

Government of Northwest Territories

Mount Gaudet Access Road

Spill Contingency Plan

Version 1. (Also referred to as Draft in PDR)

Government of the Northwest Territories – Department of Infrastructure September 2020



Plan Maintenance and Control

Table 1 Spill Contingency Plan Document History

Version #	Section(s) Revised	Description of Revision	Prepared by	Issue Date
v 1.0			GNWT INF	September 2020

Note: This Spill Contingency Plan (SCP) is being submitted in draft form to the Mackenzie Valley Land and Water Board (MVLWB) to support the review of the Land Use Permit and Water License applications for the Mount Gaudet Access Road Project. Text will be amended as required by the Contractor in the final Waste Management Plan submitted to the MVLWB prior to Project construction.

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Abbreviations

cm	centimetre
ENR	Department of Environment and Natural Resources, Government of the Northwest Territories
ft	feet
GNWT	Government of the Northwest Territories
INAC	Indigenous and Northern Affairs Canada (now CIRNAC)
in	inch
INF	Department of Infrastructure, Government of the Northwest Territories
kg	kilogram
km	kilometre
L	litre
LUP	Land Use Permit
m	metre
MGAR	Mount Gaudet Access Road
MSDS	Material Safety Data Sheets
MVH	Mackenzie Valley Highway
MVLWB	Mackenzie Valley Land and Water Board
NWT	Northwest Territories
NU	Nunavut
RCMP	Royal Canadian Mounted Police
SCP	Spill Contingency Plan
TDG	Transportation of Dangerous Goods
WHMIS	Workplace Hazardous Materials Information System

1 Introduction

This Spill Contingency Plan (SCP) has been developed for use by the Government of the Northwest Territories (GNWT) Department of Infrastructure (INF) and the selected Contractor for the Mount Gaudet Access Road (MGAR) (the Project).

The purpose of the SCP is to provide a guide to all Project personnel in the event of an accidental release of fuel or other waste during MGAR construction activities. The SCP provides the protocols for personnel to follow in response to a spill. A spill is defined as a release of a contaminant to the natural environment. Overflows and releases onto intact surfaces, such as concrete or similarly impervious materials, inside buildings or containment facilities, where the release is fully contained and cleaned, are not regarded as spills to the natural environment.

All persons involved with the Project should read and be familiar with the SCP. To be effective, it is important that all personnel are familiar with their responsibilities and steps to take in the event of a spill. Personnel should not read the SCP for the first time during an emergency.

This SCP has been developed in accordance with the territorial *Environmental Protection Act, Waters Act* and *Waters Regulations*, the *Mackenzie Valley Resource Management Act*, the *Mackenzie Valley Land Use Regulations*, and the Indian and Northern Affairs Canada (INAC) Guidelines for Spill Contingency Planning (2007).

1.1 Contact Information

1.1.1 Proponent

Applicant's Name
Sonya Saunders
Director
Strategic Infrastructure
Department of Infrastructure
Government of the Northwest Territories
P.O. Box 1320
Yellowknife, Northwest Territories (NWT) X1A 2L9
Telephone 867.767.9081 x31025
Email <u>sonya_saunders@gov.nt.ca</u>

Alternate Contact Joe Acorn Manager Mackenzie Valley Highway Project Strategic Infrastructure Department of Infrastructure Government of the Northwest Territories P.O. Box 1320 Yellowknife NWT X1A 2L9 Telephone 867.767.9081 x31029 Email joe acorn@gov.nt.ca

1.1.2 Contractor

The Contractor has not yet been selected for the Project. Information for the Contractor will be provided to the Mackenzie Valley Land and Water Board (MVLWB) upon award of the contract.

1.2 Distribution List

This plan and the most recent revisions will be distributed to:

- Manager, Mackenzie Valley Highway Project
- Project Manager, Contractor
- Public Relations
- Camp Manager
- Site Supervisors
- Inspector, Lands
- MVLWB
- Applicable INF employees

2 Project Details

The Project is located within the region north of Wrigley, NWT, within the traditional territory of the Pehdzéh Kí First Nation (PKFN). The proposed road would start at the Mount Gaudet Quarry, located approximately 15 km north of Wrigley and would end at the existing location of Hodgson Creek Bridge just north of Wrigley, or at the terminus of Highway 1 immediately south of Wrigley. An additional alignment is being considered to align the MGAR with the potential new location of Hodgson Creek Bridge, which may be required to address issues of spring melt-water and ice back-up at the existing bridge location.

Further geotechnical work, to be undertaken between now and the anticipated construction start date, will be required to determine the final alignment of the MGAR. The final alignment is dependent upon the review of the final report on the geotechnical work, further consultations with PKFN and applications for additional funding (in progress). As such, the alignment of the road is described as segments:

- Segment 1 Starts approximately 1 km north of the existing Hodgson Creek Bridge and follows the existing MVWR alignment north to the Mount Gaudet Quarry for approximately 14.62 km.
- Segment 2 Starts at Hodgson Creek Bridge either from the current bridge location (Segment 2a) for 1.13 km or the potential new Hodgson Creek bridge location (Segment 2b) for 1.65 km and continues north to the south end of Segment 1.
- Segment 3 The Hodgson Creek Bridge would be raised at its current location (Segment 3a) or a new bridge will be installed further upstream (Segment 3b).
- Segment 4 Starts at the final location of the Hodgson Creek Bridge and continues south to the end of Highway #1 either from the current Hodgson Creek Bridge location following the current MVWR alignment (Segment 4a) for 5.07 km or on a new alignment from the potential

new Hodgson Creek Bridge location (4b) for 1 km, from which point it will continue along the existing MVWR alignment for 3.92 km to the end of Highway #1.

INF currently has construction funding secured for Segments 1, 2 and 3. Funding is being sought for Segment 4, and construction of this segment will not proceed until this funding has been confirmed.

The final, overall alignment of the MGAR is described in this PDR as two scenarios:

- Scenario 1: Represents a scenario where the existing Hodgson Creek Bridge is raised at its current location. Includes MGAR segments 1, 2a, 3a, and 4a. The total length of the MGAR in this Scenario is 20.81 km.
- Scenario 2: Represents a scenario in which a new Hodgson Creek Bridge is installed upstream of the existing one, and Segments 2b and 4b are constructed to align the MGAR with this new bridge. Includes MGAR segments 1, 2b, 3b, and 4b. The total length of the MGAR in this Scenario is 20.57 km.

The alignment is within the Boreal Cordillera ecoregion and is within the zone of extensive discontinuous permafrost. The region provides habitat for a wide range of wildlife, fish and vegetation species. A description of environmental conditions within and surrounding the Project area can be found in the MGAR Environmental Overview document.

Maps of the Project area are provided in Appendix A.

2.1 Potential Contaminants

Potentially hazardous materials that will be used during the Project include:

- Diesel
- Gasoline
- Antifreeze
- Hydraulic Oil
- Lube Oil
- Propane

The storage location and method of containment for each of these materials will ultimately be determined by the Contractor. However, it is expected that materials will be stored at the camp site according to the containment methods outlined in the following table. **Hazardous waste which is stored on site and awaiting disposal should be held in appropriate secondary containment or in a secure building**.

Hazardous Material	Volume (L)	Storage Method	Location
Diesel	To be determined by Contractor	Double-walled containerized fuel tanks, or other authorized containers as determined by the Contractor.	To be determined by Contractor
Gasoline	To be determined by Contractor	Double-walled containerized fuel tanks, or other authorized containers as determined by the Contractor.	To be determined by Contractor
Hydraulic Oil	To be determined by Contractor	Tote tanks within lube container that has integrated secondary containment, or other authorized containers as determined by the Contractor.	To be determined by Contractor
Lube Oil	To be determined by Contractor	Tote tanks within lube container that has integrated secondary containment, or other authorized containers as determined by the Contractor.	To be determined by Contractor
Propane	To be determined by Contractor	Upright, Vehicle barriers to prevent impacts, or other authorized containers as determined by the Contractor.	To be determined by Contractor
Waste Antifreeze	To be determined by Contractor	Placed into empty containers and taken to appropriate disposal area.	To be determined by Contractor

Table 2-1 Type, Amount, and Location of Main Hazardous Mater	Table 2-1	Type, Amount, and Location of Main Hazardous Material
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MSDS for each of these materials are included in Appendix B.

Spills may result from a number of occurrences including the following:

- Leaks or ruptures of fuel storage drums or tanks
- Valve or line failure in systems, vehicles, or heavy equipment
- Vehicular accidents
- Spill during fuel transfer

- Leaks from containment / collection systems (i.e., concrete wash areas, erosion sediment control measures, etc.)
- Overflow of tanks
- Vandalism
- Lack of or improper training

3 Response Organization

Wherever a spill is identified, the Contractor-designated lead and an INF representative will be contacted as soon as possible. The Contractor is responsible for initiating the SCP during operations. The responsibilities of each party during spill response are outlined below.

Entity	Responsibility
Spill Response Team (Contractor)	Conducts clean-up of spills under the direction of the Contractor Supervisor
	• Deploys booms, absorbent and other equipment and materials as required
	Takes appropriate response measures
	• Continues the clean-up as directed by the Contractor Supervisor or until relieved.
Supervisor	Assists in the initial response efforts
	Supervises the response team
	• Takes initial action to seal off the source and contain the spill
	• Determines if additional equipment is required (i.e. heavy equipment)
	Coordinates additional equipment and/or manpower (if necessary)
	Coordinates clean-up of the spill site and all impacted areas
Contractor Project Manager	• Records the time of the report, source information and details on location, size, type of spill and any other information available on the Spill Report Form
	• Reports the spill to the NWT 24-Hour Spill Report Line (if not already done).
	• Supports the Contractor Supervisor in the completion of their tasks, where needed.
	• Maintains contact with Contractor Supervisor to confirm final inspection and sign-off are completed
	Oversees completion and distribution of spill report to INF
	Provides advice on storage and disposal options
	 Confirms post-spill reports are completed and takes action, as necessary, to prevent a re-occurrence

 Table 3-1
 Response Responsibilities

Entity	Responsibility
	Liaises with government agencies (as required)
GNWT INF	 Develops press releases and liaises with media directly (if required) Liaises with government agencies (as required) Confirms past spill reports are completed including reports that detail
	 commissions post-spin reports are completed including reports that detail remedial actions completed.

3.1 Emergency Contact Information

3.1.1 Emergency Contact List

Table 3-2 Emergency Services Contact Information

Agency Name	Contact Number
NWT Spill Report Line	867-920-8130
Fort Simpson Health Centre	867-695-7000
Medevac - Yellowknife	867-669-9111
Wrigley RCMP	867-695-1111
Wrigley Fire Department	867-581-2222
Wildlife Emergency (ENR– Dehcho Region)	867-695-7433

Table 3-3 Northwest Territories Regulatory Agencies Contact Information

Agency Name	Contact Number
Workers' Safety and Compensation Commission – 24 Hour Incident Reporting Line	Phone: 1-800-661-0792
Department of Lands, GNWT (Inspector)	Phone: 867-695-2626 Fax: 867-695-2615
Department of Environment and Natural Resources, GNWT	867-695-7450
Environmental Protection Division - ENR	867-767-9236 Ext. 53456
Department of Fisheries and Oceans Canada (Yellowknife)	Telephone: 867-669-4900 Fax: 867-669-4941
GNWT Environmental Health Office	Phone: 867-669-9066 ext. 49262 Fax: 867-669-7517
MVLWB	Phone: 867-669-0506 Fax: 867-873-6610

A Spill Response Organizational Flowchart will be developed and included in the updated SCP following the selection of the Contractor.

4 Spill Response Action Plans

This section outlines the procedures that are to be completed in response to a spill. The primary goal is to avoid spills or the unnecessary release of materials. All personnel shall have an environmental orientation prior to starting work. This will include a review of this SPC.

In the unlikely event of a spill or release of materials, a quick response is the objective. This plan defines the responsibilities of site personnel and the required procedures for a quick response by emphasizing the need to reduce the safety hazards and minimize the impact on the environment.

4.1 SCP Requirements

The SCP requires the following:

- 1. A copy of the SCP is available on-site during the Project
- 2. Material Safety Data Sheets (MSDS) for each hazardous material listed in Section 2.1 of the SCP are to be located on-site during the Project.
- 3. All vehicles/equipment will be equipped with spill kits and shovels. Spill kits, at a minimum will include absorbent pads or equivalent, shovels, and a means for containment of contaminated materials, such as impermeable tarps, or pails.
- 4. Suitable communication equipment (e.g. satellite phones, radios) and all emergency contact numbers will be available for use during the Project

4.2 Initial Response

The following actions should be taken by the first person(s) who identifies a spill:

- Be alert and consider your safety and the safety of others around you. Assess the hazard to persons in the area of the spill, including yourself. Evacuate people depending on the degree and nature of the hazard.
- Assess whether the spill can be readily stopped or brought under control. If safe to do so, cut off the source of the spill.
- If possible, control any dangers to human life (e.g. remove ignition sources)
- Obtain the assistance of others and begin to assess and contain the spill.
- If possible, identify the spilled contaminant. Access MSDS information and implement appropriate safety procedures.
- Notify the Northwest Territories 24 Hour Spill Report Line (867) 920-8130, then the primary contact.

- Gather information about the status and nature of the situation.
- When notified of a spill, the Contractor Supervisor, or person in charge of emergency response measures, shall immediately perform the following actions:
- Ensure action is taken to control danger to human life
- Designate an on-site safety supervisor
- If the spill exceeds the threshold quantities listed in Appendix D, the person in charge of the emergency response measures will complete the NWT NU Spill Report Form (Appendix C), then immediately provide additional spill details to the NWT Emergency Spill Report Line (867) 920-8130.
- Notify the local Royal Canadian Mounted Police (RCMP) if a risk to the public exists.
- Mobilize equipment and personnel necessary to stop the source of the spill and implement clean-up.

4.3 General Spill Response Procedures

The following is a list of general containment procedures.

- 1. Identify the contaminant, stop the source of the spill, and when safe, immediately implement containment measures to limit the spread of the spill and to minimize the impacts to the environment.
- 2. If spill source is a leaking fuel truck, pump tanker dry (into appropriate containers or another tanker).
- 3. A shallow depression will be excavated or a surface berm constructed in the path of the flowing product to stop and contain the flow. If feasible, without unduly delaying containment efforts, stripping will be salvaged and stored separately during excavations.
- 4. Absorbent materials will be utilized to contain and recover spilled material.
- 5. Heavily contaminated soil and vegetation, as well as used absorbent material, will be disposed of at an approved hazardous waste treatment facility.
- 6. Traffic will be minimized on and around contaminated areas.
- 7. Attempts will be made to restrict the movements of wildlife near the area affected by the spill.
- 8. Remediation and final clean-up will be conducted

4.3.1 Spills Adjacent to a Waterbody

- 1. Berms or trenches shall be constructed to contain spilled products from entering into a waterbody.
- 2. Spilled materials will be recovered as quickly as possible.
- 3. If spilled material enters an open waterbody, booms, skimmers and absorbent pads will be

deployed, if feasible, to contain and recover the spill material.

- 4. If spilled material is released onto a frozen waterbody, snow and absorbent pads will be used to contain and clean up the spill. A backhoe, or similar equipment, will remove all materials to prevent future release into the waterbody.
- 5. Contaminated areas, including downstream shorelines (non-frozen conditions), will be cleaned up in consultation with spill response specialists and the appropriate government agencies.
- 6. In the event that spilled materials enter a frozen waterbody through or under the ice to flowing or standing water, auguring will be conducted to determine the extent of the spill plume. If feasible, a vacuum truck will be brought to the site to skim off the contaminants. As well, the appropriate regulatory agencies will be contacted and a post-break-up monitoring and reclamation plan will be implemented to determine the extent of the impacts of the spill on the waterbody and its banks.

4.3.2 Spills on Snow or Ice

- 1. Once a spill is identified, all sources of ignition should be turned off (e.g., no smoking, shut off engines).
- 2. The spilled material (e.g., gasoline, diesel, antifreeze, etc.) should be identified, if possible.
- 3. The affected area should be secured, ensuring the area is safe for entry and does not represent a threat to human health and safety of the spill responders. Public access of the area should be restricted.
- 4. If possible, identify where the spill is coming from (the source). Determine if the spill is still occurring (i.e., still leaking) or if the spillage has stopped. If the spill has not stopped, determine if it is safe to stop or control the spill (e.g., plug hole, close valve, upright container).
- 5. If the spill is too large to be controlled with the spill materials at hand, contact the Contractor or the INF site representative and report the spill immediately and request assistance (see Section 3 for contact information). Use materials on hand to attempt to control the spill.
- 6. If the spill is small enough to be controlled with the spill response materials at hand, prevent spilled contaminants from spreading or entering waterways by using sorbent materials or a snow/soil dyke down-slope from the spill. This is especially the case with liquid contaminants (e.g. gasoline, diesel).
- Once the spill has been controlled and further spreading prevented, contact the Contractor or the INF site representative and report the spill (see Section 3 above for contact information). The Contractor or the INF representative is responsible to report the spill to the 24-Hour Emergency Spill Report Line.
- 8. If possible with the spill response materials at hand, clean up the remaining spilled contaminant and store contaminated materials in a secure container for disposal. Impacted snow should be stored in drums for proper disposal.

