TDG

Transport hazard class(es) (TDG) : Not applicable

14.4. Packing group

Packing group (TDG) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

Special transport precautions : Do not handle until all safety precautions have been read and understood.

TDG

No data available

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

Not applicable

SECTION 15: Regulatory information

15.1. National regulations

All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories.

15.2. International regulations

No additional information available

SECTION 16: Other information

Issue date : 04-20-2023

Revision date : 04-20-2023

Other information : None.

NC Mud

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according to the Hazardous Products Regulation (February 11, 2015)

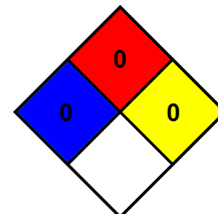
Prepared by : Nexreg Compliance Inc.
www.Nexreg.com



NFPA health hazard : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Safety Data Sheet (SDS), Canada - Nexreg 2022

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

SAFETY DATA SHEET



ANHYDROUS CALCIUM CHLORIDE 94 - 97% MINI-PELLETS

SDS No.: M48022
North America EN

Rev. Date: 15-Feb-2023

SECTION 1. CHEMICAL PRODUCT / COMPANY IDENTIFICATION

Company Identification:	Panther Industries 108 Internal Road Davidson, Saskatchewan Canada
24 Hour Emergency Telephone Number:	1-800-733-3665 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	csr.panther@sasktel.net
Customer Service:	306-567-2122
Product Identifier:	ANHYDROUS CALCIUM CHLORIDE 94 - 97% MINI-PELLETS
Synonyms:	Calcium Dichloride; Calcium Chloride Pellets; Anhydrous Calcium Chloride; Calcium Chloride; Mini-Pellets
Product Use:	Concrete Acceleration; Drilling Fluid Additive; Dust Control; Road Base Stabilization; Water Treatment (Non-potable)
Uses Advised Against:	Not approved for use in food or animal feed
Other Global Restrictions on Use:	Other restrictions on use based on local, regional, state, or national regulations may exist and must be determined on a case-by-case basis.
Chemical Family:	Inorganic Salt

SECTION 2. HAZARDS IDENTIFICATION

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OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

EMERGENCY OVERVIEW:

Color: White
Physical State: Solid
Appearance: Pellets
Odor: Odorless

Signal Word: WARNING

MAJOR HEALTH HAZARDS: CAUSES SERIOUS EYE IRRITATION. HARMFUL IF SWALLOWED.

PHYSICAL HAZARDS: Heat is generated when mixed with water or aqueous acid solutions.

PRECAUTIONARY STATEMENTS: Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Wear eye protection.

ADDITIONAL HAZARD INFORMATION: Good hygiene practices include but are not limited to wearing chemical resistant gloves and eye protection; washing hands and affected skin immediately after handling, before breaks, and at the end of the workday; regularly cleaning work area and clothing; etc.

HAZARD CLASSIFICATION:

GHS: CONTACT HAZARD - EYE:	Category 2A - Causes serious eye irritation
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed

Unknown Acute Inhalation Toxicity:

There is no acute inhalation toxicity data available for this material.

GHS SYMBOL: Exclamation mark



GHS SIGNAL WORD: WARNING

GHS HAZARD STATEMENTS:

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GHS - Health Hazard Statement(s)

- Harmful if swallowed
- Causes serious eye irritation

GHS - Precautionary Statement(s) - Prevention

- Wash thoroughly after handling
- Do not eat, drink or smoke when using this product
- Wear eye protection

GHS - Precautionary Statement(s) - Response

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- If eye irritation persists: Get medical advice/attention
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth

GHS - Precautionary Statement(s) - Storage

- There are no Precautionary-Storage phrases assigned

GHS - Precautionary Statement(s) - Disposal

- Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Physical Hazards of Significance Not Mentioned in GHS Classification

