

Spill Contingency Plan

for the

LNPG PROJECT

(Version 2.0)

March 2023

LAKE WINN RESOURCES CORP.

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Prepared for the

Mackenzie Valley Land and Water Board

March 2023

Document Maintenance and Control Lake Winn Resources Corp. is responsible for the distribution, maintenance and updating of this document. This document will be reviewed annually at least, and more frequently to include any changes in the Project, best practices, guidelines, advice from the Inspector, contact information, environmental factors, or following a spill incident. Revised versions will be provided to the Mackenzie Valley Land and Water Board for approval and circulated accordingly.

Revision History

Revision no.	Section Revised	Description of revision	Effective Date
0	n/a	First Version	January 18, 2023
1	3.0	Contact added in the event of a spill	February 15, 2023
2	Various	Detail added through document	March 20, 2023

Distribution List

Description	Authority	Date
Document Owner	Archer, Cathro & Associates (1981) Limited	March 29, 2023
Reviewed by	Buddy Doyle, Director	March 29, 2023

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1.0 INTRODUCTION

Lake Winn Resources Corp. (“LWR”) and its primary contractor, Archer, Cathro & Associates (1981) Limited (“Archer Cathro”) have developed the LNPG Project – Spill Contingency Plan in accordance with the “Guidelines for Spill Contingency Planning” prepared by ‘Water Resources Division – Indian and Northern Affairs Canada 2007.’

This Spill Contingency Plan has been developed with the purpose of minimizing potential hazards to the environment, people and communities. This plan outlines the proper protocols to follow to minimize health & safety hazards, environmental effects and clean-up costs. It also serves as a guide to the duties of responders.

This Spill Contingency Plan will be in effect from April 2023 until April 2028. This is a living document that will be reviewed at minimum annually prior to the start of any site activities, with additional reviews as warranted.

1.1 PROJECT CONTACTS

Primary Contact:

Heather Burrell

Senior Geologist and Partner

Archer, Cathro & Associates (1981) Limited

41 MacDonald Road

Whitehorse, Yukon Y1A 4R1

Phone: (867)667-4415

Email: info@archercathro.com

1.2 ROLES AND RESPONSIBILITIES

The Senior Geologist and Partner (Heather Burrell) and Lead Geologist (to be determined) will be responsible for the implementation of this Plan, approval of any changes, and reporting. All Project staff and contractors are required to be aware of this Plan and contribute to its implementation.

1.3 APPLICABLE LEGISLATION AND GUIDELINES

Applicable legislation and guidelines include:

1. Guidelines for Spill Contingency Planning (INAC 2007)
2. Guideline for Hazardous Waste Management (GNWT – ENR 2017)
3. *Northwest Territories Environmental Protection Act* and Regulations
4. Government of the Northwest Territories *Spill Contingency Planning and Reporting Regulations*
5. *Transportation of Dangerous Goods Act* and Regulations
6. *Northwest Territories Waters Act* and Regulations
7. *Fisheries Act* and Regulations
8. Land Use Permit Authorization MC2023C0002

1.4 ENVIRONMENTAL, HEALTH AND SAFETY (EHS) POLICY

LWR is committed to the concept of sustainable development and the protection of the environment and human health. Therefore, the management is committed to do everything possible to prevent injuries and to maintain a healthy environment. LWR is committed to effective waste management planning which includes, source reduction, reuse, recycle/recovery, treatment and release to the receiving environment.

The Environmental, Health and Safety covers following bullets:

- Senior managers are responsible for ensuring that all the requirements of this EHS are fully implemented and adhere to all applicable legislation, regulations and authorizations.
- All managers and supervisors are responsible for ensuring that their employees are trained in safe work procedures, to undertake their assigned duties without accidents, injuries or harm to the environment and for ensuring that employees follow safe work methods and all related regulations.
- All personnel are required to support and comply with the EHS program, making safety, health and protection of the environment a part of their daily routine and ensuring that they follow safe work methods and relevant regulations.
- All personnel will be held accountable for implementing and adhering to the requirements of the EHS program.
- Pollution prevention practices and programs to achieve continuous improvement will be implemented as an ongoing requirement of the program on an annual basis.
- Where a conflict arises due to different standards or requirements between different regulations or standards, the more stringent of the two will apply.

The plan will be presented to all staff during their on-site orientation sessions. All employees and contractors are aware of the locations of the Spill Contingency Plan on the site of LNPG Project and in their offices located in Whitehorse and Vancouver. During the orientation meeting, training sessions are scheduled to ensure employees understand the steps to be undertaken in the event of a spill. All employees and contractors are shown where spill kits are stored, are aware of their contents and are trained in using spill equipment and responding to spills. LWR is committed to keeping personnel up to date on the latest technologies and spill response methods.

1.5 PROJECT DESCRIPTION AND DETAILS

The aim of LNPG Project is to determine the extent and quality of lithium-tantalum bearing pegmatite dykes. The footprint left behind must be acceptable to the affected Aboriginal people for their future use and to ensure the safety of local wildlife and plants. This project is expected to span approximately five years, and all permits and licenses are in place for LWR's activities.

Activities for the LNPG Project will include helicopter supported diamond drilling, channel sampling, mapping, and prospecting. These activities will be conducted from a small camp located on the property of no more than 15 people operating between July and September annually for the duration of the Mining Land Use Permit (5 years).

The Project is 35km northwest of the Cantung mine, in southwestern Northwest Territories, NT and the claims are registered to Lake Winn Resources Corp. It is a remote area with no adjacent communities or inhabitants, and this the only people immediately affected by a potential spill are employees or contractors. Creeks within the LNPG project area are tributaries of the Nahanni river. As such, in the event of a spill the downstream community of Nahanni Butte and Parks Canada will be notified.

The project will be staged from a staging area on the Nahanni Range Road, in Yukon. If the usual staging area the Howard's Pass Access Road. The proposed exploration program consists of channel sampling, mapping, prospecting and potentially helicopter supported diamond drilling (up to 10,000 m) annually, from a 10 to 15-person tent-frame camp located at -128°50'57.948", 62°10'34.932". Diamond drilling will primarily be located near the base of the cliffs and up to 20 locations (drill pads) will be selected for drilling, each drill site will be approximately 25m2.

Non-burnable waste generated on-site will be backhauled to the Yukon as the program is in proximity to the NWT-Yukon border.

The LNPG property lies within the traditional territories of the Dehcho First Nations and is upstream from the community of Nahanni Butte.

1.6 ADDITIONAL COPIES

Several copies of the Spill Contingency Plan (most recent version) are kept and available on site at all times. Copies are also held at the LWR and Archer Cathro offices in Whitehorse and Vancouver. Additional copies of the Waste Management Plan can be obtained by contacting LWR's agent, Archer, Cathro & Associates (1981) Limited at info@archercathro.com or by phone at 867-667-4415.

2.0 HAZARDOUS MATERIALS

Estimated fuel and other hazardous materials to be used for the project and stored on site are summarized in Table 1.

Table 1: Type, Amount and location of consumable, potentially hazardous materials

Material	Number of Containers	Container Volume	Type of Container	Proposed Storage location
Diesel	15-25	205 Litres	Barrel	Camp/ Drill
Gasoline	2-10	20 Litres	Barrel	Camp
Aviation (Jet A) Fuel	5-15	205 Litres	Barrel	Staging (off claims)
Propane	2-8	100 pounds	Tank	Camp
Motor Oil	12	4 Litres	Tubes, cans, pails	Camp/ Drill site
Drilling Fluid (biodegradable)	30	1 litre	Tubes, cans, pails	Drill site

The Safety Data Sheets (SDS) for each hazardous substance is in Appendix B.

2.1 MANAGEMENT OF VARIOUS HAZARDOUS MATERIALS

Planning for the potential for emergency situations is imperative, due to the remote nature of the site and materials required for the project. Along with the preventative measures outlined below, adequate training of staff and contractors is paramount.

All hazardous materials (listed above) will arrive to site via helicopter. Once on site, handling of hazardous material will be supervised by an Archer Cathro employee. Anyone handling hazardous material on-site will be required to wear all necessary personal protective equipment such as protective flame-retardant clothing, steel toe boots, hard hats and safety glasses.

Fuel will be in 205-litre drums and will either be flown in during the summer in heavy wall steel drums or pressurized cylinders (propane) and stored in a lined and bermed central storage location, with 110% containment, at least 100 m from any watercourse. On site storage will be storing drums with bungs at 9 and 3 and inspected daily for leaks. Additional empty drums with a combined total capacity of at least 10% of the total fuel stored on site will be available for fuel transfer in case of a potential leak. Liquid fuels will be transferred using a hand pump.

In any case where storage areas cannot achieve a 100 m buffer from any high watermark of any waterbody or watercourse, an area will be selected that provides the least amount of risk to water bodies, while maintaining operational suitability.

Replenishment will be on an as-needed basis and fuel transfer will occur within small berms in the unlikely event of spillage. Portable trays and fuel transfer hoses will be used for aircraft and vehicle replenishment. To avoid any leaks from fuel transmission, all fuel lines, hoses, fittings and valves are to meet or exceed industry standards.

Propane will be attached to vertical posts in 100lb cylinders. There will not be more than 9,200 litres of fuel stored on site at any time. All fuel storage sites will have prominently displayed contact information for the NWT Spill Report hotline, cleanup information and spill kits. This information will also be posted at satellite telephones. All camp personnel have access to two-way radio.