4.3.3 Spills on Land

- 1. Once a spill is identified, all sources of ignition should be turned off (e.g., no smoking, shut off engines).
- 2. The spilled material (e.g., gasoline, diesel, antifreeze, etc.) should be identified, if possible.
- 3. The affected area should be secured, ensuring the area is safe for entry and does not represent a threat to human health and safety of the spill responders. Public access of the area should be restricted.
- 4. If possible, identify where the spill is coming from (the source). Determine if the spill is still occurring (i.e., still leaking) or if the spillage has stopped. If the spill has not stopped, determine if it is safe to stop or control the spill (e.g., plug hole, close valve, upright container), or contain the spill (e.g., place a container or tarp with built up edges under the spill source to contain the spill).
- 5. If the spill is too large to be controlled with the spill materials at hand, contact the Contractor or the INF site representative and report the spill immediately and request assistance (see Section 3 for contact information). Use materials on hand to attempt to control the spill.
- 6. If the spill is small enough to be controlled with the spill response materials at hand, prevent spilled contaminants from spreading or entering waterways by using sorbent (oil-absorbing) materials or a soil dyke down slope from the spill. This is especially the case with liquid contaminants (e.g. gasoline, diesel).
- Once the spill has been controlled and further spreading prevented, contact the Contractor or the INF site representative and report the spill (see Section 3 for contact information). The Contractor or the INF site representative is responsible to report the spill to the 24-Hour Emergency Spill Report Line.
- 8. If possible with spill response materials at hand, clean up the remaining spilled contaminant and store contaminated materials in a secure container for proper disposal. Do not flush the affected area with water.
- 9. If possible, remove any contained liquid by pumping into secure drums

4.4 Spill Monitoring and Restoration

In the event of a large spill or a spill in which not all of the spilled contaminant can be readily cleaned up with materials at hand (as described above), delineation of the affected area may be required. This would include subsurface investigation of the area (i.e. digging of test pits, soil sampling, installation of monitoring wells) to determine over what area and how deep the contaminant affected the subsurface soil and/or groundwater (horizontal and vertical extent of the spill). The delineation would result in the development of an appropriate remediation plan for the affected area. In this case, a qualified environmental consultant should be retained to provide advice on how to proceed with delineation and remediation of a large spill.

5 Reporting

5.1 Reporting Procedure

The size, type, and/or location of the spill will determine how the spill is reported. If the spill exceeds the threshold quantities listed in Appendix D, the person in charge of the emergency response measures will complete the NWT – NU Spill Report Form (Appendix C) and then immediately report the spill to the NWT 24-Hour Emergency Spill Line (867) 920-8130.

Reporting of any spills associated with the MGAR will be completed by the Contractor.

To report a spill:

- 1. Fill out the NWT NU Spill Report Form (Appendix C) as completely as possible before calling in the spill report.
- 2. Contact the 24-Hour Emergency Spill Report Line at (867) 920-8130.
- 3. Where fax is available, fax the completed Spill Report Form to (867) 873-6924. Alternatively, if email is available, email the completed Spill Report Form to spills@gov.nt.ca.

Any person reporting a spill is required to give as much information as possible; however, reporting of a spill should not be delayed if all the necessary information is not known. Additional information can be provided later. From the *Spill Contingency Planning and Report Regulations*, as much of the following information will be reported during the initial spill report:

- Date and time of spill
- Location of spill
- Direction spill is moving
- Name and phone number of a contact person close to the location of the spill
- Type of contaminant spilled and quantity
- Cause of spill
- Whether spill is continuing or has stopped
- Description of existing containment
- Action taken to contain, recover, clean up, and dispose of spilled contaminant
- Name, address and phone number of the person reporting the spill
- Name of owner or person in charge, management or control of contaminants at the time of the spill.

Table 5-1	NWT Spill Reporting Quantities
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Туре	Size and/or Location	Action
А	The spill exceeds the threshold quantities outlined in Appendix D on land and/or water.	The NWT – NU Spill Report Form is to be completed; then immediately report the spill to NWT 24 Hour Spill Report Line 867-920-8130.
В	The spill, regardless of quantity is near or into a waterbody, is near or into a designated sensitive environment or sensitive wildlife habitat, poses imminent threat to human health or safety, poses an imminent threat to a listed species at risk or its critical habitat, or is uncontrollable.	The NWT – NU Spill Report Form is to be completed; then immediately report the spill to NWT 24 Hour Spill Report Line 867-920-8130.

6 Restoration

Following a spill event, the Contractor will maintain regular contact with the Inspector and the GNWT Project representative. Status updates on the clean-up efforts are required on a regular basis. The required level of final clean-up and restoration following a spill shall be to the satisfaction of the Inspector. All waste materials from clean-up efforts must be disposed of in accordance with applicable regulatory requirements.

7 Resource Inventory

7.1 On-Site Resources

7.1.1 Personnel

All personnel working in the field on the Project will be trained on-site in spill prevention, response and clean-up measures.

7.1.2 Equipment

The exact numbers and types of equipment used during the Project will be determined by the Contractor. The numbers and types of equipment which are expected to be used are outlined in the MGAR Project Description Report in Section 8.0.

7.1.3 Spill Kit Locations and Contents

Spill kits are required onsite at all work areas. Each work site will be equipped with a minimum of one 205 L drum type spill kit and all vehicles and mobile equipment will be equipped with a dedicated spill kit. The Contractor is responsible for supplying the spill kits and for ensuring that the kits are located within in areas that are accessible to site staff. Each spill kit will contain the following:

- 1 spill kit container (identified as an over-pack drum, steel salvage drum, or spill kit locker)
- 10 disposable large 5 mil polyethylene bags (dimensions 65 centimetre(cm) x 100 cm) with ties
- 412.5 cm x 3 m (5 inches (in.) x 10 feet (ft.)) sorbent booms
- 1 10 kilogram (kg) bag of sorbent particulate
- 100 sheets (1 bail) of 50 cm x 50 cm sorbent sheets for both universal and oil only
- 2 large (5 m x 5 m) plastic tarps
- 1 roll of duct tape
- 1 utility knife
- 1 field notebook and pencil
- 1 rake
- 1 pick-axe
- 3 spark-proof shovels
- 4 Tyvek splash suits
- 4 pairs chemical resistant gloves
- 4 pairs of splash protective goggles
- Instruction binder, including the Project SCP

Each spill kit will be inspected regularly to ensure that all of the appropriate contents are present. The spill kit contents, with the exception of the spark-proof shovels, can be stored within the spill kit container. The containers will be sealed securely to protect the spill kit contents, though they will always be accessible without the use of tools (i.e. finger tight bolt ring).

Extra spill response materials will also be available for use, in addition to the spill kit contents in a dedicated Environmental Response container (Sea-can). This typically includes:

- Heavy absorbent hydrophobic pads (50 boxes)
- Absorbent pads (50 boxes)
- Polyethylene bags 2 3 mil x 28"x18"
- Epoxy tubes (12 ea)
- Multi-purpose granular sorbents in bags (75 bags)
- Hydrophobic absorbent booms 3" x 8" (25 ea)
- Hydrophobic absorbent booms 8" x 10" (25 ea)
- Floating oil containment boom (150 m)
- Box caution tape (2)
- Safety goggles (10)

- Neoprene gloves (10)
- Tyvek suites (10)
- Silt fence (150 m)
- Spill trays (75)
- Dewatering bags (25)
- Extra vehicle spill kits (25)
- Empty drums for clean-up (25)
- Shovels (10)

8 Training and Exercises

The Contractor is responsible for providing a qualified supervisor and training site workers in spill response. All individuals hired to work on the Project will have their basic first aid and Workplace Hazardous Materials and Information System (WHMIS) training before working on site. Any persons involved in the handling and shipping of hazardous materials will receive Transportation of Dangerous Goods (TDG) training and will maintain a valid TDG certificate.

Training sessions on spill prevention and response will be held prior to the initiation of Project activities, and the Contractor for each activity will keep records of all individuals who attend training sessions and exercises, along with copies of their training certificates (e.g. first aid, WHMIS).

9 Media and Public Enquiries

All enquiries are to be directed to the designated spokesperson(s) for the Contractor.

Environmental incidents such as spills often attract local interest and media attention. Employees will not make any statements on behalf of the Contractor or INF to the media or to the public.

Employees will respond fully to any request from local authorities or emergency workers that will help to control the spill and its damage. Employees will refer all other requests for information to the designated spokesperson(s) for the Contractor or GNWT representatives. This may include questions from reports, environmental agencies, or people and property owners affected by a spill. When probing questions are asked, it is important that the response is polite and professional; for example:

"I'm sorry. I'm not the company spokesperson. Please provide your name, media affiliation and contact information. I will have our spokesperson get back to you as soon as possible."

Employees will avoid guessing at an answer or making promises that are out of their control, as this can cause problems later. No speculation will be made with regard to who is at fault, why the spill occurred, spill volume, when clean-up will be completed, or any other issue.

Spill Reports are available for the public to view upon request by contacting the NWT Spill Line or by viewing the GNWT Hazardous Materials Spill Database online at: <u>http://apps.enr.gov.nt.ca/app/spills/epd_spills/asp/login.asp</u>

10 References

Department of Justice. 1998. Consolidated *Spill Contingency Planning and Reporting Regulations R* 068-93. Yellowknife, NWT. Retrieved January 2018 from: <u>https://www.justice.gov.nt.ca/en/files/legislation/environmental-</u> <u>protection/environmental-protection.r2.pdf?t1455984239942</u>

Indian and Northern Affairs Canada (INAC). 2007. Guidelines for Spill Contingency Planning. Water Resources Division, INAC, Yellowknife, NWT. Retrieved November 2019 from: <u>https://mvlwb.com/sites/default/files/guidelines for spill contingency planning 2007.pdf</u>

Appendix A Project Maps











Appendix B Material Safety Data Sheets



AMC

Chemwatch: 6099-32 Version No: 6.1.1.1 Safety Data Sheet according to WHMIS 2015 requirements Chemwatch Hazard Alert Code: 0 Issue Date: 09/05/2016

Issue Date: 09/05/2016	
Print Date: 11/06/2019	
L.GHS.CAN.EN	

SECTION 1 IDENTIFICATION

Product Identifier

Product name	AMC BENTONITE PELLETS R30
Synonyms	Sodium montmorillonite
Other means of identification	Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses	ost circulation compound. Seal for piezometers.
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Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

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

Emergency phone number

Association / Organisation	AMC	CHEMWATCH EMERGENCY RESPONSE
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	Not Applicable	
Label elements		
Hazard pictogram(s)	Not Applicable	
SIGNAL WORD	NOT APPLICABLE	

Not Applicable

Physical and Health hazard(s) not otherwise classified

Not Applicable

Precautionary statement(s) General

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

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
1302-78-9	>95	bentonite
14808-60-7	<5	silica crystalline - quartz

SECTION 4 FIRST-AID MEASURES

Description of first aid measures		
Eye Contact	 If this product comes in contact with the eyes: Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. 	
Skin Contact	 If skin or hair contact occurs: Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation. 	
Inhalation	 If fumes or combustion products are inhaled remove from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor. If dust is inhaled, remove from contaminated area. Encourage patient to blow nose to ensure clear breathing passages. Ask patient to rinse mouth with water but to not drink water. Seek immediate medical attention. 	
Ingestion	 Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. 	

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIRE-FIGHTING MEASURES

Extinguishing media

There is no restriction on the type of extinguisher which may be used.

• Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.	
Special protective equipment and precautions for fire-fighters		
Fire Fighting	 Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves in the event of a fire. 	
Fire/Explosion Hazard	 Non combustible. Not considered a significant fire risk, however containers may burn. 	

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	 Remove all ignition sources. Clean up all spills immediately.
Major Spills	Moderate hazard. CAUTION: Advise personnel in area.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling Vear protect	tive clothing when risk of exposure occurs.
Other information	nal containers.
Keep contain	ners securely sealed.

Conditions for safe storage, including any incompatibilities

Suitable container	 Polyethylene or polypropylene container. Check all containers are clearly labelled and free from leaks.
Storage incompatibility	None known

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Canada - Nova Scotia Occupational Exposure Limits	silica crystalline - quartz	Silica, Crystalline - Quartz	0.025 mg/m3	Not Available	Not Available	TLV Basis: pulmonary fibrosis; lung cancer
Canada - Alberta Occupational Exposure Limits	silica crystalline - quartz	Silica-Crystalline, Respirable particulate - Quartz	0.025 mg/m3	Not Available	Not Available	Not Available
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	silica crystalline - quartz	Silica - Crystalline# : Quartz (respirable fraction++)	0.05 mg/m3	Not Available	Not Available	T20
Canada - Manitoba Occupational Exposure Limits	silica crystalline - quartz	Not Available	0.025 mg/m3	Not Available	Not Available	TLV® Basis: Pulm fibrosis; lung cancer

Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	silica crystalline - quartz	Silica - Crystalline, Quartz	0.1 mg/m3	Not Available	Not Available	Not Available
Canada - Northwest Territories Occupational Exposure Limits (English)	silica crystalline - quartz	Silica - Crystalline#: Quartz (respirable fraction)	0.05 mg/m3	Not Available	Not Available	Schedule R
Canada - Prince Edward Island Occupational Exposure Limits	silica crystalline - quartz	Silica, crystalline - α -quartz and cristobalite	0.025 mg/m3	Not Available	Not Available	TLV® Basis: Pulm fibrosis; lung cancer
Canada - Ontario Occupational Exposure Limits	silica crystalline - quartz	*Silica, Crystalline - Quartz/Tripoli	0.10 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1		TEEL-2	TEEL-3
bentonite	Montmorillonite	30 mg/m3		330 mg/m3	2,000 mg/m3
silica crystalline - quartz	Silica, crystalline-quartz; (Silicon dioxide)	0.075 mg/m3	3	33 mg/m3	200 mg/m3
Ingredient	Original IDLH		Revise	d IDLH	
bentonite	Not Available		Not Ava	ilable	
silica crystalline - quartz	25 mg/m3 / 50 mg/m3		Not Ava	ilable	

OCCUPATIONAL EXPOSURE BANDING

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
bentonite	E	≤ 0.01 mg/m³
Notes:	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemic potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposuband (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	 Safety glasses with side shields. Chemical goggles.
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. Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present. polychloroprene.
Body protection	See Other protection below
Other protection	Overalls.P.V.C.

Respiratory protection

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

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

		Air-line*	-
100+ x ES	-	Air-line**	AX PAPR-P3

* - Negative pressure demand ** - Continuous flow

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

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Grey/tan odourless solid pellets; insoluble in water.

Physical state	Divided Solid	Relative density (Water = 1)	2.45-2.55
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Applicable
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Applicable
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	 Unstable in the presence of incompatible materials. Product is considered stable.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual. Effects on lungs are significantly enhanced in the presence of respirable particles. Overexposure to respirable dust may produce wheezing, coughing and breathing difficulties leading to or symptomatic of impaired respiratory function.
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. Considered an unlikely route of entry in commercial/industrial environments
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

	Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
Chronic	Overexposure to respirable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity, chest infections Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect.

AMC BENTONITE PELLETS R30	TOXICITY Not Available	IRRITATION Not Available
bentonite	TOXICITY Oral (rat) LD50: >5000 mg/kg ^[2]	IRRITATION Not Available
silica crystalline - quartz	TOXICITY Oral (rat) LD50: =500 mg/kg ^[2]	IRRITATION Not Available
Legend:	 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 	

BENTONITE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. No significant acute toxicological data identified in literature search. for bentonite clays: Bentonite (CAS No. 1302-78-9) consists of a group of clays formed by crystallisation of vitreous volcanic ashes that were deposited in water. The expected acute oral toxicity of bentonite in humans is very low (LD50>15 g/kg).
SILICA CRYSTALLINE - QUARTZ	WARNING: For inhalation exposure <u>ONLY</u> : This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 um) crystalline silica as being carcinogenic to humans . This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite.

Acute Toxicity	×	Carcinogenicity	×
Skin Irritation/Corrosion	×	Reproductivity	×
Serious Eye Damage/Irritation	×	STOT - Single Exposure	×
Respiratory or Skin sensitisation	×	STOT - Repeated Exposure	×
Mutagenicity X Aspiration Hazard X		×	
Legend: X – Data either not available or does not fill the criteria for classification			

Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

AMC BENTONITE PELLETS R30	ENDPOINT TEST DURATION (HR) Not Available	SPECIES Not Available	VALUESOURCENotNotAvailableAvailable
bentonite	ENDPOINT TEST DURATION (HR) LC50 96	SPECIES Fish	VALUE SOURCE 19000mg/L 4
silica crystalline - quartz	ENDPOINT TEST DURATION (HR)	SPECIES	VALUE SOURCE

	Not Available	Not Available	Not Not Available Available
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe E 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity L ECETOC Aquatic Hazard Assessment Data 6. NIT Vendor Data	ECHA Registered Substances - Ecotoxico Data (Estimated) 4. US EPA, Ecotox data 'E (Japan) - Bioconcentration Data 7. ME	ological Information - Aquatic Toxicity base - Aquatic Toxicity Data 5. TI (Japan) - Bioconcentration Data 8.

