



Public Services and Procurement Canada

SPILL CONTINGENCY PLAN

**Fort Reliance Weather Station Remediation
Project**

June 2019

REVISED FINAL VERSION



Prepared by:

A handwritten signature in blue ink, appearing to read "JPP", is written over a horizontal line.

Jean-Pierre Pelletier
Project Director
Environmental engineering, Western and
Northern Canada

Verified and
Approved by:

A handwritten signature in blue ink, appearing to read "Guillaume Robert", is written over a horizontal line.

for:

Guillaume Robert
Service Director
Environmental engineering, Western and
Northern Canada

Summary

Englobe Corp (Englobe) revised Tetra Tech Canada Inc.'s (Tetra Tech) Spill Contingency Plan for use during the proposed building demolition and remediation project at the former Fort Reliance Weather Station (the site) located at Fort Reliance, Northwest Territories (NT). The proposed work is to be conducted under the supervision of an on-site Departmental Representative. This plan was prepared in general conformance with Indian and Northern Affairs Canada's Guidelines for Spill Contingency Planning (INAC 2007) and is submitted to the Mackenzie Valley Land and Water Board (MVLWB) as part of the Type A Land Use Permit Application process.

Appendix 1 presents the changes between Englobe's Spill Contingency Plan and Tetrattech's Plan.

Production Team

Client

PSPC Project Manager	Claudia Simonato Edward Domijan
ECCC Representative(s)	Mark Konecny Deniz Baykal
Departmental Representative(s), TETRA TECH	Nick Oke

Englobe Corp.

Project Manager	Jean-Pierre Pelletier
Project Coordinator	Alix Rive
Production Assistant	Julie Léveillé

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1 Company Information

Englobe Corp

Mailing Address: 1200, St-Martin Blvd, Suite: 400, Laval (Quebec) H7S 2E4

Phone: 514-281-5151 Fax: 450-961-0220

Email: jean-pierre.pelletier@englobecorp.com

Attention: Jean-Pierre Pelletier, Project Director, Northern Canada

Effective Date of Spill Contingency Plan

June 20, 2019

Last Revisions of Spill Contingency Plan

June 25, 2019

1.1 Company Environmental Policy Overview

Please refer to Appendix 2 for Englobe's Environmental policy.

2 Introduction

2.1 Purpose and Scope

The purpose of this plan is to outline response actions for potential spills of any size, including a worst-case scenario for the site at Fort Reliance. The plan identifies key response personnel and their roles and responsibilities in the event of a spill, as well as the equipment and other resources available to respond to a spill. It details the spill response procedures that will minimize potential health and safety hazards, environmental damage, and clean-up efforts. The plan has been prepared to ensure quick access to all the information required in responding to a spill.

2.2 Site Description

Fort Reliance is situated on 9.627 hectares of land within the boundaries of the Mackenzie Valley Land and Water Board (MVLWB) at the tip of Fairchild Point on the east arm of Great Slave Lake, at 1090 10' W 620 43' N (Appendix 3 - Figures 1 and 2). The Site occupies Lot 1, Group 967, Plan 53769 CLSR NT and Lot 5, Group 967, Plan 56582 CLSR NT. The Site's Federal Contaminated Sites Inventory (FCSI) identification number is 00002376 and the Directory of Federal Real Property (DFRP) identification number is 20920. Trophy Lodge, a private fishing lodge, is located northeast of the former weather station.

The site is accessible by boat and float plane during the open-water season, but access is limited in the spring and fall due to ice.

The site was previously occupied by the Department of National Defense (DND) between 1948 and 1970. Transport Canada (TC) also occupied the site in 1959 and operated an aviation meteorological station with fuel being stored in drums and the tank farm. TC also established a radio station in 1968, and a non-directional beacon for aircraft navigation in 1970. In September 1993, the Site was put in cold storage. The buildings were boarded up and secured, and waste was barged out of the station. The Meteorological Service of Canada (MSC) of ECCC was granted a 30 m x 30 m parcel of land on October 21, 1994 from Indian and Northern Affairs Canada (INAC) for weather station purposes. ECCC has managerial responsibility for the site as per an Order-In-Council, P.C. 1975-1218, whereupon the buildings on the entire property were transferred from TC to ECCC.