Waste oil is stored securely (likely in empty 20L pails) and will be shipped off-site for processing at an appropriate waste facility.

Other hazardous materials found on-site in very small quantities are in storage buildings and/or the kitchen. These include lubricants/oil/grease for the maintenance of motorized equipment and general cleaning products for kitchen/bathroom/office use.

Spill kits are located wherever hazardous material is stored or used. Section 5.1 lists details on spill kit contents. The site superintendent or designate will conduct visual inspections to check for leaks and damages to the fuel storage containers and transfer equipment, as well as check for stained or discolored soils around the fuel storage areas and motorized equipment. The visual inspections will be included in the superintendent's weekly checks. For example, lids and caps are checked for tight seals. A checklist is used to ensure no areas have been missed and results of the inspections are recorded in the LWR's database. Regular maintenance and oil checks of all motorized equipment will also be undertaken to avoid preventable leaks.

Safety Data Sheets (SDS) will be provided for all substances used on-site. All SDS on-site will be filed in an SDS binder. An SDS binder will be available on-site at all times. LWR will provide SDS for each hazardous material, which are included in Appendix A.

3.0 SPILL PREVENTION

3.1 GENERAL PREVENTION MEASURES

The most likely source of a spill is through fuel transfer, line leaks on equipment or through equipment failure. The measures taken to prevent spills include:

- All workers will receive, read and understand the Spill Contingency Plan and Workplace Hazardous Materials Information System (WHMIS) training prior to active operations.
- All containers will be labelled as per WHMIS and Safety Data Sheets available on-site.
- Project start-up and daily safety meetings and weekly safety meetings regarding safe operations on-site.
- Regular maintenance including oil and hydraulic fuel changes will take place in designated areas 100m away from any highwater mark. Spill trays and be used in each instance.
- All equipment will be regularly maintained and in good working order and leak-free.
- All equipment, hoses, fuels and oil lines will be regularly inspected and maintained.
- Drips, leaks will be fixed immediately.
- Fuel will be stored on flat, stable ground. All fuel will be marked, and drums stored on their side with closed bung vent holes at 3 and 9 o'clock.

- All fuels and hazardous materials will be stored in designated areas more than 100m from any highwater mark.
- All fuels and hazardous materials will have appropriate secondary containment.
- Fire extinguishers and spill kits will be kept near fuel storage.
- Drip trays will be placed under equipment when not in use.

4.0 SPILL PROCEDURE

This section describes the response organization and chain of command for responding to a spill in following the INAC Guidelines for Spill Contingency Planning.

When a potential spill has been identified by workers:

1. Ensure safety of all personnel.
2. Identify the product
3. Notify camp manager
4. Assess spill hazards and risks.
5. Remove all sources of ignition.
6. Stop the spill if safely possible e.g. shut off pump, replace cap, tip drum upward, patch leaking holes, etc. Use the contents of the nearest spill kit to aid in stopping the spill if it is safe to do so. Tyvek suits and chemical master gloves are located in the spill kit and should be worn immediately if there is any risk of being in contact with fuel.
7. No matter what the volume is, notify the project manager via two-way radio (all employees carry these, as well as on-site contractors if they are not accompanied by an employee).
8. Contain the spill – use contents of spill kits to place sorbent materials on the spill or use shovel to dig dike to contain spill. Methods will vary depending on the nature of the spill.

An immediately reportable spill is defined as a release of a substance that is likely to be an imminent environmental or human health hazard or meets or exceeds the volumes outlined in Appendix C. It must be reported to the NWT 24-Hour Spill Report Line at +1 (867) 920 8130. Any spills less than these quantities do not need to be reported immediately to the spill reporting line. Rather, these minor spills will be tracked and documented by the company and submitted to the appropriated authority either immediately upon request or at a pre-determined reporting interval. If there is any doubt that the quantity spilled exceeds reportable levels, the spill will be reported to the NWT 24-Hour Spill Report Line.

*Creeks within the LNPG Project area are tributaries of the Nahanni River. In the event of a spill into a waterbody, Parks Canada must be notified. Contact information for Parks Canada is:

Parks Canada / Government of Canada

nahanni.info@pc.gc.ca

867-695-6572

An emergency satellite phone is located in the office on-site. In the event of a spill involving danger to human life, this phone will be used to contact the Health & Safety Manger, Project Manager and emergency response personnel in Fort Simpson or Watson Lake. In addition, all employees and contractors carry two-way radios for communication with the site superintendent and other staff on site.

Following reporting of the spill to the site superintendent, the superintendent will report spills to the NWT 24-Hour Spill Line as necessary. The site superintendent will also inform Archer Cathro's Whitehorse and Vancouver office for tracking spills in the company's database and notify the Project Manager in the event of media inquiries.

The company's emergency Whitehorse office number is 867-332-6142.

If a spill has occurred and a NWT Spill Report needs to be filled out, see Appendix B. This information is available for the public to view upon request by contacting the NWT Spill Line or by viewing the GNWT Hazardous Materials Spills Database online at:

http://www.enr.nt.ca/live/pages/wpPages/Hazardous_Materials_Spill_Database.aspx

4.1.1 Minor Spill:

1. Stop or contain spill (if safe to do so).
2. Ensure spill does not enter any water bodies.
3. Document spill date, type and outcomes.
4. Notify Operations Manager.

4.1.2 Major Spill:

1. Stop or contain spill (if safe to do so).
2. Ensure spill does not enter any water bodies.
3. Document spill.
4. Notify Operations Manager.
5. Call NWT Spill Report Line (867) 920-8130.

4.2 PERSONNEL & RESPONSIBILITIES:

1. Pilots – Report any spills or leaks associated with aircraft operations directly to Operations Manager.
2. Site Maintenance Personnel/Project Geologist/Contractors – Check & document fuel storage containers for leaks or damage, on a daily basis. Make sure spill kits are properly supplied

and up to date. Report any leaks or spills directly to the AGL Operations Manager.

3. Operations Manager – When spills or leaks are detected, ensure safety of humans and the environment, assess the situation. Communicate to other personnel (if necessary), call in emergency personnel (if necessary), document and report spill to relevant authorities and management.

4.3 PROCEDURES FOR SPILL REPORTING

Report spill immediately to site superintendent, who will determine if spill is to be reported to the NWT 24-Hour Spill Line at +1 (867) 920 8130.

Each spill kit, as well as the on-site office and site superintendent, will have copies of the NWT Spill Report form to be filled out (Appendix B). Fill out and fax or email the Spill Report to the staff of the NWT 24-Hour Spill Line. Also fax or email the report to the Archer Cathro office in Whitehorse.

NWT 24-Hour Spill Line	
Phone	(867) 920 8130
Fax	(867) 873 6924
Email	spills@gov.nt.ca
Archer, Cathro & Associates (1981) Limited	
Phone Whitehorse office	(867) 667-4415
Phone Company Safety Manager	(867) 332-6142
Email Project Manager	info@archercathro.com

Spill Report Contacts

5.0 ACTION PLAN

5.1 INITIAL RESPONSE

Person identifying a leak or spill shall:

1. Assess personal safety and identify material spilled.
2. Refer to SDS sheets.
3. Determine immediate hazards.
4. Communicate to all on-site personnel.
5. Secure the site.
6. Remove potential ignition sources (if safe to do so).
7. Determine if the spill can be controlled or stopped.
8. Stop the flow from the source of the leak (if possible).
9. Document the situation:
 - a) Identifier's name
 - b) Date, time and location
 - c) Material type and spill quantity
 - d) Cause of spill (if possible)

- e) Weather conditions
 - f) Immediate hazards (human or environmental)
 - g) Safety issues to be dealt with prior to action (safety, PPE, ignition sources)
10. Contact Project Manager, identify location and request assistance.
 11. Project Manager contacts NWT Spill Report Line and completes Spill Report Form.
 12. All responders will act to contain or stop the spill and clean up any contaminants.

5.2 CONTAINMENT OF SPILLS ON LAND

Spills on land include spills on rock, gravel, soil and/or vegetation. Generally, spills on land occur during the late spring, summer or fall when snow cover is at a minimum or non-existent. It is important that all measures be undertaken to avoid spills reaching open water bodies.

5.2.1 Dykes

Dykes can be created using soil surrounding a spill on land. These dykes are constructed around the perimeter or down slope of the spilled fuel. A dyke needs to be built up to a size that will ensure containment of the maximum quantity of fuel that may reach it. A plastic tarp can be placed on and at the base of the dyke such that fuel can pool up and subsequently be removed with sorbent materials or by pump into barrels or bags. If the spill is migrating very slowly a dyke may not be necessary and sorbent can be used to soak up fuels before they migrate away from the source of the spill.

5.2.2 Trenches

Trenches can be dug out to contain spills as long as the top layer of soil is thawed. Shovels pickaxes or a loader can be used depending on the size of trench required. It is recommended that the trench be dug to the bedrock or permafrost, which will then provide containment layer for the spilled fuel. Fuel can be recovered using a pump or sorbent materials.

5.3 CONTAINMENT OF SPILLS ON WATER

Spills on water such as rivers, streams or lakes are the most serious types of spills as they can negatively impact water quality and aquatic life. All measures need to be undertaken to contain spills on open water.