- Calcium chloride is hygroscopic and is capable of absorbing moisture from the air to become liquid. Chlorides in the presence of water and oxygen are associated with the accelerated corrosion of common metals, such as steel, copper and brass
- Calcium chloride has an exothermic heat of solution and solid products release a large amount of heat when dissolved in water
- Calcium chloride brines are electrically conductive. There is a risk of electric shock if energized electrical equipment is handled with hands or fabric gloves that are wet with brine

See Section 11: TOXICOLOGICAL INFORMATION**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS Number	Percent [%]
Calcium chloride	10043-52-4	> 94 - < 97
Potassium Chloride	7447-40-7	> 2 - < 3
Sodium Chloride	7647-14-5	> 1 - < 2
Water	7732-18-5	< 1

Notes: Potassium chloride and sodium chloride are impurities from the naturally-occurring source material, brine solution.

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SECTION 4. FIRST AID MEASURES

INHALATION: If inhalation of dust occurs and adverse effects result, remove to uncontaminated area. Call a POISON CENTER or doctor/physician if you feel unwell.

SKIN CONTACT: If on skin, wash with plenty of water. If skin irritation occurs: Get medical advice/ attention. Take off contaminated clothing and wash before reuse.

EYE CONTACT: If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

INGESTION: If swallowed, rinse mouth. Contact a poison center or doctor/physician if you feel unwell.

Most Important Symptoms/Effects (Acute and Delayed):

Acute Symptoms/Effects:

Inhalation (Breathing): Inhaling dust may cause irritation to upper respiratory tract (nose and throat). No reliable animal data on acute inhalation toxicity are available; however, human data suggest that calcium chloride is not acutely toxic by inhalation.

Skin: Direct contact with abraded skin may cause erythema and burns. Prolonged contact and occlusion may cause more severe symptoms. Damage is localized to contact areas.

Eye: Eye Irritation. Direct abrasion of cornea from solid, erythema and burn from reaction with water, conjunctival swelling and cornea opacification from hypertonic solution and heat.

Ingestion (Swallowing): Consumption of solids or hypertonic solutions causes nausea, vomiting, and increased thirst. Symptoms of oral toxicity are not expected to be observed at lower levels (200 – 400 mg/kg). However, at the higher levels (800 – 1600 mg/kg), in male rat studies, there was some indication of gastric irritation, characterized by thickened and ulcerated areas within the stomach.

Delayed Symptoms/Effects:

- Chronic exposures to skin and mucus membranes that cause irritation may cause a chronic dermatitis or mucosal membrane problem

Protection of First-Aiders: At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission. If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Notes to Physician: Due to irritant properties, resulting from heat created as solid material dissolves in water, swallowing may result in burns/ulceration of mucus membranes. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Interaction with Other Chemicals Which Enhance Toxicity: Because of its additive effect, calcium should be administered very cautiously to a patient who is digitalized or who is taking effective doses of digitalis or digitalis-like preparations.

Medical Conditions Aggravated by Exposure: Any skin condition that disrupts the skin, such as abrasions, cuts, psoriasis, fungal infections, etc. Any upper respiratory conditions that compromise mucosa can increase local damage from dust contact. Any eye condition that compromises tear production, conjunctiva, or normal corneal

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SECTION 5. FIRE-FIGHTING MEASURES

Fire Hazard: This material does not burn.

Explosive properties: Prolonged action of calcium chloride solution upon the zinc coating of a galvanized iron vessel causes slow evolution of hydrogen, which may ignite and explode. The exotherm produced by adding solid calcium chloride to hot water causes violent boiling. Calcium chloride catalyzes exothermic polymerization of methyl vinyl ether.

Extinguishing Media: Use water, dry chemical, carbon dioxide or foam to extinguish. Do not extinguish fire unless release can be stopped. Use water to cool containers but avoid getting water into containers.

Specific Hazards: Avoid direct contact of this product with water as this can cause an exothermic reaction.