In 1995, five of the buildings were recognized by Parks Canada as Federal Heritage Buildings. The buildings include Storage Building 1, Storage Building 2, Storage Building 3, the Ice House, and the Residence/Radio Station Building. The property also includes six original DND buildings, an accommodation building, a garage, a generator building, a metal fuel shed, a wooden storage shed, and two metal buildings associated with a former groundwater containment and treatment system. All remaining structures related to the site are in the immediate vicinity of McLeod Bay.

2.3 Project Description

Site-wide decommissioning and remediation is scheduled for the summer of 2019. Decommissioning and remediation objectives are discussed below.

Decommissioning Goals

Englobe understands that ECCC's objectives for Site decommissioning, as relayed in the 2019 Final Remedial Action Plan Report (Tetra Tech 2019), consist of:

- ▶ The demolition of all onsite buildings, including the five-remaining former DND buildings which are recognized by Parks Canada as Federal Heritage Buildings (Franz and Senes 2013). Tetra Tech understands that the foundations of the heritage designated buildings will be kept in place to facilitate the installation of a plate describing the historical significance of the former buildings.
- ▶ Removal of surface debris and infrastructure including above-ground utilities.
- ▶ The waste content of the Areas of Environmental Concern (AECs) 5 and 6 waste disposal areas will be excavated and removed from the Site along with all the demolition and building materials (except for concrete which will be disposed of in the Radio Control building basement prior to backfilling).

Remediation Goals

The goal of remediating contaminated areas at the Site is to remove or reduce the risk to human and ecological receptors to acceptable levels. Acceptable levels of chemical contaminants are determined by either the Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) applicable to the Site or site-specific remediation objectives based on the 2019 Final Remedial Action Plan Report. Remediation goals consider both the current and future Site usage. Currently, the Site is essentially a wildlands area as the land is unoccupied and not maintained except for the remotely controlled weather station. However, this land use is expected to change in the future as the Site and the surrounding area is within the proposed Thaidene Nene National Park Reserve (Parks Canada 2018). As such, land use scenarios used in determining acceptable levels of chemical contaminants include:

- ▶ Current use: No Site operation, with occasional short-term site access by workers or visitors and unrestricted wildlife access; and
- ▶ Future use: National Park Reserve designation with minimal to no visitors, and wildlife access consistent with that of a National Park Reserve.

The land uses outlined above are based on the intended future use of the Site as communicated by ECCC. It is understood that the remotely controlled weather station would continue to operate at the Site following the 2019 remedial work.

Decommissioning and remediation activities will be supervised on-site by an on-site Departmental Representative to confirm that all tasks listed under the specifications have been conducted according to accepted requirements.

2.4 Additional Copies

Requests for additional copies can be directed to Environment and Climate Change Canada as per the following contact information:

Deniz Baykal

A/Manager, Environmental Programs Environment and Climate Change Canada Email:
deniz.baykal@canada.ca

Tel: 819.938.4765 / Cell: 873.353.2346

351, boul. Saint-Joseph, Gatineau, QC K1A 0H3

In addition, multiple copies of this plan will be kept on-site at all times within the equipment such as the front-end loader and/or excavator, work tents, office tents and kitchen buildings. A copy will also be kept at the Englobe's main office in Quebec, Quebec.

2.5 Process for Staff Response to Media and Public Inquiries

Media and public inquiries will be directed to Environment and Climate Change Canada as per the following contact information:

Deniz Baykal

A/ Manager, Environmental Programs Environment and Climate Change Canada Email:
 deniz.baykal@canada.ca

Tel: 819.938.4765 / Cell: 873.353.2346

351, boul. Saint-Joseph, Gatineau, QC K1A 0H3

3 Hazardous Materials

3.1 Hazardous Waste

Hazardous waste quantities were estimated in Tetra Tech’s November 2018 Data Gap report. A hazardous waste inventory is summarized in Table 1 below. Building locations are shown on Figure 2 (Appendix 3). ECCC’s Hazardous Waste Generator number is: NTG083.