5.3.1 Booms

Booms are commonly used to recover fuel floating on the surface of lakes or slow-moving streams. They are released from the shore of a water body to create a circle around the spill. If the spill is away from the shoreline, a boat will need to be used to reach the spill and then the boom can be set out. More than one boom may be used at once. Booms may also be used in streams and should be set out at an angle to the current. Booms are designed to float and have sorbent materials built into them to absorb fuels at the edge of the boom. Fuel contained within the circle of the boom will need to be recovered using sorbent materials or pumps and placed into barrels or bags for disposal.

5.3.2 Weirs

Weirs can be used to contain spills in streams and to prevent further migration downstream.

Plywood or other materials found on site can be placed into and across the width of the stream, such that water can still flow under the weir. Spilled fuel will float on the water surface and be contained at the foot of the weir. It can then be removed using sorbents, booms or pumps and placed into barrels or plastic bags.

5.3.3 Barriers

In some situation barriers made of netting or fence material can be installed across a stream, and sorbent materials placed at the base to absorb spilled fuel. Sorbents will need to be replaced as soon as they are saturated. Water will be allowed to flow through. This is very similar to the weir option discussed above.

Note that in some cases, it may be appropriate to burn fuel or to let volatile fuels such as gasoline evaporate after containment on the water surface. This should only be undertaken in consultation with and after approval from the Aboriginal Affairs and Northern Development Canada or lead agency inspector.

5.4 PROCEDURES FOR TRANSFERRING, STORING AND MANAGING SPILL RELATED WASTES

In most cases, spill cleanups are initiated at the far end of the spill and contained moving towards the center of the spill. Sorbent socks and pads are generally used for small spill cleanups. A pump with attached fuel transfer hose can suction spills from leaking containers or large accumulations on land or ice and direct these larger quantities into empty drums. Hand tools such as cans, shovels and rakes are also very effective for small spills or hard to reach areas.

Used sorbent materials are to be placed in plastic bags for future disposal. All materials mentioned in this section are available in the spill kits located at the fuel storage areas, in trucks, the mechanic shop and in the camp. Following clean-up, any tools or equipment used will be properly washed and decontaminated or replaced if this is not possible.

For most of the containment procedures outlined, spilled petroleum products and materials used for containment will be placed into empty waste oil containers and sealed for proper disposal at an approved disposal facility.

5.5 PROCEDURES FOR RESTORING AFFECTED AREAS

Once a spill of reportable size has been contained, LWR and Archer Cathro will consult with the Aboriginal Affairs and Northern Development Canada (AANDC) or Mackenzie Valley Land and Water Board (MVLWB) or Lead Agency Inspector assigned to the file to determine the level of clean-up required. The inspector may require a site-specific study to ensure appropriate clean-up levels are met. Criteria that may be considered include natural biodegradation of oil, replacement of soil and re-vegetation.

6.0 RESOURCE INVENTORY

6.1 ON-SITE RESOURCES

Spill kits are located throughout the LNPG Project site. Spill kits will be located at all refueling locations, camp, fuel storage, at the drill and at the water pump. The contents of a typical spill kit are listed below the table below. Spill kit contents may vary from those listed below, however, industry standards must be maintained. Additional sorbent cloth will be available on site.

Contents of Conventional Spill Kits	
Tyvek splash suits	1 utility knife
Pairs of chemical master gloves	1 field notebook and pencil
10 large bags with ties for temporary use	1 rake
2 oil only booms (5"x10")	1 pickaxe
50 oil only mats (16"x20")	1 shovel
Sorbent socks	1 instruction binder
10 sorbent pads	Empty drums
2 large tarps and rolls of PE sheeting	Hatch removal sock
1 roll duct tape	

6.2 OFF-SITE RESOURCES

The following table lists the Project Management Team and applicable contacts for spill response. By calling one of the listed contacts, the emergency spill response plan is enabled.

Lake Winn Resources Corp. (Head Office)	(604) 689-1799
Archer Cathro (Whitehorse Office)	(867) 667-4415
Archer Cathro (Safety Coordinator)	(867) 332-6142
NWT Spill Report Line (24 Hour) EMAIL: spills@gov.nt.ca	(867) 920 8130
CANUTEC (24-hour)	(613) 996 6666
RCMP – Fort Simpson	(867) 695 1111
RCMP – Ross River	(867) 969 2677
Nursing Station (Fort Simpson)	(867) 695 7000
Nursing Station (Ross River)	(867) 969 4444
Parks Canada / Government of Canada	(867) 695-6572

7.0 TRAINING PROGRAM

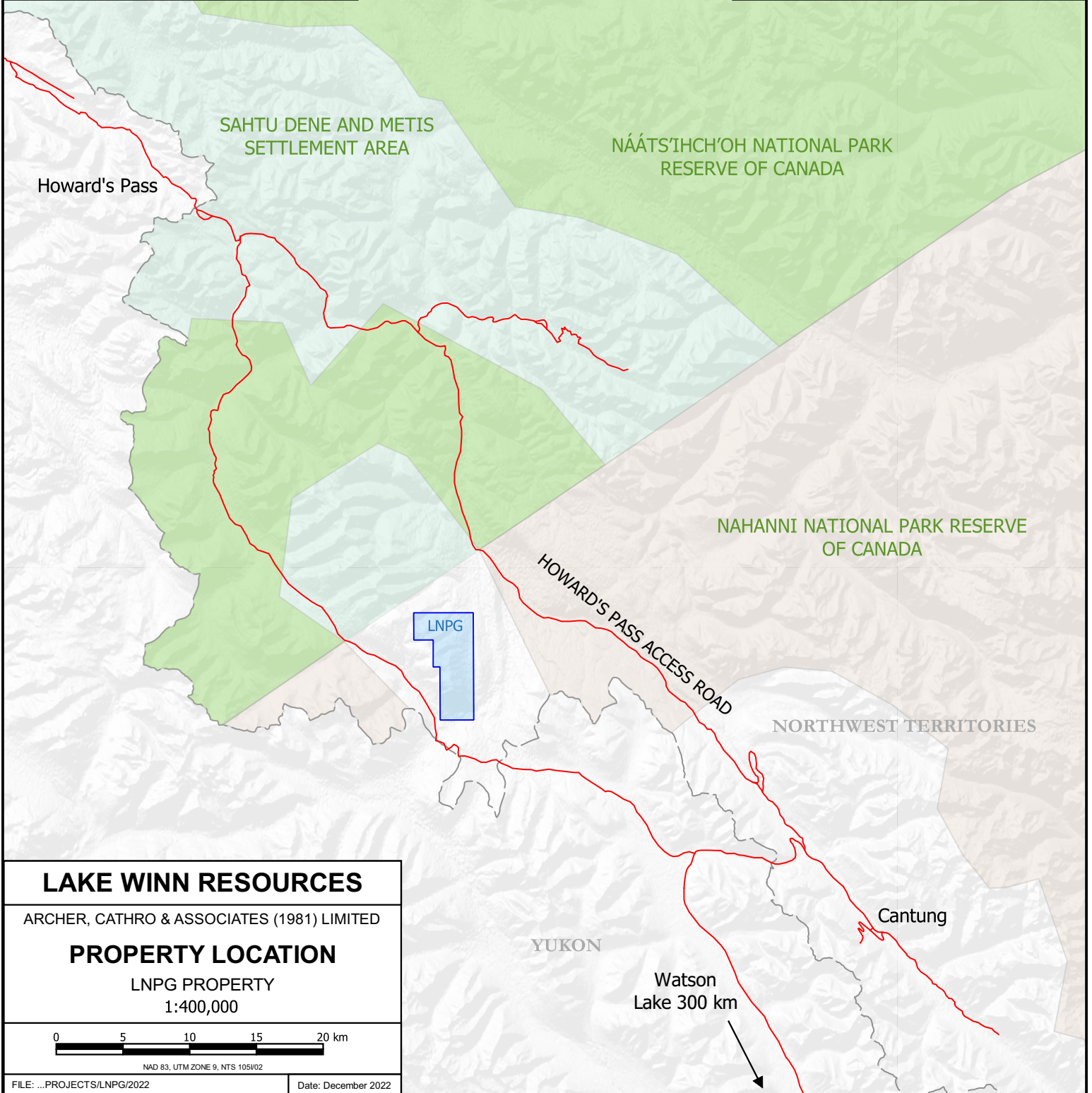
7.1 OUTLINE OF TRAINING PROGRAM

The employee and contractor training program was developed by Archer Cathro's Health & Safety Manger and has been distributed by the site superintendent. The following points are key steps in that program:

- All individuals entering the site are required to participate in an orientation session
- During this session, all locations of the spill plan and spill kits are provided on a map in hard copy
- An overview of the plan is provided by the site superintendent or designate leading the orientation session
- Specific training sessions, including mock spill exercises, are scheduled for individuals directly involved in handling hazardous materials as well as the steps involved in the event of a spill, including the proper use of spill kits
- All employees and contractors are required to have their basic first aid training as well as WHMIS training before working on the site
- Supervisors are required to have first aid training as well as transport of dangerous goods training