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

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant NO

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

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

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

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

Not Applicable

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.

BENTONITE 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)

SILICA CRYSTALLINE - QUARTZ IS FOUND ON THE FOLLOWING REGULATORY LISTS

Canada - Alberta Occupational Exposure Limits	Canada - Quebec Permissible Exposure Values for Airborne Contaminants
Canada - Manitoba Occupational Exposure Limits	Canada - Saskatchewan Occupational Health and Safety Regulations -
Canada - Northwest Territories Occupational Exposure Limits	Contamination Limits
Canada - Nova Scotia Occupational Exposure Limits	Canada - Saskatchewan Occupational Health and Safety Regulations -
Canada - Ontario Occupational Exposure Limits	Designated Chemical Substances
Canada - Prince Edward Island Occupational Exposure Limits	Canada Categorization decisions for all DSL substances
Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens	Canada Domestic Substances List (DSL)
	Canada Toxicological Index Service - Workplace Hazardous Materials
	Information System - WHMIS GHS (English)
	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

National Inventory Status

National Inventory	Status		
Australia - AICS	Yes		
Canada - DSL	Yes		
Canada - NDSL	No (bentonite; silica crystalline - quartz)		
China - IECSC	Yes		
Europe - EINEC / ELINCS / NLP	Yes		
Japan - ENCS	No (bentonite)		
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	09/05/2016
Initial Date	Not Available

SDS Version Summary

Version	Issue Date	Sections Updated
5.1.1.1	12/16/2015	Acute Health (eye)
6.1.1.1	09/05/2016	Acute Health (eye), Chronic Health, Classification, Supplier Information

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_o IDLH: Immediately Dangerous to Life or Health Concentrations OSF: Odour Safety Factor NOAEL :No Observed Adverse Effect Level
AMC BENTONITE PELLETS R30

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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SECTION 1: Identification	
1.1. Product identifier	
Product form	: Substance
Name	: Acetylene
CAS No	: 74-86-2
Formula	: C2H2
Other means of identification	: Acetylene Dissolved, Acetylen, ethine, ethyne, narcylene
Product group	: Core Products
1.2. Recommended use and restrictions	on use
Recommended uses and restrictions	: Industrial use Welding
1.3. Supplier	
Praxair Canada inc. 1200 – 1 City Centre Drive Mississauga - Canada L5B 1M2 T 1-905-803-1600 - F 1-905-803-1682 www.praxair.ca	
1.4. Emergency telephone number	
Emergency number	 1-800-363-0042 Call emergency number 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier or Praxair sales representative.
SECTION 2: Hazard identification	
2.1. Classification of the substance or m	ixture
GHS-CA classification	
Flam. Gas 1 H220 Dissolved gas H280	
2.2. GHS Label elements, including preca	autionary statements
GHS-CA labelling	
Hazard pictograms	: GHS02 GHS04
Signal word	: DANGER
Hazard statements	EXTREMELY FLAMMABLE GAS MAY REACT EXPLOSIVELY EVEN IN THE ABSENCE OF AIR AT ELEVATED PRESSURE AND/OR TEMPERATURE CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION MAY FORM EXPLOSIVE MIXTURES WITH AIR
Precautionary statements	 Do not handle until all safety precautions have been read and understood Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking Use and store only outdoors or in a well-ventilated area Leaking gas fire: Do not extinguish, unless leak can be stopped safely In case of leakage, eliminate all ignition sources



			Dispose of contents/container in accordance with container Supplier/owner instructions Protect from sunlight when ambient temperature exceeds 52°C (125°F) Use a back flow preventive device in the piping Close valve after each use and when empty Fusible plugs in the top, bottom, or valve melt at 98°C to 107°C (208°F to 224°F). Do not discharge at pressures above 15 psig (103 kPa) Use only with equipment rated for cylinder pressure Never put cylinders into unventilated areas of passenger vehicles
2.3.	Other hazards		
Other haz classifica	zards not contributing to the tion	:	For safety reasons, the acetylene is dissolved in acetone (CAS no. 67-64-1; Flam. Liq. 2, Eye Irrit. 2, STOT SE 3) in the gas container. Vapour of the solvent is carried away as impurity when the acetylene is extracted from the gas container. The concentration of the solvent vapour in the gas is lower than the concentration limits to change the classification of the acetylene.

Unknown acute toxicity (GHS-CA) 2.4.

No data available

SECTION 3: Composition/information on ingredients

-		
-	Cubatan	
5 1	Sinstan	205
	Oubsidin	

Name	CAS No.	% (Vol.)	Common Name (synonyms)
Acetylene (Main constituent)	(CAS No) 74-86-2	100	Ethyne / Acetylene, dissolved / Acetylene (liquefied) / Ethine

3.2. **Mixtures**

Not	anı	olica	hle
INOL	ap	JIICa	DIE

SECTION 4: First-aid measures		
4.1. Description of first aid measures		
First-aid measures after inhalation	: Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.	
First-aid measures after skin contact	: The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.	
First-aid measures after eye contact	: Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately. Get immediate medical attention.	
First-aid measures after ingestion	: Ingestion is not considered a potential route of exposure.	
4.2. Most important symptoms and effect	s (acute and delayed)	
No additional information available		
4.3. Immediate medical attention and special treatment, if necessary		
Other medical advice or treatment	: Obtain medical assistance.	

SECTI	ON 5: Fire-fighting measures	
5.1.	Suitable extinguishing media	
Suitable	extinguishing media	: See below. See CGA Pamphlet SB-4, <i>Handling Acetylene Cylinders in Fire Situations</i> , for further information.
5.2.	Unsuitable extinguishing media	
No addit	ional information available	
5.3.	Specific hazards arising from the haz	ardous product
Fire haza	ard	: If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.



Reactivity	:	No reactivity hazard other than the effects described in sub-sections below.
Reactivity in case of fire	:	No reactivity hazard other than the effects described in sub-sections below.
5.4. Special protective equipment and p	rec	autions for fire-fighters
Firefighting instructions	:	Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with their provincial and local fire code regulations.
Protection during firefighting	:	Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen.
Special protective equipment for fire fighters	:	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Specific methods	:	Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems
		Stop flow of product if safe to do so
		Use water spray or fog to knock down fire fumes if possible
		Continue water spray from protected position until container stays cool.
Other information	:	Acetylene containers are provided with pressure relief devices designed to vent contents when exposed to elevated temperature.
SECTION 6: Accidental release mea	su	res
6.1. Personal precautions, protective eq	uip	ment and emergency procedures
General measures	:	Wear self-contained breathing apparatus when entering area unless atmosphere is proven to be safe. Evacuate area. Ensure adequate ventilation. Stop leak if safe to do so.
6.2. Methods and materials for containn	nen	t and cleaning up
For containment	:	Prevent runoff from contaminating the surrounding environment.
6.3. Reference to other sections		
For further information refer to section 8: Exp	oos	ure controls/personal protection
SECTION 7: Handling and storage		
7.1. Precautions for safe handling		
Precautions for safe handling	:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment
		Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.



7.2.	Conditions for safe storage, including	any incompatibilities
Storage o	conditions :	Store only where temperature will not exceed 125°F (52°C). Post "No Smoking" or "Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g, NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16
		OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.
Storage a	area :	Acetylene trailers are designed and intended for outdoor use. Acetylene storage in excess of 2.500 cu ft (70.79 cubic meters) is prohibited in buildings and other occupancies.

SECT	ON 8: Exposure controls/perso	on	al protection
8.1.	Control parameters		
No addi	tional information available		
8.2.	Appropriate engineering controls		
Appropr	iate engineering controls	:	An explosion-proof local exhaust system or a mechanical system is acceptable if it can prevent oxygen deficiency and keep hazardous fumes and gases below all applicable exposure limits in the worker's breathing area. During welding, ensure that there is adequate ventilation to keep worker exposure below applicable limits for fumes, gases, and other by-products of welding. Do not breathe fumes or gases. Short-term overexposure to fumes may cause dizziness, nausea, and dryness or irritation of the nose, throat, and eyes, or may cause other similar discomfort.
8.3.	Individual protection measures/Pers	on	al protective equipment
Persona	I protective equipment	:	In case of splash hazard: safety glasses. Face shield. Gloves.
Hand pr	otection	:	Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur.
Eye prot	tection	:	Wear goggles and a face shield when transfilling or breaking transfer connections. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.
Skin and	d body protection	:	As needed for welding, wear hand, head, and body protection to help prevent injury from radiation and sparks. (See ANSI Z49.1.) At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, and shoulder protection as well as substantial clothing.
Respira	tory protection	:	Respiratory protection: Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should be based on the current CSA standard Z94.4, "Selection, Care, and Use of Respirators." Respirators should also be approved by NIOSH and MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).
Therma	hazard protection	:	Wear cold insulating gloves when transfilling or breaking transfer connections.
Environ	mental exposure controls	:	Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.



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Other information

: Other protection : Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of flame resistant anti-static safety clothing.

SECTION 9: Physical and chemical pl	operties
9.1. Information on basic physical and ch	emical properties
Physical state	: Gas
Appearance	: Colourless gas.
Molecular mass	: 26 g/mol
Colour	: Colourless.
Odour	: Garlic like. Poor warning properties at low concentrations.
Odour threshold	: No data available
рН	: Not applicable.
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: -80.8 °C
Freezing point	: No data available
Boiling point	: -84 °C
Flash point	: -17 °C
Critical temperature	: 36 °C
Auto-ignition temperature	: 305 °C
Decomposition temperature	: 635 °C
Vapour pressure	: 4400 kPa
Vapour pressure at 50 °C	: No data available
Critical pressure	: 6138 kPa
Relative vapour density at 20 °C	: 0.00117 (≥ 21.1)
Relative density	: Not applicable.
Relative density of saturated gas/air mixture	: No data available
Density	: 0.0012 g/cm³ (at 0 °C)
Relative gas density	: 0.9
Solubility	: Water: 1185 mg/l
Log Pow	: 0.37
Log Kow	: Not applicable.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Viscosity, kinematic (calculated value) (40 °C)	: No data available
Explosive properties	: Not applicable.
Oxidizing properties	: None.
Flammability (solid, gas)	:
	2.5 - 100 vol %
9.2. Other information	
Minimum ignition energy	~
Sublimation point	: -83.3 °C
Gas group	: Dissolved gas
SECTION 10: Stability and reactivity	
10.1 Reactivity	
Reactivity	. No reactivity hazard other than the affects described in sub-sections below
Neadivity	



Chemical stability	:	Dissolved in a solvent supported in a porous mass. Stable under recommended handling and storage conditions (see section 7).
Possibility of hazardous reactions	:	May react explosively even in the absence of air. May decompose violently at high temperature and/or pressure or in the presence of a catalyst. Can form explosive mixture with air. May react violently with oxidants.
Conditions to avoid	:	High temperature. High pressure. Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Incompatible materials	:	Forms explosive acetylides with copper, silver and mercury. Do not use alloys containing more than 65% copper. Air, Oxidiser. Do not use alloys containing more than 43% silver.
Hazardous decomposition products	:	Thermal decomposition or burning may produce carbon monoxide, carbon dioxide, and hydrogen. The welding and cutting process may form reaction products such as carbon monoxide and carbon dioxide. Other decomposition products of normal operation originate from the volatilization, reaction, or oxidation of the material being worked.

SECTION 11: Toxicological information

11.1. Information on toxicological effects		
Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
		Net de c'écul
Skin corrosion/irritation	:	Not classified
		pH: Not applicable.
Serious eye damage/irritation	:	Not classified
		pH: Not applicable.
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
Specific target organ toxicity (single exposure)	:	Not classified
Specific target organ toxicity (repeated exposure)	:	Not classified
Aspiration hazard	:	Not classified
Acetylene (74-86-2)		

SECTI	ON 12: Ecological information	
12.1.	Toxicity	
Ecology	- general	No known ecological damage caused by this product.
12.2.	Persistence and degradability	
Acetyl	ene (74-86-2)	
Persist	ence and degradability	Will rapidly degrade by indirect photolysis in air. Will not undergo hydrolysis.
12.3.	Bioaccumulative potential	
Acetyl	ene (74-86-2)	
Log Po	0W	0.37
Log Ko	9W	Not applicable.
Bioacc	umulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

Yes

Hydrocarbon

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12.4. Mobility in soil				
Acetylene (74-86-2)				
Mobility in soil	No data available.			
Log Pow	0.37			
Log Kow	Not applicable.			
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.			
12.5. Other adverse effects				
Effect on the ozone layer	No known effects from this product			
Effect on global warming	No known effects from this product			
SECTION 13: Disposal considerations				
13.1. Disposal methods				
Waste disposal recommendations	Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.			
SECTION 14: Transport information				
14.1. Basic shipping description				
In accordance with TDG				
TDG				
UN-No. (TDG)	: UN1001			
TDG Primary Hazard Classes	: 2.1 - Class 2.1 - Flammable Gas.			
Proper shipping name	: ACETYLENE, DISSOLVED			
Explosive Limit and Limited Quantity Index	: 0			
Passenger Carrying Ship Index	: 75 kg			
Passenger Carrying Road Vehicle or Passenger	: Forbidden			
Carrying Railway Vehicle Index				
14.3. Air and sea transport				
IMDC				
	4004			
Div-No. (IMDG)				
	ACEIYLENE, DISSOLVED			
	2 - Gases			
MFAG-NO	: 116			
Proper Shipping Name (IATA)	Acetylene, dissolved			
Class (IATA)	2			
SECTION 15: Regulatory information				
15.1. National regulations				
Acetylene (74-86-2)				
Listed on the Canadian DSL (Domestic Substance	es List)			



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15.2. International regulations

Acetylene (74-86-2)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on INSQ (Mexican national Inventory of Chemical Substances)

Listed on CICR (Turkish Inventory and Control of Chemicals)

SECTION 16: Other information	
Date of issue	: 15/10/1979
Revision date	: 04/08/2016
Supersedes	: 15/10/2013
Indication of changes:	
Training advice	: Ensure operators understand the flammability hazard.
Other information	: When using this product in welding and cutting, read and understand the manufacturer's instructions and the precautionary label on the product. Ask your welding products supplier for a copy of Praxair's free safety booklet, P-2035, Precautions and Safe Practices for Gas Welding, Cutting, and Heating, and for other manufacturers' safety publications. For a detailed treatment, get ANSI Z49.1, Safety in Welding, Cutting, and Allied Processes, published by the American Welding Society (AWS), www.aws.org. Order AWS documents from Global Engineering Documents, global.ihs.com. Arcs and sparks can ignite combustible materials. Prevent fires. Refer to NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hotwork. Do not strike an arc on the container. The defect produced by an arc burn may lead to container rupture
	Fumes and gases produced during welding and cutting processes can be dangerous to your health and may cause serious lung disease. KEEP YOUR HEAD OUT OF FUMES. DO NOT BREATHE FUMES AND GASES. Use enough ventilation, local exhaust, or both to keep fumes and gases from your breathing zone and the general area. Short-term overexposure to fumes may cause dizziness, nausea, and dryness or irritation of the nose, throat, and eyes; or may cause other similar discomfort. Contaminants in the air may add to the hazard of fumes and gases
	When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product
	Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information
	The opinions expressed herein are those of qualified experts within Praxair Canada Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair Canada Inc, it is the user's obligation to determine the conditions of safe use of the product. Praxair Canada Inc, SDSs are furnished on sale or delivery by Praxair Canada Inc, or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your Praxair sales representative, local distributor, or supplier, or download from www.praxair.ca. If you have questions regarding Praxair SDSs, would like the document number and date of the latest SDS, or would like the names of the Praxair suppliers in your area, phone or write Praxair Canada Inc, (Phone: 1-888-257-5149; Address: Praxair Canada Inc, 1 City Centre Drive, Suite 1200, Mississauga, Ontario, L5B 1M2).

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NFPA health hazard	: 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
NFPA fire hazard	: 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.
NFPA reactivity	: 2 - Normally unstable and readily undergo violent decomposition but do not detonate. Also: may react violently with water or may form potentially explosive mixtures with water.
HMIS III Rating	
Health	: 2 Moderate Hazard - Temporary or minor injury may occur
Flammability	: 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)
Physical	: 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

SDS Canada (GHS) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.