In general, the following hazmat waste have been identified and will require abatement:

Table 1: Hazardous Waste Summary

Component	Materials	Quantity	Disposal
Asbestos	Flooring, caulking, mastic, shingles and siding	75 m ³	Dispose at Mackenzie Regional Waste Management Commission in High Level, Alberta
Lead Paint (leachable)	Exterior Paint	7 m ³	Dispose at CleanHarbors Facility in Ryley, Alberta
Lead Paint	Interior and exterior painted walls	-	Dispose at CleanHarbors Facility in Ryley, Alberta
Lead Components	Lead solder on copper water pipes, leachable lead seals between the bells and spigots of cast iron piping	Unknown	Recycle at Sable Recycling Facility in Fort Nelson, BC
Mercury Containing Equipment	Vapor containing fluorescent light tubes	76	Dispose at CleanHarbors Facility in Ryley, Alberta
Miscellaneous Chemicals	Calcium chloride, battery fluid, equipment fluid, absorbent, oil, ammonium nitrate	Various	Dispose at CleanHarbors Facility in Ryley, Alberta
Ozone-Depleting Substances	Fire extinguishers and fridges	5 extinguishers 7 fridges	Dispose at CleanHarbors Facility in Ryley, Alberta
Polychlorinated Biphenyls	Light ballasts	38	Dispose at CleanHarbors Facility in Ryley, Alberta
Radioactive Materials	Smoke detectors	27	Dispose at CleanHarbors Facility in Ryley, Alberta

Many of the hazardous waste can be handled without specialized abatement procedures or protocols. Notable exceptions include:

- ▶ Prior to demolition, the identified Asbestos Containing Materials (ACMs) will be abated following the low, moderate or high risk abatement activities, as indicated in the 2019 Final Remedial Action Plan and Asbestos Abatement Plan to be produced by Englobe for approval by Workers Safety and Compensation Commission (WSCC). The low, moderate and high risk abatement activities are outlined in sections 5.2, 5.3 and 5.4 of the Northwest Territories & Nunavut Codes of Practice for Asbestos Abatement.
- ▶ If lead paints are to be removed from the substrate or if work activities potentially could generate airborne lead particles, adequate safe work procedures will be developed to ensure workers are protected from lead exposure. During building demolition, Englobe will implement a lead exposure control plan following the *Guideline for the Management of Waste Lead and Lead Paint* (GNWT 2017). The Lead-Based Paint (LBP) will be disposed in a landfill in High-Level (Alberta) as regular non-hazardous building waste.
- ▶ Leachable lead paint on-site will be encapsulated and re-sampled. Only the green paint on the exterior trim on Buildings 1, 3, 4, 5, 6, and 7 and the yellow paint on the door of Building 2 was determined to exceed the leachable lead in paint criteria of 5 mg/L (Tetra Tech 2018a). The leachable lead paint will be treated with an encapsulant to reduce the leachability of lead. Then another round of TCLP tests will be performed to verify the encapsulant has minimized the leachable lead to below the criteria. If the tests come back below 5 mg/L, then all paints can be disposed of as regular construction waste.