Appendix A

LNPG Project site map

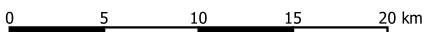


LAKE WINN RESOURCES

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

PROPERTY LOCATION

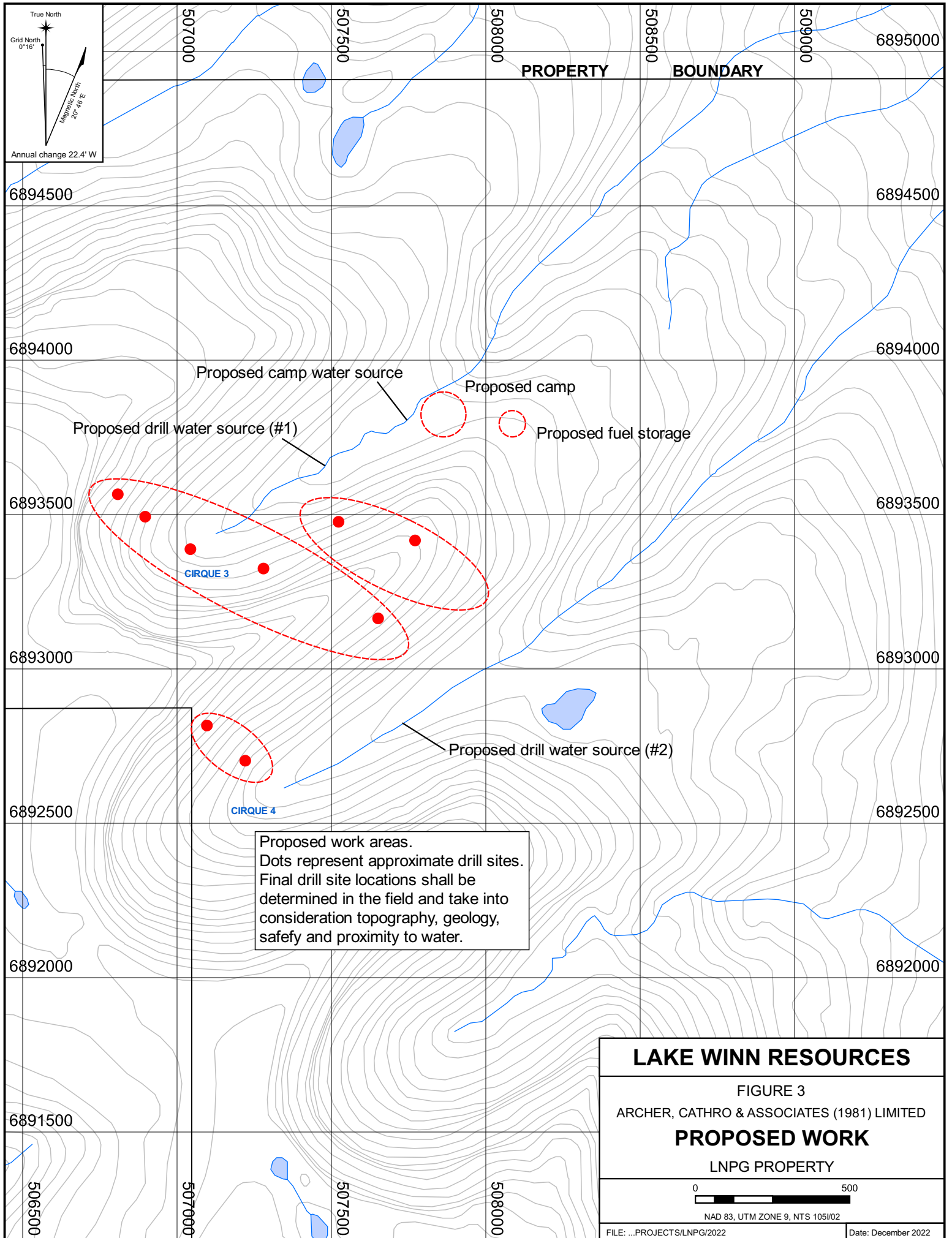
LNPG PROPERTY
1:400,000



NAD 83, UTM ZONE 9, NTS 105V02

Appendix B

Proposed Work Areas, Camp layout and Fuel Storage



True North
 Grid North 0°16'
 Magnetic North 20°48' E
 Annual change 22.4' W

PROPERTY BOUNDARY

Proposed camp water source
 Proposed camp
 Proposed fuel storage
 Proposed drill water source (#1)

CIRQUE 3

CIRQUE 4

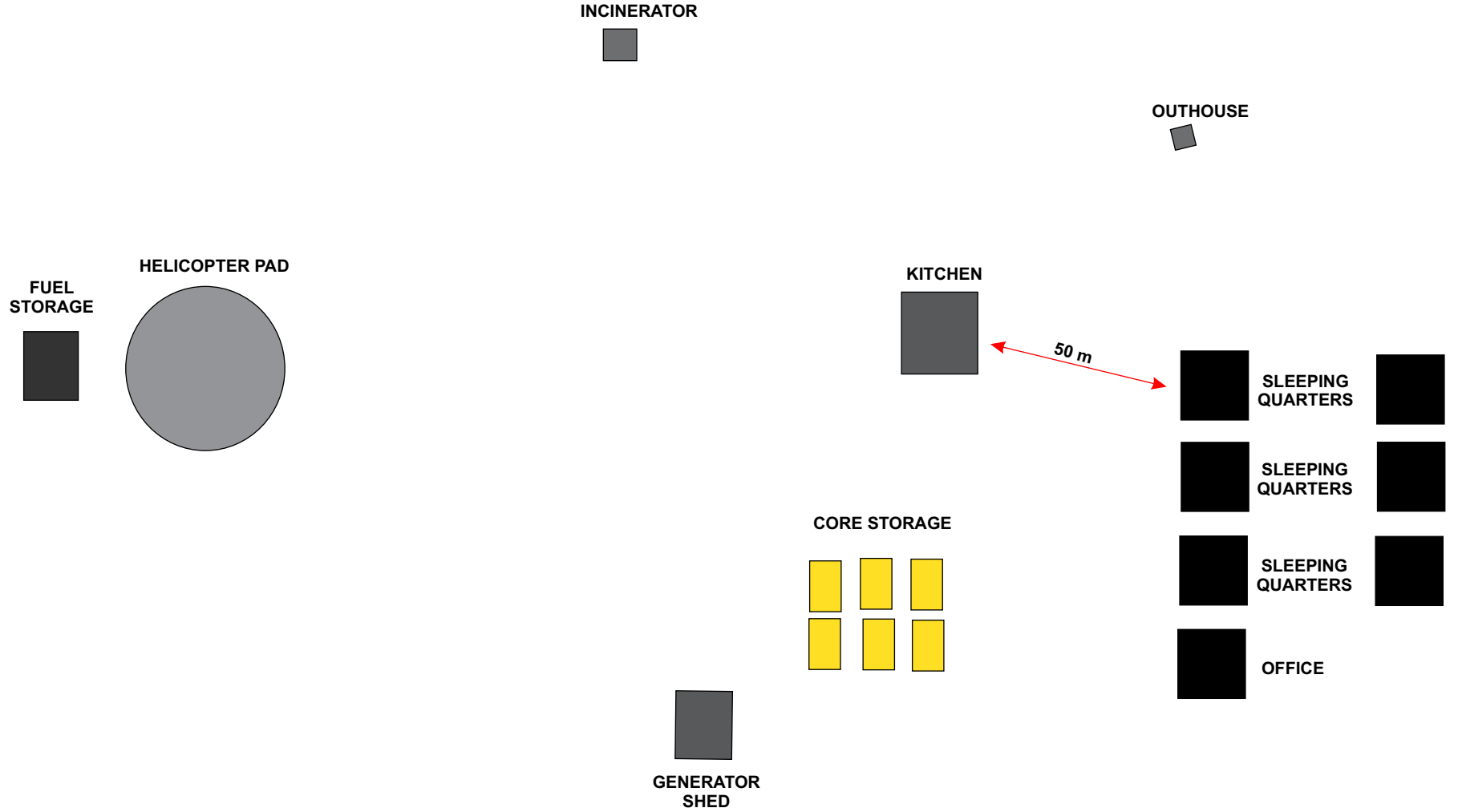
Proposed work areas.
 Dots represent approximate drill sites.
 Final drill site locations shall be determined in the field and take into consideration topography, geology, safety and proximity to water.

LAKE WINN RESOURCES
 FIGURE 3
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
PROPOSED WORK
 LNPg PROPERTY



NAD 83, UTM ZONE 9, NTS 1051/02

APPROXIMATE SKETCH OF MEL CAMP LAYOUT



Appendix C

Safety Data Sheets (SDS)



AMC K ION

AMC

Chemwatch Hazard Alert Code: 2

Chemwatch: 4751-58

Version No: 4.1.1.1

Safety Data Sheet according to WHMIS 2015 requirements

Issue Date: 11/08/2017

Print Date: 10/23/2019

L.GHS.CAN.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	AMC K ION
Synonyms	Not Available
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses	Use according to manufacturer's directions. 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
Emergency telephone numbers	Chemwatch - (1) 877 715 9305	+61 2 9186 1132
Other emergency telephone numbers	-	Not Available

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	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Specific target organ toxicity - repeated exposure Category 2
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Label elements

Hazard pictogram(s)	
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SIGNAL WORD	WARNING
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Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.

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

P260	Do not breathe mist/vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.

Precautionary statement(s) Response

P321	Specific treatment (see advice on this label).
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary statement(s) Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

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
Not Available	30-60	a blend of clay inhibitive polymers
127-08-2	10-<30	<u>potassium acetate</u>
Not Available	balance	nonhazardous ingredients

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.
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AMC K ION

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.
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

For potassium intoxications:

- ▶ Hyperkalaemia, in patients with abnormal renal function, results from reduced renal excretion following intoxication.
- ▶ The presence of electrocardiographic evidence of hyperkalemia or serum potassium levels exceeding 7.5 mE/L indicates a medical emergency requiring an intravenous line and constant cardiac monitoring.
- ▶ The intravenous ingestion of 5-10 ml of 10% calcium gluconate, in adults, over a 2 minute period antagonises the cardiac and neuromuscular effects. The duration of action is approximately 1 hour. [Ellenhorn and Barceloux: Medical Toxicology]

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 to be a significant fire risk. <p>Decomposes on heating and produces toxic fumes of: 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 breathing vapours and contact with skin and eyes.
Major Spills	<p>Minor hazard.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel.