Universal Antifreeze/Coolant

SECTION 1. IDENTIFICATION

Product Identifier	Universal Antifreeze/Coolant
Other Means of Identification	16-242, 16-244, 16-245, 26-248, 26-248-1000, 26-248PC, 35-249FS, 36-241SO, 36-244APREXP, 36-244AX, 36-244AXEXP, 36-244CHR, 36-244CQ, 36-244E, 36-244FEDEXP, 36-244FS, 36-244PC, 36-244PM, 36-244PMEXP, 36-244PPEXP, 36-244PROFEXP, 36-244RAD, 36-244SO, 36-244SP, 36-244SPROEXP, 36-244STPE, 36-244STPEXP, 36-244TH, 36-244TOT, 36-244U/N, 36-244UFA, 36-244UG, 36-245UFA, 36-249AXEXP, 36-249CHR, 36-249E, 36-249SPROEXP, 36-254SO, 86-244-PRO, 86-244SY, 86-249, 86-249-1000, BULK-16245, BULK-86245, BULK-TRUCK26429
Recommended Use	Please refer to Product label.
Restrictions on Use	None known.
Manufacturer / Supplier	Recochem Inc., 850 Montee de Liesse, Montreal, QC, H4T 1P4, Compliance and Regulatory Department, 905-878-5544, www.recochem.com
Emergency Phone No. SDS No.	CANUTEC, 613-996-6666, 24 Hours 1552

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) - Category 4; Reproductive Toxicity - Category 1B; Specific target organ toxicity (repeated exposure) - Category 2 GHS Label Elements



Signal Word: Danger

Hazard Statement(s):H302Harmful if swallowed.H360May damage fertility or the unborn child.H373May cause damage to organs (kidneys) through prolonged or repeated exposure following skin contactand/or if swallowed.

Prevention:

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

Product Identifier:Universal Antifreeze/CoolantSDS No.:1552Date of Preparation:October 01, 2015

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IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell
Rinse mouth.
IF exposed or concerned: Get medical advice/attention.
Get medical advice/attention if you feel unwell.

Storage:

Store in a well ventilated place. Keep cool. Keep container tightly closed. Store locked up.

Disposal:

Dispose of contents/container in accordance with applicable regional, national and local laws and regulations. Note:

0.1-1

% of the mixture consists of ingredient(s) of unknown acute toxicity.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers
Ethylene glycol	107-21-1	60-100	
Sodium Salt of Boron Acid	CBI*		

Notes

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

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Remove source of exposure or move to fresh air. Call a Poison Centre or doctor if you feel unwell or are concerned. Skin Contact

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes. Call a Poison Centre or doctor if you feel unwell or are concerned. Clean clothing, shoes and leather goods.

Eye Contact

If eye irritation persists, get medical advice/attention. Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. Ingestion

Rinse mouth with water. Call a Poison Centre or doctor if you feel unwell or are concerned.

Most Important Symptoms and Effects, Acute and Delayed

If swallowed: There are 3 stages of effects, which can overlap. Early symptoms can include upset stomach, slurred speech, clumsiness, drowsiness, and convulsions. Second stage symptoms can include rapid heartbeat and breathing, bluish lips and skin, fluid in the lungs and heart failure. In the last stage, there can be kidney stones and kidney damage with lower back pain, and increased then decreased urine production. There may be delayed nervous system effects such as paralysis of the face, clumsiness, impaired hearing and blurred vision. Death can occur at any stage.

Immediate Medical Attention and Special Treatment

Target Organs

Digestive system, nervous system, heart, digestive system, kidneys, skin.

Special Instructions

The signs and symptoms in ethylene glycol poisoning are those of metabolic acidosis, central nervous system depression and kidney injury. Clinical chemistry may reveal anion-gap metabolic acidosis and uremia. Treatment with ethanol to inhibit the metabolism of glycol to oxalate.Early administration of ethanol may counter the toxic effects of ethylene glycol (cardiopulmonary effects attributed to metabolic acidosis and renal damage). Hemodialysis or peritoneal dialysis have been of benefit. Pre-existing respiratory and skin disorders may be aggravated by over-exposure to this product. Treat symptomatically and supportively.

Medical Conditions Aggravated by Exposure

Dermatitis.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder or appropriate foam.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Chemical

Can ignite if strongly heated.

In a fire, the following hazardous materials may be generated: irritating chemicals.

Special Protective Equipment and Precautions for Fire-fighters

Review Section 6 (Accidental Release Measures) for important information on responding to leaks/spills. See Skin Protection in Section 8 (Exposure Controls/Personal Protection) for advice on suitable chemical protective materials.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Use the personal protective equipment recommended in Section 8 of this safety data sheet.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway.

Methods and Materials for Containment and Cleaning Up

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any

other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container. Conditions for Safe Storage

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

	ACGIH	TLV®	OSHA PEL		AIHA WEEL	
Chemical Name	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Ethylene glycol	10 mg/m3	100 mg/m3	Not established	50 ppm		
Sodium Salt of Boron Acid	Not established	Not established	Not established	Not established		

Appropriate Engineering Controls

The hazard potential of this product is relatively low. General ventilation is usually adequate. Use local exhaust ventilation, if general ventilation is not adequate to control amount in the air.

Individual Protection Measures

Eye/Face Protection

Not required but it is good practice to wear safety glasses or chemical safety goggles.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.

Nitrile rubber.

Respiratory Protection

Not normally required if product is used as directed. For non-routine or emergency situations: wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical I	Properties
Appearance	Clear green liquid.
Odour	Not available
Odour Threshold	Not available
рН	Not available
Melting Point/Freezing Point	-13 °C (9 °F) (Ethylene glycol) (melting); -13 °C (9 °F) (Ethylene glycol) (freezing)
Initial Boiling Point/Range	197 °C (387 °F)
Flash Point	111 °C (232 °F) (closed cup) (Ethylene glycol)
Evaporation Rate	< 0.01
Flammability (solid, gas)	Not applicable
Upper/Lower Flammability or Explosive Limit	21.6 - 22.0% (Ethylene glycol) (upper); 3.2% (Ethylene glycol) (lower)
Vapour Pressure	0.090 mm Hg (0.012 kPa) at 20 °C (Ethylene glycol)
Vapour Density (air = 1)	2.14 (estimated)
Relative Density (water = 1)	1.12 - 1.15 at 20 °C (Ethylene glycol)

Solubility Partition Coefficient, n-Octanol/Water (Log Kow)	Not available in water; Soluble in all proportions in ketones (e.g. acetone). -1.36 at 20 °C (Ethylene glycol)
Auto-ignition Temperature	398 °C (748 °F) (Ethylene glycol)
Decomposition Temperature	Not available
Viscosity	18.86 mm2/s at 20 °C (estimated) (kinematic); 21 mPa.s at 20 °C (estimated) (dynamic)
Other Information	
Physical State	Liquid
Molecular Weight	Not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions of use.
Chemical Stability
Normally stable.
Possibility of Hazardous Reactions
None known.
Conditions to Avoid
High temperatures. Open flames, sparks, static discharge, heat and other ignition sources. Temperatures above 111.0 °C (231.8 °F)
Incompatible Materials
Slightly reactive or incompatible with the following materials: oxidizing agents (e.g. peroxides), strong acids (e.g. hydrochloric acid), strong bases (e.g. sodium hydroxide). Not corrosive to metals.

Hazardous Decomposition Products

Very toxic carbon monoxide, carbon dioxide.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure Skin contact; ingestion. Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Ethylene glycol	2725 mg/m3 (rat) (4-hour exposure)	4700 mg/kg (rat)	9530 mg/kg (rabbit)
Sodium Salt of Boron Acid	Not available	Not available	Not available

LC50: Not applicable.

LD50 (oral): Not applicable.

LD50 (dermal): Not applicable.

Skin Corrosion/Irritation

May cause moderate or severe irritation based on information for closely related materials. Symptoms include pain, redness, and swelling.

Serious Eye Damage/Irritation

May cause serious eye irritation based on information for closely related materials. Symptoms include sore, red eyes, and tearing.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

At high concentrations vapour may cause lung injury, nose and throat irritation. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest. Symptoms may include headache, nausea, dizziness, drowsiness and confusion.

Skin Absorption

At high concentrations may cause Symptoms may include redness, rash, swelling and itching.

Ingestion

Toxic, can cause death based on information for closely related materials. depression of the central nervous system, and effects on the heart and kidneys. In some cases, there may be delayed effects on the nervous system. There are 3 stages of effects, which can overlap. Early symptoms can include upset stomach, slurred speech, clumsiness, drowsiness, and convulsions. Second stage symptoms can include rapid heartbeat and breathing, bluish lips and skin, fluid in the lungs and heart failure. In the last stage, there can be kidney stones and kidney damage with lower back pain, and increased then decreased urine production. There may be delayed nervous system effects such as paralysis of the face, clumsiness, impaired hearing and blurred vision. Death can occur at any stage.

Aspiration Hazard

Not known to be an aspiration hazard.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

May cause dermatitis. Symptoms may include dry, red, cracked skin (dermatitis).

May cause Following skin contact and/or if swallowed: harmful effects on the kidneys.

Respiratory and/or Skin Sensitization

Not known to be a respiratory sensitizer. Not known to be a skin sensitizer.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Ethylene glycol	Not Listed	A4	Not Listed	Not Listed
Sodium Salt of Boron Acid	Not Listed	A4	Not Listed	Not Listed

Reproductive Toxicity

Development of Offspring

If swallowed: at high concentrations animal studies show effects on the offspring. Known to cause: decreased weight. Embryotoxic (late resorptions) teratogenic(external, soft tissue and skeletal defects) may harm the unborn child. (Sodium Salt of Boron Acid)

Sexual Function and Fertility

May cause effects on sexual function and/or fertility. (Sodium Salt of Boron Acid)

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

Not known to be a mutagen.

Interactive Effects

No information was located.

Other Information

TOXIC SUBSTANCE: KEEP AWAY FROM ANIMALS AND SMALL CHILDREN.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Acute Aquatic Toxicity

				1
Chemical Name	LC50 Fish	EC50 Crustacea	ErC50 Aquatic Plants	ErC50 Algae
Ethylene glycol	18500 mg/L (Oncorhynchus mykiss (rainbow trout); 96-hour; fresh water)	74000 mg/L (Daphnia magna (water flea); 24 hr)		
Sodium Salt of Boron Acid	Not available	Not available		
Chronic Aquatic Toxicity				
Chemical Name	NOEC Fish	EC50 Fish	NOEC Crustacea	EC50 Crustacea
Ethylene glycol	39140 mg/L (Oncorhynchus mykiss (rainbow		24000 mg/L (Daphnia magna (water flea))	

Not available

Sodium Salt of Boron Acid Not available Persistence and Degradability

No information was located.

Bioaccumulative Potential

This product and its degradation products are not expected to bioaccumulate.

trout))

Mobility in Soil

No information was located.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14. TRANSPORT INFORMATION

Not regulated under Canadian TDG Regulations.

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
US DOT	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID (Ethylene glycol)	9	III
Environmental Not applicable (Ethylene glycol) Hazards				
Special Precautions for User Please note: In single containers of 5000 lbs capacity or less this product is exempt from DOT regulations (non regulated). Does not require label or placards. Regulated Quantity (RQ)= 5000 lbs (2268 kg) (as ethylene glycol) For bulk shipments equal to or greater than Regulated Quantity (RQ), please adhere to classification as outlined in DOT Classification section.				
Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code				
Not applicable				

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

All ingredients are listed on the DSL/NDSL.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are listed on the TSCA Inventory.

Additional USA Regulatory Lists

California Proposition 65:

WARNING: This product contains chemicals known to the State of California to cause birth defects. WARNING: This product contains chemicals known to the State of California to cause Reproductive Toxicity.

SECTION 16. OTHER INFORMATION

SDS Prepared By	Compliance and Regulatory Department
Phone No.	905-878-5544
Date of Preparation	October 01, 2015
Additional Information	We are committed to uphold the Industry Consumer Ingredient Communication Voluntary Initiative.
	Please send us your request by visiting our website at www.recochem.com.
	Ingredients present (intentionally added ingredients) at a concentration of greater than one percent (1%) shall be listed in descending order of predominance. Ingredients present at a concentration of not more than one percent shall be listed but may be disclosed without respect to order of predominance.
Disclaimer	Notice to reader: To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Product Identifier:Universal Antifreeze/CoolantSDS No.:1552Date of Preparation:October 01, 2015



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Safety Data Sheet according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Revision Date: 02/26/2015

Version: 1.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

Product Identifier Product Form: Mixture Product Name: Bentonite Chips Synonyms: High-Yield Bentonite Chips Intended Use of the Product Use of the Substance/Mixture: For professional use only. Name, Address, and Telephone of the Responsible Party Customer

Economy[®] Polymers & Chemicals 435 E. Anderson Road 77047 Houston, TX T 713-723-8416

www.economypolymers.com

Emergency Telephone Number Emergency number : CHEMTREC 1-800-424-9300 (US); 703-527-3887 (International, collect calls are accepted)

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US) Comb. Dust Carc. 1A H350 STOT RE 1 H372

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



		GH508
Signal Word (GHS-US)	:	Danger
Hazard Statements (GHS-US)		May form combustible dust concentrations in air
		H350 - May cause cancer
		H372 - Causes damage to organs through prolonged or repeated exposure
Precautionary Statements (GHS-US)	:	P201 - Obtain special instructions before use.
		P202 - Do not handle until all safety precautions have been read and understood
		P260 - Do not breathe dust.
		P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
		P270 - Do no eat, drink or smoke when using this product.
		P271 - Use only outdoors or in a well-ventilated area.
		P280 - Wear protective gloves, protective clothing, eye protection, face protection, respiratory protection.
		P308+P313 - If exposed or concerned: Get medical advice/attention.
		P312 - Call a POISON CENTER or doctor if you feel unwell.
		P314 - Get medical advice and attention if you feel unwell.
		P405 - Store locked up.
		P501 - Dispose of contents/container to local, regional, national, territorial, provincial, and international regulations.

Other Hazards

Other Hazards Not Contributing to the Classification: Inhalation may aggravate those with pre-existing conditions including: skin, eye, and respiratory conditions. Repeated or prolonged exposure to respirable crystalline silica dust will cause lung damage in the

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form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss. Acute silicosis can be fatal.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>Substances</u>

Mixture

Name	Product identifier	% (w/w)	Classification (GHS-US)
Quartz	(CAS No) 14808-60-7	4	Carc. 1A, H350
			STOT SE 3, H335
			STOT RE 1, H372
Bentonite Chips	(CAS No) 1302-78-9	96	Not classified

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persist.

Ingestion: Rinse mouth. Do NOT induce vomiting. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Most Important Symptoms and Effects Both Acute and Delayed

General: Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure.

Inhalation: May cause respiratory irritation. May cause cancer by inhalation.

Skin Contact: Contact during a long period may cause light irritation.

Eye Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Ingestion: Gastrointestinal irritation.

Chronic Symptoms: Repeated or prolonged exposure to respirable crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss. Acute silicosis can be fatal.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIREFIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Water spray, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion, keep dust levels to a minimum and follow applicable regulations.

Reactivity: Hazardous reactions will not occur under normal conditions.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. **Hazardous Combustion Products**: Silicon oxides. Quartz (silica) will dissolve in hydroflouric acid producing a corrosive gas, silicon tetrafluoride. Oxides of aluminum.

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Other information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid breathing (dust). Use only outdoors or in a well-ventilated area. Do not allow product to spread into the environment. Do not get in eyes, on skin, or on clothing. Use only non-sparking tools.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Collect spillage. Minimize generation of dust. Contact competent authorities after a spill. Vacuum must be fitted with HEPA filter to prevent release of particulates during clean-up.

Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Do not pressurize, cut, or weld containers. May form combustible dust concentrations in air. Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion, keep dust levels to a minimum and follow applicable regulations.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Store in a well-ventilated place. Keep container tightly closed. Keep/Store away from extremely high or low temperatures, direct sunlight, ignition sources, incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Storage Area: Store locked up.

Specific End Use(s)

For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Quartz (14808-60-7)					
Mexico	OEL TWA (mg/m³)	0.1 mg/m ³			
USA ACGIH	ACGIH TWA (mg/m³)	0.025 mg/m ³			
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.05 mg/m ³			
USA IDLH	US IDLH (mg/m³)	50 mg/m³			
Alberta	OEL TWA (mg/m³)	0.025 mg/m ³			
British Columbia	OEL TWA (mg/m³)	0.025 mg/m ³			
Manitoba	OEL TWA (mg/m³)	0.025 mg/m ³			
New Brunswick	OEL TWA (mg/m³)	0.1 mg/m ³			

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Newfoundland & Labrador	OEL TWA (mg/m³)	0.025 mg/m³
Nova Scotia	OEL TWA (mg/m³)	0.025 mg/m³
Nunavut	OEL TWA (mg/m³)	0.3 mg/m ³ (total mass)
Northwest Territories	OEL TWA (mg/m³)	0.3 mg/m ³ (total mass)
Ontario	OEL TWA (mg/m³)	0.10 mg/m ³ (designated substances regulation)
Prince Edward Island	OEL TWA (mg/m³)	0.025 mg/m ³
Québec	VEMP (mg/m ³)	0.1 mg/m ³
Saskatchewan	OEL TWA (mg/m³)	0.05 mg/m³
Yukon	OEL TWA (mg/m³)	300 particle/mL

Exposure Controls

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use explosion-proof equipment.