Fire Fighting: Keep unnecessary people away, isolate hazard area and deny entry. This material does not burn. Fight fire for other material that is burning. Water should be applied in large quantities as fine spray. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Wear protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Hazardous Combustion Products: Formed under fire conditions: hydrogen chloride gas, calcium oxide

Products Formed During Combustion and Thermal Degradation: When heated to decomposition emits toxic fumes of hydrogen chloride

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not applicable

Upper Flammability Level (air): Not applicable

Flash point: Not applicable

Auto-ignition Temperature: Not applicable

Physical Hazards of Significance Not Mentioned in GHS Classification

- Calcium chloride is hygroscopic and is capable of absorbing moisture from the air to become liquid. Chlorides in the presence of water and oxygen are associated with the accelerated corrosion of common metals, such as steel, copper and brass

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-
- Calcium chloride has an exothermic heat of solution and solid products release a large amount of heat when dissolved in water
 - Calcium chloride brines are electrically conductive. There is a risk of electric shock if energized electrical equipment is handled with hands or fabric gloves that are wet with brine
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard on some surfaces. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

Personal Protective Equipment: See Section 8 for information on personal protective equipment.

Emergency Procedures: Restrict access to spill site, call fire department and notify manufacturer, stop the flow and contain spill if safe to do so, keep contaminated water from entering sewers or water courses, and avoid contact with liquid and solid.

Environmental Precautions: Prevent large spills from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and Materials for Clean-up

Recovery: When solid calcium chloride is spilled on land, shovel into appropriate containers (avoid dusting) for recovery or disposal. The recovered product must be transferred to an appropriate and compatible container (stainless steel, PVC, Fiberglass or similar).

Neutralization: Flush spill area with water, if appropriate.

Final Disposal: For waste disposal, see section 13.

SECTION 7. HANDLING AND STORAGE

Handling:

Precautions for Safe Handling: Wash skin and contaminated clothing thoroughly after handling. Do not eat, drink, or smoke when using this product.

Technical measures/precautions: Heat developed during diluting or dissolving is very high. Use cool water when diluting or dissolving (temperature less than 80°F, 27°C). Keep container tightly closed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Prevention of contact: Wear protective gloves, protective clothing, eye, and face protection. See Section 8, Exposure Controls and Personal Protection, for additional information.

Storage:

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Safe Storage Conditions: Store in a dry place. Protect from atmospheric moisture. Keep container tightly closed. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Technical measures: Solid calcium chloride is both hygroscopic and deliquescent. This means that the product can absorb moisture from the air, even to the point of converting to liquid brine. For this reason, solid calcium chloride should be protected from atmospheric moisture to maintain product quality while in storage. Store in a dry area. Opened packages should be tightly resealed after each use. If storing outdoors, cover with waterproof tarps.

Incompatible Substances:

- Heat is generated when mixed with water or aqueous acids. Spattering and boiling can occur. Avoid contact with: bromide trifluoride, 2-furan percarboxylic acid because calcium chloride is incompatible with those substances. Contact with zinc forms flammable hydrogen gas, which can be explosive. Catalyzes exothermic polymerization of methyl vinyl ether. Attacks metals in the presence of moisture and may release flammable hydrogen gas. Reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates.

Packaging or Materials of Construction: Dry bulk calcium chloride can be stored in bins fabricated from most construction-grade steel materials. Care should be taken to minimize moisture. Venting should be limited to times of filling and discharging calcium chloride from the storage bin. Liquid calcium chloride can be stored in either horizontal or vertical cylindrical tanks constructed of steel. Fiberglass and plastic may also be used within limits of strength and temperature. The preferred material of construction for large, liquid-storage tanks is carbon steel with an epoxy based interior lining and epoxy-based exterior paint. Common stainless steels should not be used for liquid calcium chloride storage because they are subject to chloride stress cracking, even at temperatures as low as 100°F (38°C). Nonmetallic materials, such as fiberglass or plastic, work well for smaller tanks at near ambient temperatures; however, the puncture resistance and structural strength of these materials, relative to carbon steel, should be evaluated.