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"> ▶ Polyethylene or polypropylene container. ▶ Packing as recommended by manufacturer. 20 L pails.
Storage incompatibility	None known

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
potassium acetate	Potassium acetate	9.8 mg/m ³	110 mg/m ³	640 mg/m ³

Ingredient	Original IDLH	Revised IDLH
potassium acetate	Not Available	Not Available

OCCUPATIONAL EXPOSURE BANDING


Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
potassium acetate	E	≤ 0.01 mg/m ³

Notes:

Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

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	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. <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.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Odourless liquid, mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	1.09
Odour	Not Available	Partition coefficient n-octanol / water	Not Available

AMC K ION

Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	>100	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	3.1 @ 25C	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	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	Not normally a hazard due to non-volatile nature of product
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Acute potassium poisonings following ingestion are rare because large doses usually induce vomiting and a healthy kidney ensures rapid excretion. Potassium poisoning disturbs the rhythm of the heart (a slow, weak pulse, heightened T waves on the ECG, arrhythmias heart block) and eventually produces a fall in blood pressure (due to weakened cardiac contractility).
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. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
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 K ION	TOXICITY	IRRITATION
	Not Available	Not Available
potassium acetate	TOXICITY	IRRITATION
	Oral (rat) LD50: 3250 mg/kg ^[2]	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

POTASSIUM ACETATE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a
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	non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.	
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 K ION	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

potassium acetate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	>1-mg/L	2
	EC50	48	Crustacea	>919mg/L	2
	EC50	72	Algae or other aquatic plants	>1-mg/L	2
	NOEC	72	Algae or other aquatic plants	1-mg/L	2

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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	<p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.</p> <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

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 Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

POTASSIUM ACETATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

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

Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS GHS (English)

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No (potassium acetate)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - ARIPS	Yes
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Revision Date	11/08/2017
Initial Date	Not Available

SDS Version Summary

Version	Issue Date	Sections Updated
3.1.1.1	12/16/2015	Appearance
4.1.1.1	11/08/2017	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

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

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AMC PURE VIS™ AMC

Chemwatch Hazard Alert Code: 1

Chemwatch: 17-8713

Version No: 10.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Issue Date: 11/01/2019

Print Date: 01/26/2021

L.GHS.AUS.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	AMC PURE VIS™
Chemical Name	Not Applicable
Synonyms	Not Available
Chemical formula	Not Applicable
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Drilling fluid additive.
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Details of the supplier of the safety data sheet

Registered company name	AMC
Address	216 Balcatta Rd, Balcatta WA 6021 Australia
Telephone	+61 (8) 9445 4000
Fax	+61 (8) 9445 4040
Website	www.amcmud.com
Email	amc@imdexlimited.com

Emergency telephone number

Association / Organisation	Chemwatch	CHEMWATCH EMERGENCY RESPONSE
Emergency telephone numbers	1800 039 008	+61 2 9186 1132
Other emergency telephone numbers	Not Available	+61 1800 951 288

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

SECTION 2 Hazards identification

Classification of the substance or mixture

NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

ChemWatch Hazard Ratings

	Min	Max
Flammability	1	1
Toxicity	0	0
Body Contact	1	1
Reactivity	1	1
Chronic	0	0

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	Not Applicable
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Classification [1]	Not Applicable
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Label elements

Hazard pictogram(s)	Not Applicable
Signal word	Not Applicable

Hazard statement(s)

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

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 Firefighting 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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Advice for firefighters

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.
HAZCHEM	Not Applicable

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. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Avoid contamination of water, foodstuffs, feed or seed. <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	Material name	TEEL-1	TEEL-2	TEEL-3
AMC PURE VIS™	Not Available	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.
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>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	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	<p>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.</p> <p>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.</p>
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	✗
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 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 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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
HAZCHEM	Not Applicable

Land transport (ADG): 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 ICG Code

Product name	Ship Type

SECTION 15 Regulatory information

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

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	Yes
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - ARIPS	Yes
Legend:	<i>Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)</i>

SECTION 16 Other information

Revision Date	11/01/2019
Initial Date	10/09/2008

SDS Version Summary

Version	Issue Date	Sections Updated
9.1.1.1	01/09/2018	Name
10.1.1.1	11/01/2019	One-off system update. NOTE: This may or may not change the GHS classification

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
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

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Material Safety Data Sheet

According to the Controlled Product Regulations

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : **Regular Unleaded Gasoline Dyed**
Uses : Fuel for spark ignition engines designed to run on unleaded fuel.
Product Code : 002D2061
Manufacturer/Supplier : **Shell Canada Products**
 400 - 4th Avenue S.W
 Calgary AB T2P 0J4
 Canada
Telephone : (+1) 8006611600
Fax : (+1) 4033848345
Emergency Telephone Number
 : Shell Canada: (+1) 800-661-7378
 CANUTEC (24 hr): (+1) 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description : Complex mixture of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons with carbon numbers predominantly in the C4 to C12 range. Includes benzene at 1.5% v/v maximum. May also contain several additives at <0.1% v/v each.

WHMIS Controlled Ingredients

Chemical Identity	CAS No.	Conc. W/W
Gasoline, low boiling point naphtha	86290-81-5	90.00- 100.00 %

Contains Benzene, CAS # 71-43-2.
 Contains Toluene, CAS # 108-88-3.
 Contains Ethylbenzene, CAS # 100-41-4.
 Contains n-Hexane, CAS # 110-54-3.
 Contains Xylene (Mixed Isomers), CAS # 1330-20-7.
 Contains Naphthalene, CAS # 91-20-3.
 Contains Cyclohexane, CAS# 110-82-7.
 Contains Tri-methyl-benzene (all isomers), CAS# 25551-13-7.
 Dyes and markers can be used to indicate tax status and prevent fraud.

Refer to Chapter 8 for Occupational Exposure Guidelines.

Material Safety Data Sheet

According to the Controlled Product Regulations

3. HAZARDS IDENTIFICATION



- WHMIS Class/Description** : Class B2 Flammable Liquid
 Class D2A Other Toxic Effects - Carcinogen/Mutagen
 Class D2A Other Toxic Effects - Reproductive Toxicity
 Class D2B Other Toxic Effects - Skin Irritant
 Class D2B Other Toxic Effects - Narcotic effects.
- Routes of Exposure** : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
- Health Hazards** : Vapours may cause drowsiness and dizziness. Slightly irritating to respiratory system. Irritating to skin. Moderately irritating to eyes. Harmful: may cause lung damage if swallowed. Possibility of organ or organ system damage from prolonged exposure; see Chapter 11 for details. Target organ(s): Blood-forming organs. Peripheral nervous system. May cause heritable genetic damage. Possible risk of harm to the unborn child. A component or components of this material may cause cancer. This product contains benzene which may cause leukaemia (AML - acute myelogenous leukaemia). May cause MDS (Myelodysplastic Syndrome).
- Signs and Symptoms** : Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Eye irritation signs and symptoms may include a burning sensation and a temporary redness of the eye. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Damage to blood-forming organs may be evidenced by: a) fatigue and anemia (RBC), b) decreased resistance to infection, and/or excessive bruising and bleeding (platelet effect). Peripheral nerve damage may be evidenced by impairment of motor function (incoordination, unsteady walk, or muscle weakness in the extremities, and/or loss of sensation in the arms and legs). Auditory system effects may include temporary hearing loss and/or ringing in the ears.
- Safety Hazards** : Extremely flammable. Electrostatic charges may be generated during handling. Electrostatic discharge may cause fire. Liquid evaporates quickly and can ignite leading to a flash fire, or an explosion in a confined space.

Material Safety Data Sheet

According to the Controlled Product Regulations

- Environmental Hazards** : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Additional Information** : This product is intended for use in closed systems only.

4. FIRST AID MEASURES

- Inhalation** : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
- Skin Contact** : Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
- Eye Contact** : Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persist transport to the nearest medical facility for additional treatment.
- Ingestion** : If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.
- Advice to Physician** : Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

- Flash point** : < -40 °C / -40 °F
- Upper / lower** : 1 - 8 %(V)
- Flammability or Explosion limits** :
- Auto ignition temperature** :
- Hazardous Combustion Products and Specific Hazards** : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will float and can be reignited on surface water.
- Suitable Extinguishing Media** : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
- Unsuitable Extinguishing Media** : Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

Material Safety Data Sheet

According to the Controlled Product Regulations

- Protective Equipment for Firefighters** : Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.
- Additional Advice** : If the fire cannot be extinguished the only course of action is to evacuate immediately. Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

6. ACCIDENTAL RELEASE MEASURES

- Protective Measures** : Vapour can travel for considerable distances both above and below the ground surface. Underground services (drains, pipelines, cable ducts) can provide preferential flow paths. Do not breathe fumes, vapour. Take measures to minimise the effects on groundwater. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- Clean Up Methods** : For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- Additional Advice** : Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26.