Personal Protective Equipment: Protective goggles. Gloves. Insufficient ventilation: wear respiratory protection. Protective clothing.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Not available

Respiratory Protection: Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of dust are expected to exceed exposure limits.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL	L PRO	PERTIES
Information on Basic Physical and Chemical Pro	perties	
Physical State	:	Solid
Appearance	:	Tan, powder
Odor	:	Odorless
Odor Threshold	:	Not available
рН	:	8 - 10 (1% Soln)
Relative Evaporation Rate (butylacetate=1)	:	Not available
Melting Point	:	Not available
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	Not available
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	Not available
Specific Gravity	:	2.45-2.55
Solubility	:	Forms a gel.

: Not available

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Log Kow	:	Not available
Viscosity, Kinematic	:	Not available
Viscosity, Dynamic	:	Not available
Explosion Data – Sensitivity to Mechanical Impact	:	Not available
Explosion Data – Sensitivity to Static Discharge	:	Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical Stability: Stable at standard temperature and pressure. Risk of dust explosion.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Ignition sources. Incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Hazardous Decomposition Products: Oxides of aluminum. Silicon oxides. Quartz (silica) will dissolve in hydroflouric acid producing a corrosive gas, silicon tetrafluoride.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity : Not classified

LD50 and LC50 Data Not available

Skin Corrosion/Irritation: Not classified pH: 8 - 10 (1% Soln)

Serious Eye Damage/Irritation: Not classified pH: 8 - 10 (1% Soln)

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause respiratory irritation. May cause cancer by inhalation.

Symptoms/Injuries After Skin Contact: Contact during a long period may cause light irritation.

Symptoms/Injuries After Eye Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Ingestion: Gastrointestinal irritation.

Chronic Symptoms: Repeated or prolonged exposure to respirable crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss. Acute silicosis can be fatal. **Information on Toxicological Effects - Ingredient(s)**

LD50 and LC50 Data

Quartz (14808-60-7)		
LD50 Oral Rat	> 5000 mg/kg	
Bentonite Chips (1302-78-9)		
LD50 Oral Rat	> 5000 mg/kg	
Quartz (14808-60-7)		
IARC Group	1	
National Toxicity Program (NTP) Status	Known Human Carcinogens.	
SECTION 12: ECOLOGICAL INFORMATION		

Toxicity

Bentonite Chips (1302-78-9)	
LC50 Fish 1	8.0 - 19.0 g/l (Exposure time: 96 h - Species: Salmo gairdneri)
LC 50 Fish 2	19000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

Bentonite Chips Safety Data Sheet according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Persistence and Degradability Not available	
Bioaccumulative Potential	
Bentonite Chips	
Bioaccumulative Potential Not es	tablished.
Mobility in Soil Not available	
Other Adverse Effects	
Other Information: Avoid release to the environ	ment.
SECTION 13: DISPOSAL CONSIDERATION	IS
Waste Disposal Recommendations: Dispose of v	vaste material in accordance with all local, regional, national, provincial, territorial
and international regulations.	
SECTION 14: TRANSPORT INFORMATION	
In Accordance With ICAO/IATA/DOT/TDG	
UN Number Not regulated for transport	
UN Proper Shipping Name Not regulated for	r transport
Additional Information Not regulated for tra	ansport
Transport by sea Not regulated for transport	· · · ·
Air transport Not regulated for transport	
SECTION 15: DECULATORY INFORMATIC	
SECTION 15. REGULATORY INFORMATIC	
OS Federal Regulations	
Bentonite Chips	Delayed (shaaris) health harand
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
Quartz (14808-60-7)	control (Act) in contour
Listed on the United States TSCA (Toxic Substance	es control Act) inventory
Bentonite Chips (1302-78-9)	
Listed on the United States TSCA (Toxic Substanc	es Control Act) inventory
US State Regulations	
Quartz (14808-60-7)	
U.S California - Proposition 65 - Carcinogens L	ist WARNING: This product contains chemicals known to the State of
Quartz (14808-60-7)	
U.S Idaho - Non-Carcinogenic Toxic Air Pollutar	its - Acceptable Ambient Concentrations
U.S Idaho - Non-Carcinogenic Toxic Air Pollutar	aral Ducts
U.S Illinois - Toxic Air Contaminant Carcinogens	
U.S Illinois - Toxic Air Contaminants	
U.S Maine - Chemicals of High Concern	
U.S Massachusetts - Right To Know List	
U.S Michigan - Occupational Exposure Limits -	ГWAs
U.S Minnesota - Chemicals of High Concern	
U.S Minnesota - Hazardous Substance List	
U.S Minnesota - Permissible Exposure Limits - T	ΓWAs
U.S New Hampshire - Regulated Toxic Air Pollu	tants - Ambient Air Levels (AALs) - 24-Hour
U.S New Hampshire - Regulated Toxic Air Pollu	tants - Ambient Air Levels (AALs) - Annual
U.S New Jersey - Right to Know Hazardous Sub	stance List
U.S New Jersey - Special Health Hazards Substa	INCES LIST
U.S Oregon - Permissible Exposure Limits - Min	
U.S Pennisylvania - KTK (Kigni to Know) List	- Τ\//Δς
electronal exposure elitits	

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- U.S. Texas Effects Screening Levels Long Term
- U.S. Texas Effects Screening Levels Short Term
- U.S. Vermont Permissible Exposure Limits TWAs
- U.S. Washington Permissible Exposure Limits STELs
- U.S. Washington Permissible Exposure Limits TWAs

Bentonite Chips (1302-78-9)

U.S. - Texas - Effects Screening Levels - Long Term

U.S. - Texas - Effects Screening Levels - Short Term

Canadian Regulations

_	
Bentonite Chips	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
	Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Quartz (14808-60-7)	
Listed on the Canadian DSL (D	omestic Substances List) inventory.
Listed on the Canadian Ingred	ient Disclosure List
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
Bentonite Chips (1302-78-9)	
Listed on the Canadian DSL (D	omestic Substances List) inventory.

WHMIS Classification Uncontrolled

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

SECTION 16: OTHER INFORMATION

Revision dat	е
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: 02/26/2015

Other Information

: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Carc. 1A	Carcinogenicity Category 1A
Comb. Dust	Combustible Dust
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
	May form combustible dust concentrations in air
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure

Party Responsible for the Preparation of This Document

Economy Polymers & Chemicals

435 E. Anderson Road Houston, TX 77047 713-723-8416; 1-800-231-2066

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

North America GHS US 2012 & WHMIS



SAFETY DATA SHEET

Material Name: Oxygen, Compressed Gas

SDS ID: UIG-O2-G01-R0

Section 1 – Product and Company Identification	
Product Identifier:	Oxygen, Compressed Gas
Other means of identification:	Oxygen Gas, O2, GOX (Gaseous Oxygen), Di-atomic oxygen, Medical Oxygen
Product Uses:	Industrial manufacturing including steel making, various combustion
	processes, oxidation processes, metal cutting, medical, etc.
Supplier Details:	Universal Industrial Gases, Inc
	3001 Emrick Blvd, Suite 320
	Bethlehem, PA 18020 USA
Emergency Phone Number:	(610) 559-7967

Section 2 – Hazards Identification		
Classification per OSHA	Compressed gas	
paragraph (d) of §1910.1200	Oxidizing Gas – Category 1	
Signal word	Danger	
Hazard statement(s)	Oxidizer, may cause or intensify combustion	
	Gas in pipelines may be under pressure, cylinders may explode if heated	
	Respiratory irritant	
Symbol		
Precautionary statement	Read completely and follow all Safety Data Sheets before use	
,	Colorless, odorless gas	
	Keep valves, fittings, piping free from grease and oil, use only with equipment cleaned for oxygen service	
	Keep away from incompatible and combustible materials including clothing	
	Do not allow smoking, open flames or other ignition sources near oxygen source or oxygen enriched atmosphere.	
	Never enter an area where oxygen may have caused an oxygen enriched	
	Ensure proper ventilation	
	Use equipment and materials rated for service	
	Protect cylinders from sunlight, store in ventilated area	
	Rapid release of compressed gas may cause frostbite if contacted	
Hazards not otherwise classified	None	
Toxicity	Refer to Section 11	
	Non-toxic but prolonged exposure to >75% concentration may cause central	
	nervous system depression, headache, dizziness, drowsiness, slowed	
	reaction time, slurred speech, and unconsciousness.	

Section 3 – Compositions / Information of Ingredients	
Chemical Name & Formula	Oxygen, O2
Common Name and Synonyms	Oxygen Gas, O2, GOX (Gaseous oxygen), Di-atomic oxygen, Medical Oxygen
CAS Number	7782-44-7, Oxygen Compressed
Purity	Nominally 100%, typically provided 93% and above, by volume

Material Name: Oxygen, Compressed Gas

Section 4 – First Aid Measures	
Inhalation	Immediately remove victim to fresh air if it can be done safely.
	If not breathing provide artificial respiration or oxygen by trained personnel,
	get immediate medical attention.
Skin Contact	No adverse effects expected from gas at normal temperature. Very cold gas
	may cause frostbite.
Eye Contact	No adverse effects normally expected from gas. Avoid high pressure or very
	cold gas. Remove contact lenses.
	Flush with water, seek medical attention if irritation persists.
Ingestion	Not an expected route of exposure, refer to inhalation section above.
Most important symptoms,	Prolonged exposure to >75% concentration may cause central nervous
effects, acute and delayed	system depression, headache, dizziness, drowsiness, slowed reaction time,
	slurred speech, and unconsciousness.
Immediate medical attention	If symptoms occur, seek medical advice and attention.
and special treatment needed	

Section 5 – Fire Fighting Measures	
Suitable extinguishing media	Use appropriate extinguishing media for surrounding fire.
Special hazards arising (e.g.	Oxygen is not flammable, but vigorously supports combustion, materials that
nature of any hazardous	are not normally combustible in air can ignite if exposed to ignition source.
combustion process)	If product under pressure in closed contained, heat from fire may cause
	pressure to rise and container to burst.
	Cool any containers with water if possible.
Special protective equipment	Wear appropriate protective gear and self-contained breathing apparatus.
and precautions for firefighters	Evacuate personnel from danger area
	Normal fire protective clothing may burn in oxygen enriched atmosphere.
	Oxygen gas is slightly denser than air at same temperature which can cause it
	to concentrate in low areas and lead to oxygen enriched atmosphere.

Section 6 – Accidental Release Measures	
Personal precautions,	First responders should ensure oxygen concentration in area is safe and there
protective equipment,	are no open flames in area
emergency procedures	Evacuate personnel to safe area, never enter suspected oxygen enriched area, do not walk or drive through a potentially oxygen enriched area. Clothing exposed to high oxygen concentrations can become saturated and retain oxygen increasing hazard of ignition. Shut off or eliminate any ignition sources. Oxygen gas is slightly denser than air at same temperature which can cause it
	to concentrate in low areas and lead to an oxygen enriched atmosphere.
Methods and materials for	Isolate any leaking sources if it can be done safely.
containment and clean up	Ventilate the area if possible.



Material Name: Oxygen, Compressed Gas

Section 7 – Handling and Storage			
Precautions for safe	Protect system components against physical damage.		
handling	Use adequate ventilation.		
	Never work on a pressurized system.		
	Use spark proof tools when working around potential enriched oxygen areas.		
	Wear gloves when moving cylinders.		
	Safety glasses always recommended when working with compressed gases.		
	Refer to CGA Safety Bulletin SB-2 for additional recommendations.		
Conditions for safe	Use storage containers, piping, valves and fittings designed for storage and		
storage, including any	distribution of gaseous oxygen.		
incompatibilities	Protect cylinders against physical damage. Store in cool, dry, well-ventilated,		
	fireproof area, away from flammable materials and corrosive atmospheres. Store		
	away from heat and ignition sources and out of direct sunlight. Do not store near		
	elevators, corridors or loading docks. Do not allow area where cylinders are stored to exceed 52°C (125°F).		
	Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do		
	not drop cylinders or permit them to strike each other. Secure cylinders firmly.		
	Leave the valve protection cap in-place (where provided) until cylinder is placed		
	into service and after it is taken out of service.		
	Use designated CGA fittings and other support equipment. Do not heat cylinder by		
	any means to increase the discharge rate of the product from the cylinder. Use		
	check valve or trap in discharge line to prevent hazardous backflow into the cylinder.		
	Do not use non-compatible oils or grease on gas-handling fittings or equipment.		
	Oxygen gas is slightly denser than air at same temperature which can cause it to		
	concentrate in low areas and lead to an oxygen enriched atmosphere.		

Section 8 – Exposure Controls / Personal Protection			
Permissible exposure	There are no exposure limits for this product.		
limits	Oxygen levels should be kept above 19.5% and below 23.5% for all personnel.		
Appropriate Engineering	Ensure adequate ventilation.		
Controls	Use spark-proof tools and explosion proof equipment in areas where potential high		
	oxygen concentrations may occur.		
	Oxygen monitors and alarms in areas where oxygen enrichment is possible.		
	Pressurized systems to have relief valves properly sized, calibrated and vented.		
	Use compatible materials and oxygen cleaned components		
Individual protection	Ensure adequate ventilation.		
measures / personal	Use of personnel oxygen monitors.		
protective equipment	Avoid sources of ignition such as smoking or open flames.		
	Gloves and safety shoes for handling containers/cylinders.		
	Safety glasses / face protection if exposure to discharged gases, eye wash station.		
	Check systems regularly for leaks.		



Section 9 – Physical and Chemical Properties			
Property	Value	Property	Value
Appearance	Colorless	Upper/Lower Explosive Limit	NA
Odor	Odorless	Vapor Pressure	NA
Odor Threshold	NA	Vapor Density	0.0828 lb/ft3 @ 70°F
			1.33 kg/m3 @ 21.1°C
Molecular Weight	32.0 g/mol	Specific Volume	12.08 ft3/lb @ 70°F
			0.754 m3/kg @ 21.1 °C
рН	NA	Relative Density to Air	1.1
Melting / Freezing Point	-362°F / -219°C	Solubility	Slight in water
Boiling Point	-297°F / -183°C	Partition Coefficient: n-	NA
		octanol / water	
Flash Point	NA	Auto Ignition Temperature	NA
Evaporation Rate	NA	Decomposition Temperature	NA
Flammability	Non-flammable	Viscosity (dynamic)	0.0204 centipoise @70°F

Section 10 – Stability and Reactivity			
Reactivity	Not reactive under normal conditions		
Chemical Stability	Stable at normal temperatures and pressures		
Possibility of Hazardous Reactions	Oxygen enriched atmospheres strongly enhance combustion		
Conditions to Avoid	Exposure to incompatible and combustible materials		
	Open flames or other sources of ignition and high temperatures.		
	High concentrations causing oxygen enriched atmosphere leading to		
	enhanced combustion reactions (see sections 4, 6, 7 & 8)		
Incompatible Materials	Oils and greases, combustible, flammable and reducing materials		
Hazardous Decomposition Products	None		

Section 11 Toxicology Information			
Information on likely routes of	Inhalation – exposure to prolonged concentrations >75% may cause		
exposure	adverse breathing symptoms; at 100%, may cause respiratory and central		
	nervous system damage		
	Ingestion – not an expected route		
	Skin – no affects expected normally, cold gas may cause frostbite		
	Eye – no effects expected normally, cold gas may cause frostbite		
Symptoms related to physical,	Inhalation – adverse symptoms include chest pain, difficulty breathing,		
chemical, toxicological	nasal irritation, nausea, irregular heartbeat, dizziness, respiratory and		
characteristics	central nervous system damage		
	Skin – cold gas may cause frostbite		
	Eye – cold gas may cause frostbite		
Delayed, Immediate, chronic	The symptoms listed above are result of prolonged exposure as indicated		
effects from short and long term	Frostbite from immediate exposure to very cold gas		
exposure			
Numerical measures of toxicity	LD50 – not available		
	LC50 – not available		
Carcinogen Listing	Not carcinogenic		



SDS ID: UIG-O2-G01-R0

Material Name: Oxygen, Compressed Gas

Section 12 – Ecological Information			
Ecotoxicity	None		
Persistence and degradability	Not applicable. Normal air is approximately 21% oxygen by volume.		
Bio-accumulative potential	No information available		
Mobility in Soil	No information available		
Other Adverse effects	No known other effects		

Section 13 – Disposal Considerations				
Waste residues and disposal	Product will normally dissipate in air, however oxygen gas is slightly denser than			
guidelines	air at same temperature which can cause it to concentrate in low areas and lead			
	to an oxygen enriched atmosphere.			
	Dispose of any contents or containers in accordance with applicable regulations.			
	Cylinders should be returned in original shipping container/method			
	with any valves closed and protective plugs or caps securely in place.			
	Refer to CGA Pamphlet 63, Disposal of Gases for more information.			