Additional Information:**Physical Hazards of Significance Not Mentioned in GHS Classification**

- Calcium chloride is hygroscopic and is capable of absorbing moisture from the air to become liquid. Chlorides in the presence of water and oxygen are associated with the accelerated corrosion of common metals, such as steel, copper and brass
- Calcium chloride has an exothermic heat of solution and solid products release a large amount of heat when dissolved in water
- Calcium chloride brines are electrically conductive. There is a risk of electric shock if energized electrical equipment is handled with hands or fabric gloves that are wet with brine

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**REGULATORY EXPOSURE LIMIT(S):**

Listed below for the product components that have regulatory occupational exposure limits (OEL's) established.

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Particulates Not Otherwise Specified (PNOS) Not Assigned	15 mg/m ³ (Total) 5 mg/m ³ (Respirable)	-----	-----

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Component	Canada - TWAs	Canada - STELs	Canada - Ceilings
Particles Not Otherwise Regulated (PNOR) 00-00-001	10 mg/m ³ (Total) 5 mg/m ³ (Respirable)	-----	-----
Particulates Not Otherwise Specified (PNOS) Not Assigned	10 mg/m ³ (inhalable) 3 mg/m ³ (respirable)	-----	-----
Calcium chloride 10043-52-4	Ontario - 5 mg/m ³ (TWA)	-----	-----

NON-REGULATORY EXPOSURE LIMIT(S):

Listed below are the product components that have advisory (non-regulatory) occupational exposure limits (OEL's) established.

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	Skin Absorption - ACGIH	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Particulates Not Otherwise Specified (PNOS) Not Assigned	10 mg/m ³ (inhalable) 3 mg/m ³ (respirable)	-----	-----	-----	-----	-----	-----

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

Additional Advice: Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

ENGINEERING CONTROLS: Use closed systems when possible. Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: For dusty operations or when handling solutions of the material, wear chemical goggles. Where splashing or spraying is possible, use a face-shield in addition to chemical protective goggles.

Skin and Body Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

Hand Protection: Wear appropriate chemical resistant gloves. If contact with forearms is likely, wear gauntlet style gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Neoprene, Polyvinyl chloride (PVC), Nitrile rubber gloves

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure

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limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In dusty or misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: High efficiency particulate air (HEPA) N95. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

Other Protective Equipment: An emergency eyewash fountain and quick drench shower should be provided in the immediate work area.

HYGIENE MEASURES: Do not breathe dust or spray mist. Do not get in eyes, on skin, or on clothing. Wear protective gloves, protective clothing, eye, and face protection. For environmental protection remove and wash all contaminated protective equipment before re-use. Keep separated from incompatible substances.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	Mini-Pellets
Color:	White
Odor:	Odorless
Molecular Weight:	111 g/mole
Molecular Formula:	CaCl ₂
Chemical Family:	Inorganic Salt
pH:	Not applicable to solids
Melting Point/Range:	772 °C (1,422 °F)
Freezing Point/Range:	Not applicable to solids
Boiling Point °C	1935°C (3,515°F)
Flash point:	Not applicable
Vapor Pressure:	Negligible at ambient temperature
Vapor Density (air=1):	Not applicable
Relative Density/Specific Gravity (water=1):	Not applicable to solids
Bulk Density:	52 - 58 lb/ft ³
Water Solubility:	Readily soluble
Partition Coefficient (n-octanol/water):	No data available
Auto-ignition Temperature:	Not applicable
Decomposition Temperature:	Not applicable
Odor Threshold [ppm]:	No data available
Evaporation Rate (ether=1):	Not applicable
Volatility:	Not applicable
Flammability (solid, gas):	Not applicable
Lower Flammability Level (air):	Not applicable
Upper Flammability Level (air):	Not applicable
Viscosity:	Not applicable
Hygroscopic:	Yes
Particle Size Distribution:	1-4% through 30 (0.6 mm) sieve

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10% through 20 (0.84 mm) sieve
80% through 8 (2.38 mm) sieve
100% through 4 (4.76 mm) sieve

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and pressures.

Reactivity: Hygroscopic. Liberates large amounts of heat when dissolving in water or aqueous acids.