7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the

Material Safety Data Sheet

According to the Controlled Product Regulations

information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse. Turn off all battery operated portable electronic devices (examples include: cellular phones, pagers and CD players) before operating gasoline pump. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Prevent spillages. For comprehensive advice on handling, product transfer, storage and tank cleaning refer to the product supplier. Do not use as a cleaning solvent or other non-motor fuel uses.

Vehicle fueling and vehicle workshop areas - Avoid inhalation of vapours and contact with skin, when filling or emptying a vehicle.

- Handling** : When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Never siphon by mouth. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Avoid exposure.
- Storage** : Drum and small container storage: Keep containers closed when not in use. Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Packaged product must be kept tightly closed and stored in a diked (bunded) well-ventilated area, away from, ignition sources and other sources of heat. Take suitable precautions when opening sealed containers, as pressure can build up during storage. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.
- Product Transfer** : Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes.
- Recommended Materials** : For container and container linings, use mild steel or aluminium. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FKM), which have been specifically tested for compatibility with this product. For

Material Safety Data Sheet

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- Unsuitable Materials** : container linings, use amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B. Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.
- Container Advice** : Do not cut, drill, grind, weld or perform similar operations on or near containers. Gasoline containers must not be used for storage of other products. Containers, even those that have been emptied, can contain explosive vapours.
- Additional Information** : Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Gasoline, low boiling point naphtha	ACGIH	TWA	300 ppm		
	ACGIH	STEL	500 ppm		
Naphthalene	ACGIH	TWA	10 ppm		
	ACGIH	STEL	15 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
Cyclohexane	ACGIH	TWA	100 ppm		
Xylene	ACGIH	TWA	100 ppm		
	ACGIH	STEL	150 ppm		
Toluene	ACGIH	TWA	20 ppm		
Benzene	ACGIH	TWA	0.5 ppm		
	ACGIH	STEL	2.5 ppm		

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	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SHELL IS	TWA	0.5 ppm	1.6 mg/m ³	
	SHELL IS	STEL	2.5 ppm	8 mg/m ³	
n-hexane	ACGIH	TWA	50 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
Ethylbenzene	ACGIH	TWA	20 ppm		
Trimethylbenzene, all isomers	ACGIH	TWA	25 ppm		

Consult local authorities for acceptable exposure limits within their jurisdiction.

Additional Information : SHELL IS is the Shell Internal Standard. Skin notation means that significant exposure can also occur by absorption of liquid through the skin and of vapour through the eyes or mucous membranes.

Biological Exposure Index (BEI) - See reference for full details

Material	Determinant	Sampling Time	BEI	Reference
Benzene	S-Phenylmercapturic acid in Creatinine in urine	Sampling time: End of shift.	25 µg/g	ACGIH BEL (2011)
	t,t-Muconic acid in Creatinine in urine	Sampling time: End of shift.	500 µg/g	ACGIH BEL (2011)
n-hexane	2,5-Hexanedion, without hydrolysis in Urine	Sampling time: End of shift at end of work week.	0.4 mg/l	ACGIH BEL (2011)
Toluene	toluene in Urine	Sampling time: End of shift.	0.03 mg/l	ACGIH BEL (2011)

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	toluene in Blood	Sampling time: Prior to last shift of work week.	0.02 mg/l	ACGIH BEL (2011)
	o-Cresol, with hydrolysis in Creatinine in urine	Sampling time: End of shift.	0.3 mg/g	ACGIH BEL (2011)
Ethylbenzene	Sum of mandelic acid and phenylglyoxylic acid in Creatinine in urine	Sampling time: End of shift at end of work week.	0.7 g/g	ACGIH BEL (2011)
	Ethyl benzene in End-exhaled air	Sampling time: Not critical.		ACGIH BEL (2011)
Xylene	Methylhippuric acids in Creatinine in urine	Sampling time: End of shift.	1.5 g/g	ACGIH BEL (2011)
Naphthalene	1- Hydroxypyrene, with hydrolysis (1-HP) in Urine	Sampling time: End of shift at end of work week.		ACGIH BEL (2011)

- Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Eye washes and showers for emergency use.
- Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and

Material Safety Data Sheet

According to the Controlled Product Regulations

Hand Protection	: use must be in accordance with local regulations. : Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable.
Eye Protection	: Chemical splash goggles (chemical monogoggles).
Protective Clothing	: Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).
Monitoring Methods	: Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	: Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Purple. Liquid.
Odour	: Hydrocarbon.
Odour threshold	: < 0.25 ppm
pH	: Not applicable.
Initial Boiling Point and Boiling Range	: 25 - 210 °C / 77 - 410 °F
Freezing Point	: Data not available
Vapour pressure	: < 800 hPa at 37.8 °C / 100.0 °F
Specific gravity	: 0.74
Density	: Typical 0.72 - 0.76 g/cm ³ at 15 °C / 59 °F
n-octanol/water partition coefficient (log Pow)	: 2 - 6
Kinematic viscosity	: 0.5 - 0.75 mm ² /s at 40 °C / 104 °F
Vapour density (air=1)	: 3.5
Evaporation rate (nBuAc=1)	: Data not available

10. STABILITY AND REACTIVITY

Stability	: Stable under normal conditions of use.
Conditions to Avoid	: Avoid heat, sparks, open flames and other ignition sources.
Materials to Avoid	: Strong oxidising agents.
Hazardous Decomposition Products	: Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly

Material Safety Data Sheet

According to the Controlled Product Regulations

dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

Hazardous Polymerisation	: No
Sensitivity to Mechanical Impact	: No
Sensitivity to Static Discharge	: Yes

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	: Information given is based on product data, a knowledge of the components and the toxicology of similar products.
Routes of Exposure	: Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
Acute Oral Toxicity	: Low toxicity: LD50 >2000 mg/kg , Rat. Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Acute Dermal Toxicity	: Low toxicity: LD50 >2000 mg/kg , Rabbit.
Acute Inhalation Toxicity	: Low toxicity: LC50 >5 mg/l , 4.00 h , Rat. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Skin Irritation	: Irritating to skin.
Eye Irritation	: Expected to be slightly irritating.
Respiratory Irritation	: Based on human experience, breathing of vapours or mists may cause a temporary burning sensation to nose, throat and lungs.
Sensitisation	: Not expected to be a skin sensitiser.
Repeated Dose Toxicity	: Kidney: caused kidney effects in male rats which are not considered relevant to humans Peripheral nervous system: repeated exposure causes peripheral neuropathy in animals. (n-hexane)
Mutagenicity	: May cause heritable genetic damage. (Benzene) Mutagenicity studies on gasoline and gasoline blending streams have shown predominantly negative results.
Carcinogenicity	: Known human carcinogen. (Benzene) May cause leukaemia (AML - acute myelogenous leukemia). (Benzene) Inhalation exposure to mice causes liver tumours, which are not considered relevant to humans.
Reproductive and Developmental Toxicity	: Causes foetotoxicity at doses which are maternally toxic. (Toluene) May impair fertility at doses which produce other toxic effects. (n-hexane) Many case studies involving abuse during pregnancy indicate that toluene can cause birth defects, growth retardation and learning difficulties. (Toluene)

Material Safety Data Sheet

According to the Controlled Product Regulations

- Additional Information** : Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.
Prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss. Abuse of vapours has been associated with organ damage and death.
May cause MDS (Myelodysplastic Syndrome).

12. ECOLOGICAL INFORMATION

Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been carried out on a variety of hydrocarbon blends and streams but not those containing additives. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

- Acute Toxicity** : Toxic:LL/EL/IL50 1-10 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.)
- Mobility** : Floats on water. Contains volatile constituents. Evaporates within a day from water or soil surfaces. Large volumes may penetrate soil and could contaminate groundwater.
- Persistence/degradability** : Major constituents are expected to be inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air.
- Bioaccumulation** : Contains constituents with the potential to bioaccumulate.
- Other Adverse Effects** : Films formed on water may affect oxygen transfer and damage organisms.

13. DISPOSAL CONSIDERATIONS

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
- Container Disposal** : Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not, puncture, cut, or weld uncleaned drums. Send to drum recoverer or metal reclaimer. Do not pollute the soil, water or environment with the waste container.

Material Safety Data Sheet

According to the Controlled Product Regulations

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION**Canadian Road and Rail Shipping Classification**

UN/NA Number	UN 1203
Proper shipping name	GASOLINE
Class Division	3
Packing group	II
Shipping Description	GASOLINE, Class 3, UN 1203, PG II
Additional Information	Marine pollutant MARPOL Annex 1 rules apply for bulk shipments by sea.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description : Class B2 Flammable Liquid
Class D2A Other Toxic Effects - Carcinogen/Mutagen
Class D2A Other Toxic Effects - Reproductive Toxicity
Class D2B Other Toxic Effects - Skin Irritant
Class D2B Other Toxic Effects - Narcotic effects.

Inventory Status

DSL : All components listed.

16. OTHER INFORMATION

Additional Information : This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.

MSDS Version Number : 1.2

MSDS Effective Date : 2015-01-04

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

MSDS Regulation : The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.

Material Safety Data Sheet

According to the Controlled Product Regulations

- MSDS Prepared By** : Shell Product Stewardship; 1-800-661-1600
- Uses and Restrictions** : This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier. This product is not to be used as a solvent or cleaning agent; for lighting or brightening fires; as a skin cleanser. This product is designed only to suit automotive applications and no provision is made for the requirements of aviation applications.
- MSDS Distribution** : The information in this document should be made available to all who may handle the product.
- Disclaimer** : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.