Section 14 – Transport Information				
US DOT UN ID Number	UN1072			
UN Proper Shipping Name	Oxygen, compressed			
DOT Transportation Hazard	DOT Class 2.2			
Class	(Non-Flammable compressed gas)			
	Emergency Response Guide No. 122			
Packing Group	Not Applicable			
Environmental Hazards	None			
Transport Bulk Codes	Refer to DOT 49 CFR 172, 173 & 175 for additional information			
Special Precautions	Ensure vehicle driver is aware of the potential hazards of the load and knows			
	what to do in the event of an accident or an emergency.			
	Isolate area to avoid personnel exposure or any other vehicles from entering the			
	area.			
	High pressure gas cylinders should have outlet valves closed, with plugs/valve			
	caps secured in place.			
	Load space must be separated from driver compartment.			
	Cylinders should be firmly secured from moving or falling during transport.			

Section 15 - Regulatory Information

US Federal TSCA (Toxic Substance Control Act) – listed or exempted US EPA SARA Title III Section 311/312 hazard Category: Sudden release of pressure hazard; Fire Hazard US States Right-To-Know Lists: Massachusetts, New Jersey, Pennsylvania



Material Name: Oxygen, Compressed Gas



New SDS: 29 June 2018 Rev 0

USE OF THIS INFORMATION:

Universal Industrial Gases, Inc. offers this information to promote the safe use of this product through awareness of hazards and safety information. Those who use or transport or sell this product to others should: 1) Disseminate this information internally to all workplace areas, employees, agents and contractors likely to encounter this product

2) Provide supplemental hazards awareness, safety information, operation and maintenance procedures to the workplace areas and employees, agents and contractors likely to encounter this product

3) Furnish this information to all their customers who purchase this product

4) Ask each purchaser or user of the product to notify its employees and customers of the product hazards and safety information.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Universal Industrial Gases, Inc. has taken reasonable care in preparing this document, however, since the use of this information and the conditions of use of the product are not within the control of Universal Industrial Gases, Inc., it is the user's obligation to determine the conditions of safe use of this product. The information in this document is offered with no warranties or representations as to accuracy or completeness and it is the responsibility of each individual to determine the suitability of the information for their particular purpose(s).

SAFETY DATA SHEET		
DIESEL FUEL		PETRO CANADA
000003000395		
Version 5.1	Revision Date 2019/11/05	Print Date 2019/11/20
SECTION 1. IDENTIFICATION		
Product name	: DIESEL FUEL	
Synonyms	 Seasonal Diesel, #2 Diesel, #1 Die Heating Oil, OSX, D50, Arctic Dies Diesel, Low Sulphur Diesel, LSD, ULSD, Mining Diesel, Naval Distill Diesel, Coloured Diesel, Furnace B1, B2, B5, Diesel Low Cloud (LC Gas Oil Dyed. 	esel, #2 Heating Oil, #1 sel, Farm Diesel, Marine Ultra Low Sulphur Diesel, ate, Dyed Diesel, Marked special, Biodiesel blend,), Marine Gas Oil, Marine
Product code	 102907, 102762, 102763, 102755 100678, 100677, 101802, 100107 100663, 100652, 100460, 100065 101792, 101794, 101791, 100768 101798, 101800, 101797, 101788 100734, 100733, 100640, 100997 100994 	, 102302, 102744, 101801, , 100668, 100658, 100911, , 101796, 101793, 101795, , 100643, 100642, 100103, , 101789, 101787, 102531, , 100995, 100732, 100731,
Manufacturer or supplier's detai	ils Petro-Canada P.O. Box 2844, 150 - 6th Avenue Calgary Alberta T2P 3E3 Canada	South-West
Emergency telephone num- ber	Suncor Energy: +1 403-296-3000; Canutec Transportation: 1-888-22 996-6666; Poison Control Centre: Consult loc emergency number(s).	6-8832 (toll-free) or 613- cal telephone directory for
Recommended use of the che	emical and restrictions on use	
Recommended use	: Diesel fuels are distillate fuels suit medium speed internal combustion sion ignition type. Mining diesels, in naval distillates may have a higher	able for use in high and n engines of the compres- marine diesels, MDO and r flash point requirement.
Prepared by	: Product Safety: +1 905-804-4752	

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Bright oily liquid.
Colour	Clear to yellow (This product may be dyed red for taxation purposes)
Odour	Mild petroleum oil like.

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Version 5.1



sion 5.1		Revision Date 2019/11/05	Print Date 2019/11/20
GHS Classification			
Flammable liquids	:	Category 3	
Acute toxicity (Inhalation)	:	Category 4	
Skin irritation	:	Category 2	
Carcinogenicity	:	Category 2	
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)	
Specific target organ toxicity - repeated exposure	:	Category 2 (Liver, thymus, Bone)	
Aspiration hazard	:	Category 1	
GHS label elements Hazard pictograms	:		
Signal word	:	Danger	
Hazard statements	:	Flammable liquid and vapour. May be fatal if swallowed and enters at Causes skin irritation. Harmful if inhaled. May cause drowsiness or dizziness. Suspected of causing cancer. May cause damage to organs (Liver, th prolonged or repeated exposure.	irways. nymus, Bone) through
Precautionary statements	:	Prevention: Obtain special instructions before use. Do not handle until all safety precaution understood. Keep away from heat, hot surfaces, sp other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiv Use explosion-proof electrical/ ventilati Use non-sparking tools. Take action to prevent static discharge Do not breathe dust/ fume/ gas/ mist/ v Wash skin thoroughly after handling. Use only outdoors or in a well-ventilate Wear protective gloves/ protective cloth protection. Response: IF SWALLOWED: Immediately call a P IF ON SKIN (or hair): Take off immediately clothing. Rinse skin with water.	ns have been read and arks, open flames and ing equipment. ng/ lighting equipment. es. vapours/ spray. ed area. hing/ eye protection/ face POISON CENTER/doctor. ately all contaminated

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	 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell IF exposed or concerned: Get medical advice/ attention. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/ attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. Storage: Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Disposal: Dispose of contents/ container to an approved waste disposal plant. 	
Potential Health Effects		
Primary Routes of Entry	: Eye contact Ingestion Inhalation Skin contact	
Aggravated Medical Condi- tion	: None known.	
Other hazards		
None known.		

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration				
Kerosine (petroleum), hydrodesulfurized; Kero-	64742-81-0	70 - 100 %				
sine -unspecified						
Kerosine (petroleum); Straight run kerosine	8008-20-6					
Fuels, diesel; Gasoil -unspecified	68334-30-5					
Alkanes, C10-20-branched and linear	928771-01-1	0 - 30 %				
Fatty acids, C16-18 and C18-unsatd., Me esters	67762-38-3	0 - 20 %				
All above concentrations are in percent by weight.						

SECTION 4. FIRST AID MEASURES

If inhaled	:	Move to fresh air. Artificial respiration and/or oxygen may be necessary. Seek medical advice.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
rnet: www.petro-canada.ca/msds		Dare.

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	Wash skin thoroughly with soap an skin cleanser. Wash clothing before reuse. Seek medical advice.	d water or use recognized
In case of eye contact	: Remove contact lenses. Rinse immediately with plenty of war for at least 15 minutes. Obtain medical attention.	ater, also under the eyelids,
If swallowed	 Rinse mouth with water. DO NOT induce vomiting unless di cian or poison control center. Never give anything by mouth to an Seek medical advice. 	rected to do so by a physi- n unconscious person.
Most important symptoms and effects, both acute and delayed	: Harmful if inhaled. Respiratory, skin and eye irritation;	nausea; cancer.
Notes to physician	: Treat symptomatically. For specialist advice physicians sh Information Service.	ould contact the Poisons

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Water fog. Foam
Unsuitable extinguishing media	:	Do NOT use water jet.
Specific hazards during fire- fighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion prod- ucts	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), smoke and irritating vapours as products of incomplete combustion.
Further information	:	Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if nec- essary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec-	:	For personal protection see section 8.	
tive equipment and emer-		Ensure adequate ventilation.	
gency procedures		Evacuate personnel to safe areas.	
		Material can create slippery conditions.	
net: www.petro-canada.ca/msds			Page: 4 /

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Environmental precautions	: If the product contaminates rivers respective authorities.	and lakes or drains inform
Methods and materials for containment and cleaning up	 Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Soak up with inert absorbent material. Non-sparking tools should be used. Ensure adequate ventilation. Contact the proper local authorities. 	

SECTION 7. HANDLING AND STORAGE

Advice on safe handling :	 For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin, eyes and clothing. Do not ingest. Keep away from heat and sources of ignition. Keep container closed when not in use.
Conditions for safe storage	 Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in a dry, cool and well-ventilated place. Keep in properly labelled containers. To maintain product quality, do not store in heat or direct sunlight. Ensure the storage containers are grounded/bonded.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parame- ters / Permissible concentration	Basis
Kerosine (petroleum), hy- drodesulfurized; Kerosine - unspecified	64742-81-0	TWA	200 mg/m3 (As total hydro- carbon vapour)	ACGIH
		TWA	200 mg/m3 (total hydrocarbon vapor)	CA AB OEL
		TWA	525 mg/m3	CA ON OEL
		TWA	200 mg/m3 (As total hydro- carbon vapour)	ACGIH
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		TWA	200 mg/m3 (total hydrocarbon	ACGIH
Kerosine (petroleum); Straight run kerosine	8008-20-6	TWA	200 mg/m3 (total hydrocarbon vapor)	CA BC OEL
		TWA	200 mg/m3 (total hydrocarbon vapor)	CA AB OEL
		TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH
Fuels, diesel; Gasoil - unspecified	68334-30-5	TWA	100 mg/m3 (total hydrocar- bons)	CA AB OEL
		TWA (Va- pour and inhalable aerosols)	100 mg/m3 (total hydrocar- bons)	CA BC OEL
		TWA (Inhal- able fraction and vapor)	100 mg/m3 (total hydrocar- bons)	ACGIH
Engineering measures	: Adequate ver Limits are no Use only in w Ensure that e to the work-s	ntilation to ensur t exceeded. vell-ventilated are eyewash station tation location.	e that Occupational E eas. and safety shower are	xposure e proximal
Personal protective equipmer	nt			
Respiratory protection	: Concentration Use respirato ventilation is that exposure Respirator se exposure leve working limits	n in air determin ory protection un provided or expo es are within rece election must be els, the hazards s of the selected	es protection needed. less adequate local es osure assessment der ommended exposure based on known or a of the product and the respirator.	xhaust monstrates guidelines. nticipated e safe
Filter type	organic vapour cartridge or canister may be permissible un- der certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circum- stances where air-purifying respirators may not provide ade- quate protection.			
Hand protection Material	: neoprene, nit your PPE pro glove that is l should be rea their impervio Therefore, pr wear and tea	rile, polyvinyl ald ovider for breakth best for you base alized that event ousness, will get otective gloves s r. At the first sign	cohol (PVA), Viton(R). nrough times and the ed on your use pattern ually any material reg permeated by chemic should be regularly ch ns of hardening and c	Consult specific ns. It ardless of cals. lecked for racks, they



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	should be changed.	
Remarks	: Chemical-resistant, impervious approved standard should be chemical products if a risk a essary.	ous gloves complying with an be worn at all times when handling assessment indicates this is nec-
Eye protection	: Wear face-shield and protect problems.	ctive suit for abnormal processing
Skin and body protection	: Choose body protection in r tration and amount of dange cific work-place.	relation to its type, to the concen- erous substances, and to the spe-
Protective measures	: Wash contaminated clothing	g before re-use.
Hygiene measures	: Remove and wash contamin ing the inside, before re-use Wash face, hands and any handling.	nated clothing and gloves, includ- e. exposed skin thoroughly after

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Bright oily liquid.
Colour	:	Clear to yellow (This product may be dyed red for taxation purposes)
Odour	:	Mild petroleum oil like.
Odour Threshold	:	No data available
рН	:	No data available
Melting point	:	No data available
Boiling point/boiling range	:	150 - 371 °C (302 - 700 °F)
Decomposition temperature		No data available
Flash point	:	> 40 °C (104 °F)
		Method. closed cup
Auto-Ignition Temperature	:	225 °C (437 °F)
Evaporation rate	:	No data available
Flammability	:	Flammable in presence of open flames, sparks and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite.
Upper explosion limit	:	6 %(V)
Lower explosion limit	:	0.7 %(V)

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Vapour pressure	: 7.5 mmHg (20 °C / 68 °F)	
Relative vapour density	: 4.5	
Relative density	: 0.8 - 0.88	
Solubility(ies)		
Water solubility	: insoluble	
Partition coefficient: n- octanol/water	: No data available	
Viscosity		
Viscosity, kinematic	: 1.3 - 4.1 cSt (40 °C / 104 °F)	

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Stable at normal ambient temperature and pressure.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reac- tions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Extremes of temperature and direct sunlight.
Incompatible materials	: Reactive with oxidising agents and acids.
Hazardous decomposition products	: May release COx, NOx, SOx, smoke and irritating vapour when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes Eye contact Ingestion Inhalation Skin contact	of exposure	
Acute toxicity		
Product: Acute oral toxicity	: Remarks: No data available	
Acute inhalation toxicity	: Acute toxicity estimate: 1.2 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method	
nati vivi natro, canada as/mada		D

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Acute dermal toxicity	: Remarks: No data available	
0 <i>i</i>		
<u>Components:</u>		
Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg,	
Acute inhalation toxicity	: LC50 (Rat): > 5.2 mg/l Exposure time: 4 hrs Test atmosphere: dust/mist	
Acute dermal toxicity	: LD50 (Rabbit): > 2,000 mg/kg,	
Kerosine (petroleum); Stra	ight run kerosine:	
Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg,	
Acute inhalation toxicity	: LC50 (Rat): > 5 mg/l	
	Exposure time: 4 h	
	l est atmosphere: dust/mist	
Acute dermal toxicity	: LD50 (Rabbit): > 2,000 mg/kg,	
Fuels, diesel; Gasoil -unsp	ecified:	
Acute oral toxicity	: LD50 (Rat): 7,500 mg/kg,	
Acute inhalation toxicity	: LC50 (Rat): 4.1 mg/l Exposure time: 4 h Test atmosphere: vapour	
Acute dermal toxicity	: LD50 (Mouse): 24,500 mg/kg,	
Skin corrosion/irritation		
Product:		
Remarks: Causes skin irritati	on.	
Serious eye damage/eye in	ritation	
Product:		
Remarks: No data available		
Respiratory or skin sensitis	sation	
Product:		

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

Germ cell mutagenicity

Product:

Genotoxicity in vitro

Remarks: No data available

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Genotoxicity in vivo	Remarks: No data available	
Carcinogenicity		
Product:		
Carcinogenicity - As- sessment	Suspected of causing cancer.	
Reproductive toxicity		
Product:		

Effects on fertility

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

STOT - single exposure

Product:

Remarks: May cause drowsiness or dizziness.

STOT - repeated exposure

Product:

Remarks: May cause damage to organs through prolonged or repeated exposure.

No data available

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicit	/ to fish
1 O/GOIL	

loxicity to fish	: Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	: Remarks: No data available
Toxicity to algae	: Remarks: No data available
Toxicity to bacteria	: Remarks: No data available

Persistence and degradability

Product:

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Version 5.1	Revision Date 2019/11/05	Print Date 2019/11/20
Biodegradability	: Remarks: No data available	
Bioaccumulative potential No data available		
Mobility in soil No data available		
Other adverse effects No data available		

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues :	 The product should not be allowed to enter drains, water courses or the soil. Offer surplus and non-recyclable solutions to a licensed dis- posal company.
	disposal.
	Dispose of as hazardous waste in compliance with local and national regulations.
	Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UN/ID NO.	:	UN 1202
Proper shipping name	:	Diesel fuel
Class	:	3
Packing group	:	III
Labels	:	Class 3 - Flammable Liquid
Packing instruction (cargo aircraft)	:	366
IMDG-Code UN number Proper shipping name	:	UN 1202 DIESEL FUEL
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E

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

National Regulations

TDG

DIESEL FUEL

000003000395



Version 5.1	Revision Date 2019/11/05	Print Date 2019/11/20
UN number Proper shipping name	: UN 1202 : DIESEL FUEL	
Class	: 3	
Packing group Labels	: III : 3 : 128	
Marine pollutant	: 128 : no	

SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR.

The components of this produ	ct are reported in the following inventories:
DSL	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

For Copy of SDS	:	Internet: www.petro-canada.ca/msds Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837- 1228 For Product Safety Information: 1 905-804-4752
Prepared by	:	Product Safety: +1 905-804-4752
Revision Date	:	2019/11/05

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.