Possibility of Hazardous Reactions: Avoid moisture.

Conditions to Avoid (e.g., static discharge, shock, or vibration): None known.

Incompatible Substances: Heat is generated when mixed with water or aqueous acids. Spattering and boiling can occur. Avoid contact with: bromide trifluoride, 2-furan percarboxylic acid because calcium chloride is incompatible with those substances. Contact with zinc forms flammable hydrogen gas, which can be explosive. Catalyzes exothermic polymerization of methyl vinyl ether. Attacks metals in the presence of moisture and may release flammable hydrogen gas. Reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates.

Hazardous Decomposition Products: Formed under fire conditions: hydrogen chloride gas, calcium oxide.

Hazardous Polymerization: Polymerization will not normally occur; however, violent polymerization occurs when mixed with Methyl Vinyl Ether.

SECTION 11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS:

ACUTE TOXICITY:

Eye contact: For solid: May cause slight eye irritation, mechanical injury only. Dust formation should be avoided, as dust can cause severe eye irritation with corneal injury.

Skin contact: Brief contact is essentially nonirritating to skin. Prolonged contact may cause skin irritation, even a burn. Not classified as corrosive to the skin according to DOT guidelines. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves, or footwear.

Inhalation: Dust may cause irritation to upper respiratory tract (nose and throat).

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause local mucosal damage to esophagus and stomach. Swallowing may result in gastrointestinal irritation or ulceration.

CHRONIC TOXICITY:

Chronic Effects: Chronic exposures to calcium chloride that cause irritation may cause a chronic dermatitis or

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mucosal membrane problem. For the minor component(s): POTASSIUM CHLORIDE: In animals, effects have been reported on the following organs after ingestion: Gastrointestinal tract, heart, and kidney. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. SODIUM CHLORIDE: Medical experience with sodium chloride has shown a strong association between elevated blood pressure and prolonged dietary overuse. Related effects could occur in the kidneys.

SIGNS AND SYMPTOMS OF EXPOSURE:

Solution and or solids may be visible on the skin and or eyes. Localized redness, warmth, and irritation consistent with mechanism of injury: abrasion, burn, hypertonic solution.

Inhalation (Breathing): Inhaling dust may cause irritation to upper respiratory tract (nose and throat). No reliable animal data on acute inhalation toxicity are available; however, human data suggest that calcium chloride is not acutely toxic by inhalation.

Skin: Direct contact with abraded skin may cause erythema and burns. Prolonged contact and occlusion may cause more severe symptoms. Damage is localized to contact areas.

Eye: Eye Irritation. Direct abrasion of cornea from solid, erythema and burn from reaction with water, conjunctival swelling and cornea opacification from hypertonic solution and heat.

Ingestion (Swallowing): Consumption of solids or hypertonic solutions causes nausea, vomiting, and increased thirst. Symptoms of oral toxicity are not expected to be observed at lower levels (200 – 400 mg/kg). However, at the higher levels (800 – 1600 mg/kg), in male rat studies, there was some indication of gastric irritation, characterized by thickened and ulcerated areas within the stomach.

Interaction with Other Chemicals Which Enhance Toxicity: Because of its additive effect, calcium should be administered very cautiously to a patient who is digitalized or who is taking effective doses of digitalis or digitalis-like preparations.

GHS HEALTH HAZARDS:

GHS: CONTACT HAZARD - EYE: Category 2A - Causes serious eye irritation

GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed

TOXICITY DATA:**PRODUCT TOXICITY DATA:**

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
1055 mg/kg - Oral Acute Toxicity Estimate (ATE)	2776 mg/kg - Dermal Acute Toxicity Estimate (ATE)	No data is available

COMPONENT TOXICITY DATA:

The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	Oral LD50	Dermal LD50	Inhalation LC50
Calcium chloride	1000 mg/kg (Rat)	>5000 mg/kg (Rabbit)	
Potassium Chloride	2600 mg/kg (Rat)	No data available	
Sodium Chloride	3 g/kg (Rat)	>10000 mg/kg (Rabbit)	>42 mg/L (1-h Rat)

Eye Irritation/Corrosion: May cause sufficient injury to the eye to include damage to the cornea which heals or nearly heals in a week and/or considerable conjunctival irritation with edema.