AMC ROD GREASE XTRA TACKY AMC

Chemwatch Hazard Alert Code: 2

Chemwatch: 7641-76

Version No: 15.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Issue Date: 11/01/2019

Print Date: 01/26/2021

L.GHS.AUS.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

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

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Grease, lubricant for diamond drills.
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Details of the supplier of the safety data sheet

Registered company name	AMC
Address	216 Balcatta Rd, Balcatta WA 6021 Australia
Telephone	+61 (8) 9445 4000
Fax	+61 (8) 9445 4040
Website	www.amcmud.com
Email	amc@imdexlimited.com

Emergency telephone number

Association / Organisation	Chemwatch	CHEMWATCH EMERGENCY RESPONSE
Emergency telephone numbers	1800 039 008	+61 2 9186 1132
Other emergency telephone numbers	Not Available	+61 1800 951 288

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

SECTION 2 Hazards identification

Classification of the substance or mixture

HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

ChemWatch Hazard Ratings

	Min	Max
Flammability	0	
Toxicity	2	
Body Contact	0	
Reactivity	1	
Chronic	1	


0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	Not Applicable
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AMC ROD GREASE XTRA TACKY

Classification ^[1]	Acute Toxicity (Oral) Category 4
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

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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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 or doctor/physician 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	<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. ▶ Avoid giving milk or oils. ▶ Avoid giving alcohol.
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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.

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SECTION 5 Firefighting 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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Advice for firefighters

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	<p>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.</p>
HAZCHEM	Not Applicable

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.

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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	<p>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.</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

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	naphthenic distillate, heavy, hydrotreated (severe)	Oil mist, refined mineral	5 mg/m ³	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
naphthenic distillate, heavy, hydrotreated (severe)	Distillates (petroleum) hydrotreated heavy naphthenic	140 mg/m ³	1,500 mg/m ³	8,900 mg/m ³

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

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
barium, acetate tallow fatty acid complexes	E	≤ 0.01 mg/m ³

Notes: Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.


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.
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AMC ROD GREASE XTRA TACKY

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	<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
Odour threshold	Not Available	Auto-ignition temperature (°C)	>315
pH (as supplied)	Not Applicable	Decomposition temperature	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

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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
	Inhalation (ATE) LC50: 44 mg/l/4h ^[2] Oral (ATE) LD50: 2000 mg/kg ^[2]	Not Available
naphthenic distillate, heavy, hydrotreated (severe)	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2000 mg/kg ^[2] Inhalation(Rat) LC50; =2.18 mg/l4hrs ^[2] Oral(Rat) LD50; >5000 mg/kg ^[2]	Eye: no adverse effect observed (not irritating) ^[1] Skin: no adverse effect observed (not irritating) ^[1]
	TOXICITY	IRRITATION
barium, acetate tallow fatty acid complexes	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	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
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AMC ROD GREASE XTRA TACKY

(SEVERE)	<p>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	Fatty acid salts are of low acute toxicity. Their skin and eye irritation potential is chain length dependent and decreases with increasing chain length - they are poorly absorbed through the skin nor are they skin sensitizers.
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

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
	LC50	96	Fish	>100mg/L	2
	EC50	48	Crustacea	>1000mg/L	1
	EC50	96	Algae or other aquatic plants	>1000mg/L	1
	NOEC	504	Crustacea	>1mg/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 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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.

AMC ROD GREASE XTRA TACKY

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
HAZCHEM	Not Applicable

Land transport (ADG): 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
naphthenic distillate, heavy, hydrotreated (severe)	Not Available
barium, acetate tallow fatty acid complexes	Not Available

Transport in bulk in accordance with the ICG 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

AMC ROD GREASE XTRA TACKY

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

- Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
- Australian Inventory of Industrial Chemicals (AIIC)
- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

barium, acetate tallow fatty acid complexes is found on the following regulatory lists

- Australian Inventory of Industrial Chemicals (AIIC)

National Inventory Status

National Inventory	Status
Australia - AIIC / 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 - ARIPS	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 and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 Other information

Revision Date	11/01/2019
Initial Date	01/17/2007

SDS Version Summary

Version	Issue Date	Sections Updated
14.1.1.1	06/28/2018	Acute Health (eye), Acute Health (inhaled), Acute Health (skin), Acute Health (swallowed), Advice to Doctor, Chronic Health, Classification, Engineering Control, Fire Fighter (fire/explosion hazard), First Aid (inhaled), First Aid (skin), Handling Procedure, Ingredients, Personal Protection (eye), Physical Properties, Spills (major), Spills (minor), Toxicity and Irritation (Toxicity Figure)
15.1.1.1	11/01/2019	One-off system update. NOTE: This may or may not change the GHS classification

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

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

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SAFETY DATA SHEET

According to the Hazardous Products Regulations

Shell Rotella T Triple Protection 15W-40

Version 1.5	Revision Date: 2016-04-29	SDS Number: 800001003995	Print Date: 2016-04-30 Date of last issue: 14.04.2016 Date of first issue: 16.02.2010
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SECTION 1. IDENTIFICATION

Product name : Shell Rotella T Triple Protection 15W-40
Product code : 001D5439

Manufacturer or supplier's details

Manufacturer/Supplier : **Shell Canada Products**
400 - 4th Avenue S.W
Calgary AB T2P 0J4
Canada

Telephone : (+1) 8006611600
Telefax : (+1) 4033848345

Emergency telephone number : CHEMTREC (24 hr): 1 (703) 527-3887 or 1 (800) 424-9300 (US)
CANUTEC (24 hr): (+1) 613-996-6666; Toll Free: 1-888-CAN-UTEC (226-8832)

Recommended use of the chemical and restrictions on use

Recommended use : Engine oil.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

Hazard pictograms : No Hazard Symbol required

Signal word : No signal word

Hazard statements : PHYSICAL HAZARDS:
Not classified as a physical hazard under GHS criteria.
HEALTH HAZARDS:
Not classified as a health hazard under GHS criteria.
ENVIRONMENTAL HAZARDS:
Not classified as an environmental hazard under GHS criteria.

Precautionary statements : **Prevention:**
No precautionary phrases.
Response:
No precautionary phrases.
Storage:

SAFETY DATA SHEET

According to the Hazardous Products Regulations

Shell Rotella T Triple Protection 15W-40

Version
1.5

Revision Date:
2016-04-29

SDS Number:
800001003995

Print Date: 2016-04-30
Date of last issue: 14.04.2016
Date of first issue: 16.02.2010

No precautionary phrases.

Disposal:

No precautionary phrases.

Other hazards which do not result in classification

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Used oil may contain harmful impurities.

Not classified as flammable but will burn.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name : Shell Rotella T Triple Protection 15W-40

Chemical nature : Highly refined mineral oils and additives.
The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

* contains one or more of the following CAS-numbers: 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-65-0, 68037-01-4, 72623-86-0, 72623-87-1, 8042-47-5, 848301-69-9.

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Polyolefin amide alkeneamine	Not Assigned	1 - 3
Zinc dialkyl dithiophosphate	84605-29-8	1 - 2.4
Calcium sulphonate	70024-69-0	0.1 - 0.9
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	Not Assigned	0 - 90

SECTION 4. FIRST-AID MEASURES

General advice : Not expected to be a health hazard when used under normal conditions.

If inhaled : No treatment necessary under normal conditions of use.
If symptoms persist, obtain medical advice.

In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention.

In case of eye contact : Flush eye with copious quantities of water.
If persistent irritation occurs, obtain medical attention.

If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

Most important symptoms : Oil acne/folliculitis signs and symptoms may include formation

SAFETY DATA SHEET

According to the Hazardous Products Regulations

Shell Rotella T Triple Protection 15W-40

Version	Revision Date:	SDS Number:	Print Date: 2016-04-30
1.5	2016-04-29	800001003995	Date of last issue: 14.04.2016
			Date of first issue: 16.02.2010

and effects, both acute and delayed : of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : Do not use water in a jet.

Specific hazards during fire-fighting : Hazardous combustion products may include:
A complex mixture of airborne solid and liquid particulates and gases (smoke).
Carbon monoxide may be evolved if incomplete combustion occurs.
Unidentified organic and inorganic compounds.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid contact with skin and eyes.

Environmental precautions : Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

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

Methods and materials for containment and cleaning up : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material.
Reclaim liquid directly or in an absorbent.

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Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.

Additional advice : For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet.
For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet.

SECTION 7. HANDLING AND STORAGE

General Precautions : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Advice on safe handling : Avoid prolonged or repeated contact with skin.
Avoid inhaling vapour and/or mists.
When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

Avoidance of contact : Strong oxidising agents.

Product Transfer : This material has the potential to be a static accumulator.
Proper grounding and bonding procedures should be used during all bulk transfer operations.

Storage

Other data : Keep container tightly closed and in a cool, well-ventilated place.
Use properly labeled and closable containers.

Store at ambient temperature.

Packaging material : Suitable material: For containers or container linings, use mild steel or high density polyethylene.
Unsuitable material: PVC.

Container Advice : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

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SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Oil mist, mineral	Not Assigned	TWA ((inhalable fraction))	5 mg/m ³	US. ACGIH Threshold Limit Values
		TWA (Mist)	5 mg/m ³	OSHA Z-1
		TWA (Inhalable fraction)	5 mg/m ³	ACGIH

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods <http://www.cdc.gov/niosh/>

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <http://www.osha.gov/>

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances <http://www.hse.gov.uk/>

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany <http://www.dguv.de/inhalt/index.jsp>

L'Institut National de Recherche et de Sécurité, (INRS), France <http://www.inrs.fr/accueil>

Engineering measures

: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:
Adequate ventilation to control airborne concentrations.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

General Information:

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of

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equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance.