GASOLINE, UNLEADED

000003000644

Version 3.0



Print Date 2019/06/14

SECTION 1. IDENTIFICATION

Product name :	GASOLINE, UNLEADED
Synonyms :	TN-PE-TM15-X00-1499; Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, SummerGas, Supreme, SuperClean, SuperClean WinterGas, Regular- Clean, PlusClean, Premium, marked or dyed gasoline, TQRUL, transitional quality regular unleaded, BOB, Blend- stock for Oxygenate Blending, Conventional Gasoline, RUL, MUL, SUL, PUL.
Product code :	100127, 100126, 101823, 100507, 101811, 101814, 100141, 101813, 101810, 101812, 100063, 101822, 100138, 101821, 100064, 101820, 101819, 100506, 101818, 101816, 101817, 100488
Manufacturer or supplier's details	Petro-Canada P.O. Box 2844, 150 - 6th Avenue South-West Calgary Alberta T2P 3E3 Canada
Emergency telephone num- ber	Suncor Energy: +1 403-296-3000; Canutec Transportation: 1-888-226-8832 (toll-free) or 613- 996-6666; Poison Control Centre: Consult local telephone directory for emergency number(s).
Recommended use of the chen	nical and restrictions on use
Recommended use :	Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat engines, small engines such as chain saws and lawn mowers, and recrea- tional vehicles.
Prepared by :	Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Clear liquid.
Colour	Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.
Odour	Gasoline

GHS Classification

Flammable liquids

: Category 1

GASOLINE, UNLEADED

000003000644

Version 3.0	Revision Date 2019/06/14	Print Date 2019/06/14
Skin irritation	: Category 2	
Germ cell mutagenicity	: Category 1B	
Carcinogenicity	: Category 1A	
Reproductive toxicity	: Category 2	
Specific target organ toxicity - single exposure	: Category 3 (Central nervous system)	
Specific target organ toxicity - repeated exposure	: Category 1	
Aspiration hazard	: Category 1	
GHS label elements Hazard pictograms		
Signal word	: Danger	
Hazard statements	 Extremely flammable liquid and vapour May be fatal if swallowed and enters a Causes skin irritation. May cause drowsiness or dizziness. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the Causes damage to organs through pro- sure. 	r. irways. unborn child. blonged or repeated expo-
Precautionary statements	 Prevention: Obtain special instructions before use. Do not handle until all safety precaution understood. Keep away from heat, hot surfaces, specther ignition sources. No smoking. Keep container tightly closed. Ground and bond container and received Use explosion-proof electrical/ventilated Use non-sparking tools. Take action to prevent static discharged Do not breathe dust/fume/gas/mist/ventilated Use only outdoors or in a well-ventilated Wear protective gloves/ protective cloted protection. Response: IF SWALLOWED: Immediately call a FIF ON SKIN (or hair): Take off immediately call a FIF ON SKIN (or h	ns have been read and barks, open flames and ving equipment. ing/ lighting equipment. es. vapours/ spray. g this product. ed area. hing/ eye protection/ face POISON CENTER/doctor. ately all contaminated



GASOLINE, UNLEADED

000003000644



Version 3.0	Revision Date 2019/06/14	Print Date 2019/06/14
	IF INHALED: Remove person to fresh a for breathing. Call a POISON CENTER IF exposed or concerned: Get medical Do NOT induce vomiting. If skin irritation occurs: Get medical adv Take off contaminated clothing and was In case of fire: Use dry sand, dry chemi foam to extinguish. Storage: Store in a well-ventilated place. Keep c Store in a well-ventilated place. Keep c Store locked up. Disposal: Dispose of contents/ container to an ap plant.	air and keep comfortable /doctor if you feel unwell. advice/ attention. //ice/ attention. sh it before reuse. ical or alcohol-resistant container tightly closed. cool.
Potential Health Effects		
Primary Routes of Entry	: Eye contact Ingestion Inhalation Skin contact	
Aggravated Medical Condi- tion	: None known.	
Other hazards None known.		
IARC	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
ACGIH	Confirmed human carcinogen	
	Benzene	71-43-2
	Confirmed animal carcinogen with unknov mans	vn relevance to hu-
	Gasoline	86290-81-5
	Ethanol	64-17-5

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Mixture

Hazardous components

Internet: www.petro-canada.ca/msds Petro-Canada is a Suncor Energy business.

PETRO CANADA

GASOLINE, UNLEADED

000003000644

Version 3.0

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Chemical name	CAS-No.	Concentration
Gasoline; Low boiling point naphtha -unspecified	86290-81-5	95 - 100 %
toluene	108-88-3	1 - 40 %
benzene	71-43-2	0.5 - 1.5 %
ethanol	64-17-5	0.1 - 0.3 %

All above concentrations are in percent by weight.

SECTION 4. FIRST AID MEASURES

If inhaled	:	Move to fresh air. Artificial respiration and/or oxygen may be necessary. Seek medical advice.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Seek medical advice.
In case of eye contact	:	Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	:	Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a physi- cian or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.
Most important symptoms and effects, both acute and delayed	:	Inhalation may cause central nervous system effects. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Ingestion may cause gastrointestinal irritation, nausea, vomit- ing and diarrhoea. Chronic exposure to benzene may result in increased risk of leukemia and other blood disorders.
Notes to physician	:	Treat symptomatically. Contact poison treatment specialist immediately if large quan- tities have been ingested or inhaled.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical
0 0		Carbon dioxide (CO2)
		Water fog.
		Foam

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Unsuitable extinguishing media	: Do NOT use water jet.	
Specific hazards during fire- fighting	: Cool closed containers e	exposed to fire with water spray.
Hazardous combustion prod- ucts	: Carbon oxides (CO, CO, aromatic hydrocarbons, and irritating vapours as	2), nitrogen oxides (NOx), polynuclear phenols, aldehydes, ketones, smoke products of incomplete combustion.
Further information	: Prevent fire extinguishin water or the ground wate	g water from contaminating surface er system.
Special protective equipment for firefighters	: Wear self-contained bre- wear. Wear a positive-pressure piece.	athing apparatus and full protective e supplied-air respirator with full face-

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec- tive equipment and emer- gency procedures	 For personal protection see section 8. Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery conditions.
Environmental precautions	: If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	 Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Soak up with inert absorbent material. Non-sparking tools should be used. Ensure adequate ventilation. Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	 For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin, eyes and clothing. Do not ingest. Keep away from heat and sources of ignition. Keep container closed when not in use.
Conditions for safe storage	 Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
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Keep in a dry, cool and well-ventilated place. Keep in properly labelled containers. To maintain product quality, do not store in heat or direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components	CAS-No.	Value type (Form of exposure)	Control parame- ters / Permissible concentration	Basis
toluene	108-88-3	TWA	50 ppm 188 mg/m3	CA AB OEL
		TWA	20 ppm	CA BC OEL
		TWAEV	50 ppm 188 mg/m3	CA QC OEL
		TWA	20 ppm	ACGIH
benzene	71-43-2	TWA	0.5 ppm 1.6 mg/m3	CA AB OEL
		STEL	2.5 ppm 8 mg/m3	CA AB OEL
		TWA	0.5 ppm	CA BC OEL
		STEL	2.5 ppm	CA BC OEL
		TWA	0.5 ppm	CA ON OEL
		STEL	2.5 ppm	CA ON OEL
		TWAEV	1 ppm	CA QC OEL
			3 mg/m3	
		SIEV	5 ppm 15.5 mg/m3	CA QC OEL
		TWA	0.5 ppm	ACGIH
		STEL	2.5 ppm	ACGIH
Gasoline; Low boiling point naphtha -unspecified	86290-81-5	TWA	300 ppm	CA AB OEL
		STEL	500 ppm	CA AB OEL
		TWA	300 ppm	CA BC OEL
		STEL	500 ppm	CA BC OEL
		TWA	300 ppm	ACGIH
		STEL	500 ppm	ACGIH
ethanol	64-17-5	TWA	1,000 ppm 1,880 mg/m3	CA AB OEL
		STEL	1,000 ppm	CA BC OEL
		TWAEV	1,000 ppm 1,880 mg/m3	CA QC OEL
		STEL	1,000 ppm	ACGIH

Components with workplace control parameters

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam- pling	Permissible concentra-	Basis
Toluene	108-88-3	Toluene	In blood	Prior to last shift	0.02 mg/l	ACGIH BEI
				of work-		

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	l	ĺ		1	wook		
			Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
Engineering measures	:	Ade Lim Use Ens to th	equate ventilat its are not exc only in well-v sure that eyew ne work-statio	tion to ensur ceeded. ventilated are rash station a n location.	e that Occu eas. and safety s	pational Expos	sure oximal
Personal protective equ	ipment	_					
Respiratory protection	:	Cor Use ven that Res exp wor	acentration in a e respiratory p tilation is prov e exposures ar spirator selecti osure levels, t king limits of t	air determine rotection unl rided or expo re within reco ion must be the hazards he selected	es protection less adequa osure asses commended based on kr of the produ respirator.	n needed. Ite local exhau sment demons exposure guid nown or anticip lict and the saf	ist strates elines. pated e
Filter type	:	A N vap circ to e puri sup rele star qua	IOSH-approve our cartridge umstances wh xceed exposu fying respirato plied respirato ase, exposure nces where ain te protection.	ed air-purifyi or canister m nere airborne ure limits. Pr ors is limited or if there is a e levels are u r-purifying re	ng respirato nay be perm e concentrat rotection pro . Use a pos any potentia unknown, or espirators m	or with an organ issible under tions are expensivided by air- sitive-pressure al for uncontrol any other circo ay not provide	nic certain cted , air- led cum- ade-
Hand protection Material	:	poly for l you eve will sho sigr	ovinyl alcohol preakthrough based on you ntually any ma get permeate uld be regular ns of hardenin	(PVA), Viton times and th ur use patter aterial regard d by chemic ly checked f g and cracks	(R). Consul e specific g ns. It should dless of thei als. Therefo or wear and s, they shou	t your PPE pro love that is be l be realized th r imperviousno re, protective I tear. At the fi Id be changed	ovider st for nat ess, gloves rst I.
Remarks	:	Che app che ess	emical-resistar roved standar mical product ary.	nt, imperviou rd should be s if a risk as:	is gloves co worn at all sessment in	mplying with a times when ha dicates this is	an andling nec-
Eye protection	:	We prol	ar face-shield olems.	and protecti	ve suit for a	bnormal proce	essing
Skin and body protection	:	Cho trati cific	oose body pro on and amou work-place.	tection in rel nt of danger	ation to its t ous substan	ype, to the con ices, and to th	ncen- e spe-

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Protective measures	: Wash contaminated clothing befor	e re-use.
Hygiene measures	: Remove and wash contaminated of ing the inside, before re-use. Wash face, hands and any expose handling.	clothing and gloves, includ- ed skin thoroughly after

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Clear liquid.
Colour	:	Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.
Odour	:	Gasoline
Odour Threshold	:	No data available
рН	:	No data available
Melting point	:	No data available
Boiling point/boiling range	:	25 - 225 °C (77 - 437 °F)
Decomposition temperature		No data available
Flash point	:	-5038 °C (-5836 °F) Method: Tagliabue.
Auto-Ignition Temperature	:	257 °C (495 °F)
Evaporation rate	:	No data available
Flammability	:	Extremely flammable in presence of open flames, sparks, shocks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition. May accumulate in confined spaces.
Upper explosion limit	:	7.6 %(V)
Lower explosion limit	:	1.3 %(V)
Vapour pressure	:	< 802.5 mmHg (20 °C / 68 °F)
Relative vapour density	:	3
Relative density	:	0.685 - 0.8
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n- octanol/water	:	No data available

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Viscosity, kinematic : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reac- tions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Reactive with oxidising agents, acids and interhalogens.
Hazardous decomposition products	:	May release COx, NOx, phenols, polycyclic aromatic hydro- carbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of Eye contact Ingestion Inhalation Skin contact	of exposure
Acute toxicity	
Product:	
Acute oral toxicity	: Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	: Remarks: Based on available data, the classification criteria are not met.
Acute dermal toxicity	: Remarks: Based on available data, the classification criteria are not met.
Components: Gasoline; Low boiling point i Acute oral toxicity	aphtha -unspecified: : LD50 (Rat): 13,600 mg/kg,
Acute dermal toxicity	: LD50 (Rabbit): > $3,750 \text{ mg/kg}$,
toluene:	
Acute oral toxicity	: LD50 (Rat): 5,580 mg/kg,
Acute inhalation toxicity	: LC50 (Rat): 7585 ppm
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	Exposure time: 4 h Test atmosphere: dust/mist	
Acute dermal toxicity	: LD50 (Rabbit): 12,125 mg/kg,	
benzene:	· 1 D50 (Pat): 2 990 mg/kg	
	. LD30 (Rat). 2,990 mg/kg,	
Acute inhalation toxicity	: LC50 (Rat): 13700 ppm Exposure time: 4 h Test atmosphere: vapour	
Acute dermal toxicity	: LD50 (Rabbit): > 8,240 mg/kg,	
ethanol:		
Acute oral toxicity	: LD50 (Rat): 7,060 mg/kg,	
Acute inhalation toxicity	: LC50 (Rat): > 32380 ppm Exposure time: 4 h Test atmosphere: vapour	
Product: Remarks: Causes skin irrita	ation.	
Product: Remarks: Causes skin irrita Serious eye damage/eye i	ation. irritation	
Product: Remarks: Causes skin irrita Serious eye damage/eye i <u>Product:</u> Remarks: Based on availab	ation. irritation ble data, the classification criteria are not	t met.
Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availab Respiratory or skin sensi	ation. irritation ble data, the classification criteria are not	t met.
Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availat Respiratory or skin sensi	ation. irritation ble data, the classification criteria are not tisation	t met.
Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availat Respiratory or skin sensi Product: Remarks: Based on av	ation. irritation ble data, the classification criteria are not tisation	t met. re not met.
Skin corrosion/irritation Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availab Respiratory or skin sensi Product: Remarks: Based on availab	ation. irritation ble data, the classification criteria are not tisation vailable data, the classification criteria ar	t met. re not met.
Skin corrosion/irritation Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availab Respiratory or skin sensi Product: Remarks: Based on availab Germ cell mutagenicity	ation. irritation ble data, the classification criteria are not tisation vailable data, the classification criteria ar	t met. re not met.
Skin corrosion/irritation Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availab Respiratory or skin sensi Product: Remarks: Based on availab Germ cell mutagenicity Product: Product: Remarks: Based on availab	ation. irritation ble data, the classification criteria are not tisation vailable data, the classification criteria ar	t met. re not met.
Skin corrosion/irritation Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availat Respiratory or skin sensi Product: Remarks: Based on availat Germ cell mutagenicity Product: Germ cell mutagenicity Assessment	ation. irritation ble data, the classification criteria are not tisation vailable data, the classification criteria ar y- May cause genetic defects.	t met. re not met.
Skin corrosion/irritation Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availat Respiratory or skin sensi Product: Remarks: Based on availat Germ cell mutagenicity Product: Germ cell mutagenicity Assessment Carcinogenicity	ation. irritation ble data, the classification criteria are not tisation vailable data, the classification criteria ar y- May cause genetic defects.	t met. re not met.
Skin corrosion/irritation Product: Remarks: Causes skin irrita Serious eye damage/eye Product: Remarks: Based on availab Respiratory or skin sensi Product: Remarks: Based on availab Product: Remarks: Based on availab Product: Germ cell mutagenicity Product: Germ cell mutagenicity Assessment Carcinogenicity Product:	ation. irritation ble data, the classification criteria are not tisation vailable data, the classification criteria ar y- May cause genetic defects.	t met. re not met.

Product:

Reproductive toxicity -

Suspected of damaging fertility or the unborn child.

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Assessment

STOT - single exposure

Product:

Remarks: May cause drowsiness or dizziness.

STOT - repeated exposure

Product:

Remarks: Causes damage to organs through prolonged or repeated exposure.

No data available

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae	:	Remarks: No data available
Toxicity to bacteria	:	Remarks: No data available

Persistence and degradability

Product:

Bioaccumulative potential

No data available

Mobility in soil No data available

Other adverse effects

No data available

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SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	 The product should not be allowed to enter drains, water courses or the soil. Offer surplus and non-recyclable solutions to a licensed disposal company. Waste must be classified and labelled prior to recycling or disposal. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR	
UN/ID No.	: UN 1203
Proper shipping name	: Gasoline
Class	: 3
Packing group	: 11
Labels	: Class 3 - Flammable Liquid
Packing instruction (cargo aircraft)	: 364
IMDG-Code UN number Proper shipping name	: UN 1203 : GASOLINE
Class Packing group Labels EmS Code Marine pollutant	: 3 : II : 3 : F-E, S-E : no

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

National Regulations

TDG		
UN number	:	UN 1203
Proper shipping name	:	GASOLINE
Class	:	3
Packing group	:	П
Labels	:	3
ERG Code	:	128
Marine pollutant	:	no

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SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR.

The components of this produ	ict are reported in the following inventories:
DSL	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

For Copy of SDS	:	Internet: www.petro-canada.ca/msds Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837- 1228 For Product Safety Information: 1 905-804-4752
Prepared by	:	Product Safety: +1 905-804-4752
Revision Date	:	2019/06/14

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.