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Standard Draize (Skin): Score - 1.4 (Rabbit - 24 hours)

Skin Irritation/Corrosion: Calcium chloride was found not to be irritating to rabbit skin in a GLP-compliant study, performed according to OECD Guideline 404 (Koopman et al., 1986e). No effects were noted in any of three rabbits at any observation time points (1, 24, 48 and 72 hours) following an application of the anhydrous substance under occlusive dressing for 4 hours.

Skin Absorbent / Dermal Route: NO

Calcium chloride lacks the necessary lipophilicity that is required to allow penetration of the substance through the stratum corneum.

RESPIRATORY OR SKIN SENSITIZATION: Calcium chloride is not sensitizing to skin or respiratory tract. No evidence of skin or respiratory sensitization in humans have been reported despite long-term historical and wide dispersive use.

CARCINOGENICITY: Calcium chloride is not genotoxic in- vitro with calcium and chloride being essential nutrients for humans. In addition, the safe use of calcium chloride as a food additive was recently re-evaluated by the EFSA Panel on Food Additives and Flavorings (Scientific opinion dated 6 June 2019, doi: 10.2903/j.efsa.2019.5751). The assessment confirmed that there is no concern with respect to carcinogenicity. Based on this information, it is concluded that the substance is not carcinogenic and the performance of a carcinogenicity study for calcium chloride is not indicated. Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure): There is limited evidence that calcium chloride may cause respiratory tract irritation; however, this evidence is concluded to not be sufficient for classification and labelling.

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure): Calcium and chloride are essential nutrients for humans and with a known tolerable upper intake level for calcium set at 2500 mg per day, this equates to a tolerable level of approximately 6.9 g CaCl₂ per day. Therefore, repeat exposure target organ toxicity is not expected in an occupational exposure setting.

INHALATION HAZARD: No reliable animal data on acute inhalation toxicity are available; however, human data suggest that calcium chloride is not acutely toxic by inhalation.

GERM CELL/IN-VITRO MUTAGENICITY: Calcium chloride is considered not to have a genotoxic potential based on the results of two bacterial mutation assays and an in-vitro chromosome aberration test in Chinese hamster lung fibroblasts.

REPRODUCTIVE TOXICITY: An oral developmental study was performed in three (3) species (mouse, rat, and rabbit). In all three species no maternal or teratogenic effects were noted, and NOAELs (169mg/kg bw/day) were above the highest dose given. In addition, calcium chloride will neither reach the fetus or male and female reproductive organs, as it does not become systemically available, which indicates that there is no risk for developmental or reproductive toxicity.

TOXICOKINETICS: Calcium chloride is easily dissociated into calcium and chloride ions in water. The absorption, the distribution, and the excretion of the ions in animals are regulated separately. Calcium and chloride are essential constituents of the body of all animal species. Calcium is essential for the formation of skeletons and the regulation of neural transmission, muscle contraction and coagulation of the blood. Chloride is required for regulating intracellular osmotic pressure and buffering.

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METABOLISM: Not considered relevant in view of the nutritional aspects and mechanisms of action of calcium and chloride ions.

ENDOCRINE DISRUPTOR: Potassium chloride is listed on The Endocrine Disruptors Exchange's (TEDX) List of Potential Endocrine Disruptors database of chemicals with the potential to affect the endocrine system. Every chemical on the TEDX List has one or more verified citations published, accessible, primary scientific research demonstrating effects on the endocrine system. Potassium chloride, sodium chloride, and calcium bromide are impurities from the naturally occurring source material, brine solution.

NEUROTOXICITY: No relevant information available.