Retain drain downs in sealed storage pending disposal or subsequent recycle.

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.

Practice good housekeeping.

Personal protective equipment

Respiratory protection

: No respiratory protection is ordinarily required under normal conditions of use.
In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material.
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
Select a filter suitable for the combination of organic gases and vapours [Type A/Type P boiling point >65°C (149°F)].

Hand protection
Remarks

: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. PVC, neoprene or nitrile rubber gloves Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm

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- depending on the glove make and model.
- Eye protection : If material is handled such that it could be splashed into eyes, protective eyewear is recommended.
- Skin and body protection : Skin protection is not ordinarily required beyond standard work clothes.
It is good practice to wear chemical resistant gloves.
- Thermal hazards : Not applicable
- Protective measures : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Environmental exposure controls

- General advice : Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.
Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.
-

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Liquid at room temperature.
- Colour : amber
- Odour : Slight hydrocarbon
- Odour Threshold : Data not available
- pH : Not applicable
- pour point : -30 °C / -22 °F
Method: ASTM D97
- Initial boiling point and boiling range : > 280 °C / 536 °F
estimated value(s)
- Flash point : 204 °C / 399 °F

Method: ASTM D92
- Evaporation rate : Data not available

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Flammability (solid, gas)	: Data not available
Upper explosion limit	: Typical 10 %(V)
Lower explosion limit	: Typical 1 %(V)
Vapour pressure	: < 0.5 Pa (20 °C / 68 °F) estimated value(s)
Relative vapour density	: > 1 estimated value(s)
Relative density	: 0.879 (15 °C / 59 °F)
Density	: 879 kg/m ³ (15.0 °C / 59.0 °F)Method: ASTM D4052
Solubility(ies)	
Water solubility	: negligible
Solubility in other solvents	: Data not available
Partition coefficient: n-octanol/water	: Pow: > 6 (based on information on similar products)
Auto-ignition temperature	: > 320 °C / 608 °F
Viscosity	
Viscosity, dynamic	: Data not available
Viscosity, kinematic	: 120 mm ² /s (40.0 °C / 104.0 °F) Method: ASTM D445
	15.5 mm ² /s (100 °C / 212 °F) Method: ASTM D445
Explosive properties	: Not classified
Oxidizing properties	: Data not available
Conductivity	: This material is not expected to be a static accumulator.
Decomposition temperature	: Data not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.
Chemical stability	: Stable.

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Possibility of hazardous reactions	: Reacts with strong oxidising agents.
Conditions to avoid	: Extremes of temperature and direct sunlight.
Incompatible materials	: Strong oxidising agents.
Hazardous decomposition products	: Hazardous decomposition products are not expected to form during normal storage.

SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment	: Information given is based on data on the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
----------------------	---

Information on likely routes of exposure

Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.

Acute toxicity

Product:

Acute oral toxicity	: LD50 (rat): > 5,000 mg/kg Remarks: Expected to be of low toxicity:
Acute inhalation toxicity	: Remarks: Not considered to be an inhalation hazard under normal conditions of use.
Acute dermal toxicity	: LD50 (Rabbit): > 5,000 mg/kg Remarks: Expected to be of low toxicity:

Skin corrosion/irritation

Product:

Remarks: Expected to be slightly irritating.
Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Serious eye damage/eye irritation

Product:

Remarks: Expected to be slightly irritating.

Components:

Zinc dialkyl dithiophosphate:

Remarks: Based on available data, the classification criteria are not met.

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Respiratory or skin sensitisation

Product:

Remarks: Not expected to be a skin sensitiser.

Components:

Calcium sulphonate:

Remarks: May cause an allergic skin reaction in sensitive individuals.

Remarks: Classified Skin Sensitiser Category 1B.

Germ cell mutagenicity

Product:

Genotoxicity in vivo : Remarks: Not considered a mutagenic hazard.

Carcinogenicity

Product:

Remarks: Not expected to be carcinogenic.

Remarks: Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies.
Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

Reproductive toxicity

Product:

Effects on fertility :
Remarks: Not expected to impair fertility.
Not expected to be a developmental toxicant.

STOT - single exposure

Product:

Remarks: Not expected to be a hazard.

STOT - repeated exposure

Product:

Remarks: Not expected to be a hazard.

Aspiration toxicity

Product:

Not considered an aspiration hazard.

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Further information

Product:

Remarks: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal.

ALL used oil should be handled with caution and skin contact avoided as far as possible.

Remarks: Continuous contact with used engine oils has caused skin cancer in animal tests.

Remarks: Slightly irritating to respiratory system.

SECTION 12. ECOLOGICAL INFORMATION

Basis for assessment : Ecotoxicological data have not been determined specifically for this product.
Information given is based on a knowledge of the components and the ecotoxicology of similar products.
Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s). (LL/EL/IL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity) : Remarks: Expected to be practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to crustacean (Acute toxicity) : Remarks: Expected to be practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to algae/aquatic plants (Acute toxicity) : Remarks: Expected to be practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to crustacean (Chronic toxicity) : Remarks: Data not available

Toxicity to microorganisms (Acute toxicity) : Remarks: Data not available

Persistence and degradability

Product:

Biodegradability : Remarks: Expected to be not readily biodegradable.
Major constituents are expected to be inherently biodegradable, but contains components that may persist in the environ-

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ment.

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Contains components with the potential to bioaccumulate.

Partition coefficient: n-octanol/water : Pow: > 6
Remarks: (based on information on similar products)

Mobility in soil

Product:

Mobility : Remarks: Liquid under most environmental conditions.
If it enters soil, it will adsorb to soil particles and will not be mobile.

Remarks: Floats on water.

Other adverse effects

Product:

Additional ecological information : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities.
Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

Poorly soluble mixture.
May cause physical fouling of aquatic organisms.

Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

Contaminated packaging : Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

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Disposal should be in accordance with applicable regional, national, and local laws and regulations.

SECTION 14. TRANSPORT INFORMATION

National Regulations

TDG

Not regulated as a dangerous good

International Regulation

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Pollution category	:	Not applicable
Ship type	:	Not applicable
Product name	:	Not applicable
Special precautions	:	Not applicable

Special precautions for user

Remarks : Special Precautions: Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

Additional Information : MARPOL Annex 1 rules apply for bulk shipments by sea.

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 (HPR) and the SDS contains all the information required by the HPR.

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

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

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

A vertical bar (|) in the left margin indicates an amendment from the previous version.

Revision Date : 2016-04-29

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CA / EN

Appendix D

Spill Report Form (NU & NT)

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: MM DD YY	Report Time:	<input type="checkbox"/> Original Spill Report OR <input type="checkbox"/> Update # _____ to the Original Spill Report	Report Number:	
	Occurrence Date: MM DD YY	Occurrence Time:			
C	Land Use Permit Number (if applicable):		Water Licence Number (if applicable):		
D	Geographic Place Name or Distance and Direction from the Named Location:		Region: <input type="checkbox"/> NT <input type="checkbox"/> Nunavut <input type="checkbox"/> Adjacent Jurisdiction or Ocean		
E	Latitude: _____ Degrees _____ Minutes _____ Seconds		Longitude: _____ 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: <input type="checkbox"/> Potential Spill	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:
Lead Agency: <input type="checkbox"/> EC <input type="checkbox"/> CCG/TCMSS <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> AANDC <input type="checkbox"/> NEB <input type="checkbox"/> Other: _____			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 E

Immediately Reportable Spill Quantities

Reportable Quantities for NWT Spills

Note: L = litre; kg = kilogram; PCB = Polychlorinated Biphenyls; ppm = parts per million

Substance	Reportable Quantity	TDG Class
Explosives	Any amount	1.0
Compressed gas (toxic/corrosive)		2.3/2.4
Infectious substances		6.2
Sewage and Wastewater (unless otherwise authorized)		6.2
Radioactive materials		7.0
Unknown substance		None
Compressed gas (Flammable)	Any amount of gas from containers with a capacity greater than 100L	2.1
Compressed gas (Non-corrosive, non-flammable)		2.2
Flammable liquid	≥100 L	3.1/3.2/3.3
Flammable solid	≥ 25 kg	4.1
Substances liable to spontaneous combustion		4.2
		4.3
Water reactant substances		
Oxidizing substances	≥ 50 L or 50 kg	5.1
Organic peroxides	≥1 L or 1 kg	5.2
Environmentally hazardous substances intended for disposal		9.0
Toxic substances	≥ 5 L or 5 kg	6.1
Corrosive substances		8.0
		9.0

Substance	Reportable Quantity	TDG Class
Miscellaneous products, substances or organisms		
PCB mixtures of 5 or more ppm	≥ 0.5 L or 0.5 kg	9.0
Other contaminants--for example, crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, wastewater.	≥ 100 L or 100 kg	None
Sour natural gas (i.e., contains H ₂ S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more	None
Flammable liquid Vehicle fluid	≥ 20 L When released on a frozen water body that is being used as a working surface	3.1/3.2/3.3 None
Reported releases or potential releases of any size that: are near or in an open water body; are near or in a designated sensitive environment or habitat; Pose an imminent threat to human health or safety; or Pose an imminent threat to a listed species at risk or its critical habitat	Any amount	None