Safety Data Sheet



SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Clarity Hydraulic Oil AW 32, 46, 68, 100

Product Use: Hydraulic Oil Product Number(s): 230340, 230341, 230342, 255702, 274310, 278022, 278023, 278024 Synonyms: Clarity Hydraulic Oil AW 100 ISOCLEAN Certified; Clarity Hydraulic Oil AW 32 ISOCLEAN Certified; Clarity Hydraulic Oil AW 46 ISOCLEAN Certified; Clarity Hydraulic Oil AW 68 ISOCLEAN Certified Company Identification Chevron Products Company a division of Chevron U.S.A. Inc. 6001 Bollinger Canyon Rd. San Ramon, CA 94583 United States of America www.chevronlubricants.com

Transportation Emergency Response CHEMTREC: (800) 424-9300 or (703) 527-3887 Health Emergency Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623 Product Information email : lubemsds@chevron.com Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Not classified as hazardous according to 29 CFR 1910.1200 (2012).

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER HEALTH EFFECTS: Not classified

Indication of any immediate medical attention and special treatment needed

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However,

because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Unusual Fire Hazards: Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty

container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3		
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3			

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless Physical State: Liquid Odor: Petroleum odor Odor Threshold: No data available pH: Not Applicable Vapor Pressure: <0.01 mmHg (Estimated) @ 37.8 °C (100 °F) Vapor Density (Air = 1): >1 (Estimated) **Initial Boiling Point:** 315°C (599°F) (Estimated) **Solubility:** Soluble in hydrocarbons; insoluble in water Freezing Point: Not Applicable Melting Point: No data available **Density:** 0.8666 kg/l - 0.8694 kg/l @ 15°C (59°F) Viscosity: 43.70 mm2/s - 110 mm2/s @ 40°C (104°F) Evaporation Rate: No data available Decomposition temperature: No data available Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:

Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 200 °C (392 °F)MinimumAutoignition:No data availableFlammability (Explosive) Limits (% by volume in air):Lower:Not ApplicableUpper:Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: Not applicable

Hazardous Decomposition Products: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.

Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

This material is not expected to be harmful to aquatic organisms.

The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY

No data available.

PERSISTENCE AND DEGRADABILITY

This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE

Bioconcentration Factor: No data available. Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: NOT REGULATED AS A HAZARDOUS MATERIAL UNDER 49 CFR

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not applicable

EPCRA 311/312 CATEGORIES:

- 1. Immediate (Acute) Health Effects: NO
- 2. Delayed (Chronic) Health Effects: NO
- 3. Fire Hazard:
- 4. Sudden Release of Pressure Hazard: NO

NO

5. Reactivity Hazard:

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Hydraulic oil)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index

recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: SECTION 01 - Product Code(s) information was modified. SECTION 04 - Immediate Health Effects - Skin information was modified.

Revision Date: June 14, 2017

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit

GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental	IMO/IMDG - International Maritime Dangerous Goods
Industrial Hygienists	Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on	OSHA - Occupational Safety and Health Administration
Cancer	
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

SAFETY DATA SHEET	
PROPANE	PETRO-CANADA
000003000646	
Version 3.0	Revision Date 2020/01/27 Print Date 2020/01/27
SECTION 1. IDENTIFICATION	
Product name :	PROPANE
Synonyms :	Propane HD-5, Propane commercial, Liquified Petroleum Gas (LPG), C3H8, CGSB Propane Grade 1, CGSB Propane Grade 2, odorized propane, stenched propane, automotive propane, ER62.
Product code :	100139
Manufacturer or supplier's details	Petro-Canada P.O. Box 2844, 150 - 6th Avenue South-West Calgary Alberta T2P 3E3 Canada
Emergency telephone num- ber	CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000
Recommended use of the cher	nical and restrictions on use
Recommended use :	Propane is used as a fuel gas, refrigerant and as a raw mate- rial for organic synthesis. It is also used as a laboratory gas. The grade determines the propane content. It is supplied as pressurized liquid in tanks.
Prepared by :	Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Gas at room temperature; liquid when stored under pressure., compressed liquefied gas
Colour	colourless
Odour	Propane is an odourless gas. Odourized propane will contain up to 30 g Ethyl Mercaptan per 1000 L of propane.

GHS	Classification	
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Flammable gases	: Category 1
Gases under pressure	: Liquefied gas
Simple Asphyxiant	: Category 1

GHS label elements



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Hazard pictograms	
Signal word	: Danger
Hazard statements	 Extremely flammable gas. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.
Precautionary statements	 Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Response: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. Storage: Protect from sunlight. Store in a well-ventilated place.
Potential Health Effects	
Primary Routes of Entry	: Eye contact Inhalation Skin contact
Aggravated Medical Condi- tion	: None known.
Other hazards None known.	
IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

. 1017

Hazardous components

Chemical name	CAS-No.	Concentration
propane	74-98-6	90 - 100 %
propene	115-07-1	1 - 5 %
butane	106-97-8	1 - 2.5 %

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ethane		74-84-0	1 - 1.5 %
methane		74-82-8	0.1 - 0.2 %
All above concentrations are	percent by volu	me.	
SECTION 4. FIRST AID MEASU	RES		
If inhaled	: Move to fr Artificial re Seek med	esh air. espiration and/or oxygen i lical advice.	may be necessary.
In case of skin contact	: In case of for at leas and shoes Wash skir skin clean Wash con Seek med	contact, immediately flus t 15 minutes while remov thoroughly with soap an ser. taminated clothing before lical advice.	h skin with plenty of water ing contaminated clothing d water or use recognized e reuse.
In case of eye contact	: Remove of Rinse imn for at leas Obtain me	contact lenses. nediately with plenty of wa t 15 minutes. edical attention.	ater, also under the eyelids,
If swallowed	: Not a sign	ificant route of exposure.	
Most important symptoms and effects, both acute and delayed	: Inhalation Inhalation ziness and May caus Contact w bite. Overexpo High cond or suffoca	may cause central nervo of vapours may cause dr d disorientation. e irritation of respiratory tr ith rapidly expanding gas sure may lead to cardiac entrations can remove ov tion.	us system effects. owsiness, headache, diz- ract. may cause burns or frost- sensitization. cygen and cause dizziness
Notes to physician	: Treat sym Contact p tities have	ptomatically. oison treatment specialist been ingested or inhaled	t immediately if large quan- d.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local cir- cumstances and the surrounding environment.
Unsuitable extinguishing media	:	No information available.
Specific hazards during fire- fighting	:	If the product release cannot be shut off safely, allow the product to burn itself out. Cool closed containers exposed to fire with water spray.
Hazardous combustion prod- ucts	:	Carbon oxides (CO, CO2), smoke and irritating vapours as products of incomplete combustion.
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Further information	: Prevent fire extinguishing water from water or the ground water system.	m contaminating surface
Special protective equipment for firefighters	: Wear self-contained breathing appa wear. Wear a positive-pressure supplied- piece.	aratus and full protective air respirator with full face-

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec- tive equipment and emer- gency procedures	:	Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. In case of inadequate ventilation wear respiratory protection. Remove all sources of ignition.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Prevent further leakage or spillage if safe to do so. Ensure adequate ventilation. Use explosion-proof ventilation equipment. Non-sparking tools should be used. Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	 For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin, eyes and clothing. Avoid breathing gas. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Use only with adequate ventilation. Keep away from heat and sources of ignition. Keep container closed when not in use. Do not use sparking tools. Do not enter areas where used or stored until adequately ventilated.
Conditions for safe storage	 Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in a dry, cool and well-ventilated place. Keep in properly labelled containers. To maintain product quality, do not store in heat or direct sunlight. Keep away from sources of ignition - No smoking. Ensure the storage containers are grounded/bonded.
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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of	Control parame- ters / Permissible	Basis
propago	74-08-6			
	74-90-0		1,000 ppm	
			1,000 ppm	
		IVVAEV	1,000 ppm 1,800 mg/m3	CA QC OEL
propene	115-07-1	Τ₩Α	500 nnm	
	110 07 1	10070	860 mg/m3	ONNEGE
		TWA	500 ppm	CA BC OEL
		TWA	500 ppm	ACGIH
butane	106-97-8	TWA	1,000 ppm	CA AB OEL
		TWA	600 ppm	CA BC OEL
		STEL	750 ppm	CA BC OEL
		TWAEV	800 ppm	CA QC OEL
			1,900 mg/m3	
		STEL	1,000 ppm	ACGIH
ethane	74-84-0	TWA	1,000 ppm	CA AB OEL
		TWA	1,000 ppm	CA BC OEL
Personal protective equipment Respiratory protection Filter type	 Use explosion nt Respirator s exposure lev working limit Always wea paratus whe 	election must be vels, the hazards ts of the selected r NIOSH-approve	based on known or a of the product and the respirator. ed self-contained brea naterial.	nticipated e safe thing ap-
Hand protection Material	: Wear insular provider for best for you that eventua ness, will ge gloves shou first signs of	Wear insulated gloves to prevent frostbite. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their impervious- ness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.		
Remarks	: Chemical-re approved sta chemical pro essary.	sistant, imperviou andard should be oducts if a risk as	us gloves complying v worn at all times whe sessment indicates th	vith an en handling is is nec-

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Eye protection	: Wear face-shield and protective s problems.	: Wear face-shield and protective suit for abnormal processing problems.		
Skin and body protection	: Choose body protection in relation tration and amount of dangerous cific work-place.	n to its type, to the concen- substances, and to the spe-		
Protective measures	: Wash contaminated clothing befo Wear suitable protective equipme	re re-use. nt.		
Hygiene measures	: Remove and wash contaminated ing the inside, before re-use. Wash face, hands and any expos handling.	clothing and gloves, includ- ed skin thoroughly after		

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Gas at room temperature; liquid when stored under pressure., compressed liquefied gas
Colour	:	colourless
Odour	:	Propane is an odourless gas. Odourized propane will contain up to 30 g Ethyl Mercaptan per 1000 L of propane.
Odour Threshold	:	No data available
рН	:	No data available
Melting point/freezing point	:	No data available
Boiling point/boiling range	:	-42 °C (-44 °F)
Decomposition temperature		No data available
Flash point	:	-104 °C (-155 °F)
		Method: closed cup
Auto-Ignition Temperature	:	450 °C (842 °F)
Evaporation rate	:	No data available
Flammability	:	Extremely flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considera- ble distance to sources of ignition and flash back. Rapid es- cape of vapour may generate static charge causing ignition. May accumulate in confined spaces.
Upper explosion limit	:	9.5 %(V)
Lower explosion limit	:	2.1 %(V)
Vapour pressure	:	10,763 mmHg (38 °C / 100 °F)
Relative vapour density	:	1.56

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Relative density	: No data available
Solubility(ies)	
Water solubility	: No data available
Partition coefficient: n- octanol/water	: No data available
Viscosity	
Viscosity, kinematic	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reac- tions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Reactive with oxidising agents and halogenated compounds.
Hazardous decomposition products	:	May release COx, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes Eye contact Inhalation Skin contact	s of exposure	
Acute toxicity		
Product:		
Acute oral toxicity	: Remarks: Based on available data, the classification criteria are not met.	
Acute inhalation toxicity	: Remarks: Based on available data, the classification criteria are not met.	
Acute dermal toxicity	: Remarks: Based on available data, the classification criteria are not met.	
Components: butane: Acute inhalation toxicity	: LC50 (Rat): 658 mg/l	
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Exposure time: 4 h Test atmosphere: gas

Skin corrosion/irritation

Product:

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

Serious eye damage/eye irritation

Product:

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

Respiratory or skin sensitisation

Product:

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

Germ cell mutagenicity

Product:

Germ cell mutagenicity-	Based on available data, the classification criteria are not
Assessment	met.

Carcinogenicity

Product:

Carcinogenicity - As-
sessmentBased on available data, the classification criteria are not
met.

Reproductive toxicity

Product:

Reproductive toxicity -	Based on available data, the classification criteria are no
Assessment	met.

STOT - single exposure

Product:

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

STOT - repeated exposure

Product:

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

No data available



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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity	
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Product:

Toxicity to fish

	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	: Remarks: No data available
Toxicity to algae	: Remarks: No data available
Toxicity to bacteria	: Remarks: No data available

2

Persistence and degradability

Product:

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	
Waste from residues	 The product should not be allowed to enter drains, water courses or the soil. Offer surplus and non-recyclable solutions to a licensed disposal company. Waste must be classified and labelled prior to recycling or disposal. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of product residue in accordance with the instructions of the person responsible for waste disposal

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR UN/ID No.

: UN 1978

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Proper shipping name Class Packing group Labels Packing instruction (cargo aircraft)	 Propane 2.1 Not assigned by regulation Class 2 - Gases: Flammable (Div 200 	ision 2.1)
IMDG-Code UN number Proper shipping name	: UN 1978 : PROPANE	
Class Packing group Labels EmS Code Marine pollutant	 2.1 Not assigned by regulation 2.1 F-D, S-U no 	
Transport in bulk according	to Annex II of MARPOL 73/78 and t	he IBC Code

National Regulations

TDG UN number Proper shipping name	: UN 1978 : PROPANE
Class	: 2.1
Packing group	: Not assigned by regulation
Labels	: 2.1
ERG Code	: 115
Marine pollutant	: no

SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR.

The components of this product are reported in the following inventories:				
DSL	On the inventory, or in compliance with the inventory			

SECTION 16. OTHER INFORMATION

For Copy of SDS	:	Internet: www.petro-canada.ca/msds Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837- 1228 For Product Safety Information: 1 905-804-4752
Prepared by	:	Product Safety: +1 905-804-4752
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materials or in any process, unless specified in the text.

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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



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Appendix C NWT – NU Spill Report Form

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

Tel: (8	367) 920-8130 • Fax: (867) 873-692	4 ● Email: spills@	@gov.nt.ca					REP	ORT LINE USE ONLY
А	Report Date: MM DD YY	Report Time:		Original Spill Report					port Number:
В	Occurrence Date: MM DD YY	DD YY Occurrence Time:		OR Update # to the Original Spill Report				t	
С	Land Use Permit Number (if applicable):		Wate	r Licence Nu	mber (if ap	oplicable):	•		
D	Geographic Place Name or Distant	ce and Direction fro	om the Named	Locatio	on: F	Region:] Nunavut 🔲 Adjao	cent Ju	urisdiction or Ocean
Е	Latitude:	Minutes	Seconds	Longitude: Degrees Minutes Seconds			Seconds		
F	Responsible Party or Vessel Name		Responsib	le Party	y Address or	Office Loo	cation:		
G	Any Contractor Involved:		Contractor	Addres	ss or Office L	_ocation:			
Н	Product Spilled: Dotential Spi	ill Qua	antity in Litres,	Kilograms or Cubic Metres: U.N. Number:					
I	Spill Source: Spill Cause: Area of Contamination in Square Me				Square Metres:				
J	Factors Affecting Spill or Recovery: Describe Any Ass			stance Required: Hazards to Persons, Property or Environmen			perty 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: Emplo		Employer	nployer: Locat			tion Calling From: Telephone:		
М	Any Alternate Contact: Position: Employe		Employer	ər: Altern		nate Contact Location:		Alternate Telephone:	
REP	ORT LINE USE ONLY		·						
Ν	Received at Spill Line by: Posit	ion:	Employe	er:		Locatior	n Called:	Repo	ort Line Number:
Lead	Agency: EC CCG/TCMS	S 🗌 GNWT 🗌] Other:] gn 🗌 ila	S	ignificance:	Minor	· 🗌 Unknown	File S	Status: Open
Ager	ncy: Contact N	lame:	Contact Tim	e:		Remark	s:		
Lead	Agency:								
First	Support Agency:								
Seco	nd Support Agency:								
Third	Support Agency:								

Canada

Inuvialuit Land Administration

Government of Northwest Territories

Appendix D Reportable Quantities

Substance	Reportable Quantity			
Explosives	Any amount			
Compressed gas (toxic/corrosive)				
Infectious substances				
• Sewage and Wastewater (unless otherwise authorized)				
Radioactive materials				
Unknown substance				
Compressed gas (Flammable)	Any amount of gas from			
Compressed gas (Non-corrosive, non-flammable)	containers with a capacity greater than 100L			
Flammable liquid	≥100 L			
Flammable solid	≥ 25 kg			
Substances liable to spontaneous combustion				
Water reactant substances				
Oxidizing substances	≥ 50 L or 50 kg			
Organic peroxides	≥1 L or 1 kg			
• Environmentally hazardous substances intended for disposal				
Toxic substances	≥ 5 L or 5 kg			
Corrosive substances	≥ 5 L or 5 kg			
Miscellaneous products, substances or organisms				
PCB mixtures of 5 or more ppm	≥ 0.5 L or 0.5 kg			
Other contaminantsfor example, crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, wastewater.	≥ 100 L or 100 kg			
• Sour natural gas (i.e., contains H2S)	Uncontrolled release or			
Sweet natural gas	sustained flow of 10 minutes or more			
Flammable liquid	≥ 20 L			
Vehicle fluid	When released on a frozen water body that is being used as a working surface			
Reported releases or potential releases of any size that:	Any amount			
• 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				