IMMUNOTOXICITY: No relevant information available; however, calcium ions are essential in the correct gene expression of the immune system.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY (EC, IC, and LC):

Aquatic Toxicity:

Material is practically non-toxic to aquatic organisms on an acute basis. (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Toxicity:

Fathead Minnow (*Pimephales promelas*) LC50 (96-hour) > 4630 mg/L

Bluegill Sunfish (*Lepomis macrochirus*) /Mosquitofish (*Gambusia affinis*) LC50 (96-hour) > 9500 - 13400 mg/L

Invertebrate Toxicity:

Daphnia magna EC50 (48 hour) = 2400 mg/L

Daphnia magna NOEC (21 days) = 230 mg/L

FATE AND TRANSPORT:

PERSISTENCE: Calcium chloride is believed not to persist in the environment because it is readily dissociated into calcium and chloride ions in water. Calcium chloride released into the environment is thus likely to be distributed into water in the form of calcium and chloride ions. Calcium ions may remain in soil by binding to soil particulate or by forming stable salts with other ions. Chloride ions are mobile and eventually drain into surface water. Both ions originally exist in nature, and their concentrations in surface water will depend on various factors, such as geological parameters, weathering, and human activities.

BIODEGRADATION: Calcium chloride is an inorganic substance which is not expected to undergo photolysis or biodegradation.

BIOCONCENTRATION: No bioconcentration is expected because of the relatively high water solubility. Potential for mobility in soil is very high (Koc between 0 and 50). Partitioning from water to n-octanol is not applicable.

BIOACCUMULATIVE POTENTIAL: Calcium chloride is easily dissociated into calcium and chloride ions and both ions are essential constituents of the body of all animals hence if a high amount would be taken up this is regulated by the body. Bioaccumulation of calcium chloride is consequently not expected.

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MOBILITY IN SOIL: Calcium chloride is not expected to be absorbed in soil due to its dissociation properties and high water solubility. It is expected to dissociate into calcium and chloride free ions or it may form stable inorganic or organic salts with other counter ions, leading to different fates between calcium and chloride ions in soil and water components. Calcium ions may bind to soil particulate or may form stable inorganic salts with sulfate and carbonate ions. The chloride ion is mobile in soil and eventually drains into surface water because it is readily dissolved in water.

ADDITIONAL ECOLOGICAL INFORMATION: No information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:

Reuse or reprocess, if possible. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Report spills if applicable. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Landfill and waste water treatment system.

Container Management:

Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

Contaminated Material:

Contaminated packaging should be disposed of as unused product. Recycle any unused portion of the material for its approved use. Waste calcium chloride must never be discharged directly into sewers or surface waters.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

Status: Not Regulated

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

Status: Not Regulated

MARITIME TRANSPORT (IMO / IMDG)

Status - IMO / IMDG: Not Regulated.

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AIR TRANSPORT (ICAO / IATA)

Special Instructions CAO: IATA Certificate for shipping personnel is required

SECTION 15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

Not regulated.

SARA EHS Chemical (40 CFR 355.30)

Not regulated.

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):

Acute Health Hazard

SARA HAZARD CATEGORIES ALIGNED WITH GHS (2018):

Health Hazard - Acute Toxin (any route of exposure)

Health Hazard - Serious eye damage or eye irritation

EPCRA SECTION 313 (40 CFR 372.65):

To the best of our knowledge, this product does not contain chemicals at levels that require reporting under this statute.

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):

No components in this material are regulated under DHS

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):

Not regulated.

EPA'S CLEAN WATER AND CLEAN AIR ACTS:

Component(s) not listed on impacted regulatory lists.