Remaining hazardous materials will be containerized and shipped off-site in accordance with the following guidelines and regulations:

- ▶ Potential Ozone Depleting Substances (ODSs) (domestic and commercial refrigerators and fire extinguishers) will be disposed at Cleanharbors Facility in Ryley (Alberta) in accordance with *the Environmental Guideline for Ozone Depleting Substances and Halocarbon Alternatives* (GNWT 2007), and the *Transportation of Dangerous Act* (TDG Act) (GC 1992).
- ▶ All radioactive material including smoke detectors will be inspected prior to removal. Smoke detectors containing more than 185 kilobecquerel (kBq) of americium 241, or more than 740 kBq of americium 241 in a commercial or industrial facility will be transported and disposed of at Cleanharbors Facility in Ryley (Alberta) following the *Nuclear Safety and Control Act* (GC 1997), the *Nuclear Substances and Radiation Devices Regulations* (GC 2000, amended 2015) and the TDG Act (GC 1992).
- ▶ Mercury vapour containing fluorescent light bulbs will be disposed at Cleanharbors Facility in Ryley (Alberta) in accordance with the CCME in the *Canadian Wide Standard for Mercury Containing Lamps* (2001) and the TDG Act.
- ▶ Miscellaneous chemicals found on site will be removed and disposed at Cleanharbors Facility in Ryley (Alberta) in accordance with the requirements of the GNWT Occupational Health & Safety (OH&S) Regulation and TDG Act.

All the light ballasts will be inspected and referenced against the Identification of Lamp Ballasts Containing PCBs (EC, 1991) document, prior to removal and disposal. This waste will also be disposed at Cleanharbors Facility in Rley (Alberta).

3.2 Hazardous Material

Hazardous material will also be brought on site to perform the remediation activities. Hazardous materials on-site will be primarily limited to fuel. Additional hazardous materials may include small amounts of POL wastes (Petroleum, Oil and Lubricant). All hazardous materials will be stored securely to prevent spills.

Table 2 below details the quantities of all materials of concern that will be on-site in large quantities. Fuel to be used throughout the 2019 work season will be transported by barge in June/July and used up during daily operations, any remaining fuel will be returned to Hay River (Bassett Petroleum) at the end of the project.

Table 2: Inventory of Hazardous Materials to be transported to Site

Material	Storage Container	Maximum On-site	Use
Diesel Fuel	205 L drum	50,000 L	Power equipment and camp generators
Gasoline	205 L drum	3,100 L	Power ATV and gas-powered pumps
Propane	100 lb tank	6,000 lb	Camp heat and kitchen operations
Hydraulic Oil	205 L drum	410 L	Equipment maintenance and repair
Motor Oil	205 L barrels	410 L	Equipment maintenance and repair
Lubricants	14 oz. tubes	140 oz.	Equipment maintenance and repair

Safety Data Sheets (SDS) of all hazardous materials on site during the Project will be included in the containers and storage areas housing all hazardous products, including but not limited to: the Fuel Storage Area and the Camp kitchen.

Fuels and oils/lubricants must be stored more than 100 m from the Ordinary High Water Mark (OHWM) of a watercourse or waterbody. All fuels and lubricants will be stored in drums within Instaberms (with Spill Monkeys) capable of retaining 110% of the capacity of the drums. All fuels and oils/lubricants will be stored in the fuel storage area (FSA) which will be built to provide secondary containment over the entire area of occupation. Figure 3 presents the proposed location of the FSA. This location is more than 100 m from the Ordinary High-Waster Mark (OHWM). Final location will be confirmed after site visit. Refueling of heavy machinery and ATVs will take place within the FSA. Drip trays will be placed under any mobile equipment while it is parked and maintained daily.

Fuel-fired equipment such as generators and pumps will have secondary containment installed capable of containing fuel drips or leaks during refueling.

Figure 3: Proposed Location of various Laydown Areas



3.3 Preventive Measures

Planning for an emergency situation is imperative, due to the nature of the materials stored on-site as well as the remoteness of the site. Along with the preventive measures outlined below, adequate training of staff and subcontractors is paramount.

All hazardous material to be brought to the site will arrive via barge. Once on site, handling of hazardous material will be supervised by Englobe's qualified personnel and/or the Departmental Representative (DR). Anyone handling hazardous material on-site will be required to wear all necessary personal protective equipment (PPE). At storage locations, the spill prevention and response measures listed below will be in place.