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):

Component	TSCA Inventory	TSCA ACTIVE LIST	TSCA 12(b)	TSCA/Section 4	TSCA/Section 5	TSCA/Section 6	TSCA/Section 8
Calcium chloride 10043-52-4 (> 94 - < 97 %)	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not listed	Not listed
Potassium Chloride 7447-40-7 (> 2 - < 3 %)	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not listed	Not listed
Sodium Chloride	Listed	ACTIVE	Not Listed	Not listed	Not Listed	Not listed	Not listed

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7647-14-5 (> 1 - < 2 %)						
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Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

Component	DSL	NDSL
Calcium chloride 10043-52-4 (> 94 - < 97)	Listed	Not Listed
Potassium Chloride 7447-40-7 (> 2 - < 3)	Listed	Not Listed
Sodium Chloride 7647-14-5 (> 1 - < 2)	Listed	Not Listed

STATE REGULATIONS**California Proposition 65:**

This product is not listed on the California Governor's current list of Carcinogens, Reproductive Toxicants, and/or Candidate Carcinogens (Proposition 65), but it may contain trace amounts of impurities that are listed. For additional information, contact Panther Industries Inc. Customer Service (1-800-752-5151 or 1-972-404-3700). **WARNING:** This product (when used in aqueous formulations with a chemical oxidizer such as ozone) may react to form bromate, a chemical known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	Rhode Island Right to Know Hazardous Substance List
Calcium chloride 10043-52-4 (> 94 - < 97 %)	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Potassium Chloride 7447-40-7 (> 2 - < 3 %)	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Sodium Chloride 7647-14-5 (> 1 - < 2 %)	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Workplace Hazardous Materials Information System (WHMIS 2015) which includes the amended Hazardous Products Act (HPA) and the Hazardous Product Regulations (HPR).

Component	Canada - CEPA - Schedule I - List of Toxic Substances	Canada - NPRI	Canada - CEPA - 2010 Greenhouse Gases (GHG) Subject to Mandatory Reporting	Canadian Chemical Inventory:	NDSL:
Calcium chloride 10043-52-4 (> 94 - < 97)	Not listed	Not Listed	Not Listed	Listed	Not Listed
Potassium Chloride 7447-40-7 (> 2 - < 3)	Not listed	Not Listed	Not Listed	Listed	Not Listed
Sodium Chloride 7647-14-5 (> 1 - < 2)	Not listed	Not Listed	Not Listed	Listed	Not Listed

SECTION 16. OTHER INFORMATION

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Prepared by: Panther Industries Inc. - HES&S Product Stewardship Department

Rev. Date: 15-Feb-2023

Disclaimer:

We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

Reason for Revision:

- Change of company physical address: SEE SECTION 1
- Updated 24 Hour Emergency Telephone Number: SEE SECTION 1
- Updated Uses Advised Against information: SEE SECTION 1
- Added restrictions on use: See SECTION 1
- Modified the Emergency Overview information: SEE SECTION 2
- Changed GHS Classification: SEE SECTION 2
- Modified GHS Hazard and Precautionary Statements: SEE SECTION 2
- Added or revised Physical Hazards: SEE SECTION 2
- Updated First Aid Measures: SEE SECTION 4
- Modified Fire Fighting Measure Recommendations: SEE SECTION 5
- Revised Accidental Release Measures: SEE SECTION 6
- Revised Handling and Storage Recommendations: SEE SECTION 7
- Added Hygiene Measures SEE SECTION 8
- Revised Exposure Controls/Personal Protection information: SEE SECTION 8
- Stability and Reactivity recommendations: SEE SECTION 10
- Toxicological Information has been revised: SEE SECTION 11
- Ecological Information has been modified: SEE SECTION 12
- Updated Disposal Considerations. SEE SECTION 13
- Added air transport certificate requirements for shipping personnel: SEE SECTION 14
- Revised California Proposition 65 Statement: SEE SECTION 15
- Added SARA Hazard Categories Aligned with GHS (2018): SEE SECTION 15
- Added LOLI tables such as EPA'S Clean Water / Air Act, TSCA status, DHS, PSM, EPCRA, CERCLA, Federal Canadian: SEE SECTION 15
- Updated Canadian Regulatory information: SEE SECTION 15
- Modified statement on Canadian classification rule. SEE SECTION 15
- A component has been added to the formulation. SEE SECTION 3

IMPORTANT:

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OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees.

End of Safety Data Sheet