- ▶ Designated hazardous material storage and transfer areas (Temporary Storage Area) will be established at least 100 m from any OWHM.
- ▶ According to the Globally Harmonized System (GHS) and/or Transportation of Dangerous Goods (TDG) standards, signs will be posted at all designated hazardous material storage and transfer areas with the product name, TDG placards and signs warning of danger;
- ▶ Designated hazardous material storage and transfer areas will have secondary containment (i.e., instabermers or doubled-walled tanks) and/or will be equipped with drip trays, spill pads and/or mats. Holding capacity of berms will be 110% capacity of the largest storage container. And,
- ▶ Designated hazardous material transfer areas will be equipped with spill kit, drip trays, spill pads and/or mats.

To avoid any leaks from fuel transmission, all fuel lines, hoses, fittings and valves are to meet or exceed industry standards.

Spill kits are to be located wherever fuel is stored or transferred and at the Temporary Storage Area. Portable drip trays are to be used when refueling ATVs to avoid any leaks/drips onto the land. Fuel transfer and storage for the proposed activities will be conducted by Englobe's qualified personnel in accordance to the following regulations, under the supervision of the DR:

- ▶ National Fire Code of Canada (2010)
- ▶ Transportation of Dangerous Goods Act (1992)
- ▶ Transportation of Dangerous Goods Regulations
- ▶ CEPA Petroleum and Allied Petroleum Products Storage Tanks Regulations

Englobe's qualified personnel will conduct visual inspections to check for leaks and damage to the fuel storage containers and transfer equipment, as well as check for stained or discoloured soils around the fuel storage areas and motorized equipment. The visual inspections will be included in the Site Superintendent's (or designated qualified personnel) weekly checks. For example, lids and caps are checked for tight seals. Regular maintenance and oil checks of all motorized equipment will also be undertaken to avoid preventable leaks.

Appropriate PPE will be used while handling all materials of concern. Routine maintenance will be performed by mechanics to help prevent leaks of lubricants or fuel.

4 Response Organization

Spills may be the result of any of the following occurrences:

- ▶ Container leaks, ruptures, valve failure or heat expansion due to overfilling
- ▶ Improper chemical storage
- ▶ Human error
- ▶ Mechanical failure
- ▶ Vandalism
- ▶ Acts of nature

Figure 4 shows the flow chart for Site Spill Response.

The flow chart (Figure 4) identifies the response organization and when applicable their alternates for responding to a spill or release. The duties of various response personnel are summarized below, contact information is provided including 24-hour phone numbers for responsible people and the location of communications equipment on site is discussed.

An immediately reportable spill is defined as a release of a substance that is likely to be an imminent environmental or human health hazard or meets or exceeds the volumes outlined in Appendix 4. It must be reported to the Northwest Territories 24-Hour Spill Report Line and EC Environmental Enforcement point of contact in Edmonton. Any spills less than these quantities do not need to be reported immediately to the spill reporting line but will still be reported to the CIRNAC Inspector. Rather, these minor spills will be tracked and documented

by the Englobe and submitted to the appropriate authority either immediately upon request or at a predetermined reporting interval. If there is any doubt that the quantity spilled exceeds reportable levels, the spill will be reported to the Northwest Territories 24-Hour Spill Report Line and EC Environmental Enforcement point of contact in Edmonton.

A satellite phone will be located on site. In the event of a spill involving danger to human life, this phone will be used to contact emergency response personnel in Yellowknife. In addition, all employees and subcontractors will have a communication device (i.e., two-way radios and access to the satellite phone) for communication with the Site Superintendent and other staff on site.

Following reporting of the spill to the Site Superintendent, he will report spills to the Northwest Territories 24-Hour Spill Line as necessary. The Site Superintendent will immediately inform Englobe's Project Manager and the DR who, in turn, will inform ECCC's Edmonton office for tracking spills in their database.

4.1 Response Equipment

Emergency spill kits will be maintained at the following locations:

- ▶ Camp kitchen
- ▶ Camp generator
- ▶ Fuel Storage Areas
- ▶ Temporary Storage Area
- ▶ Designated refueling areas

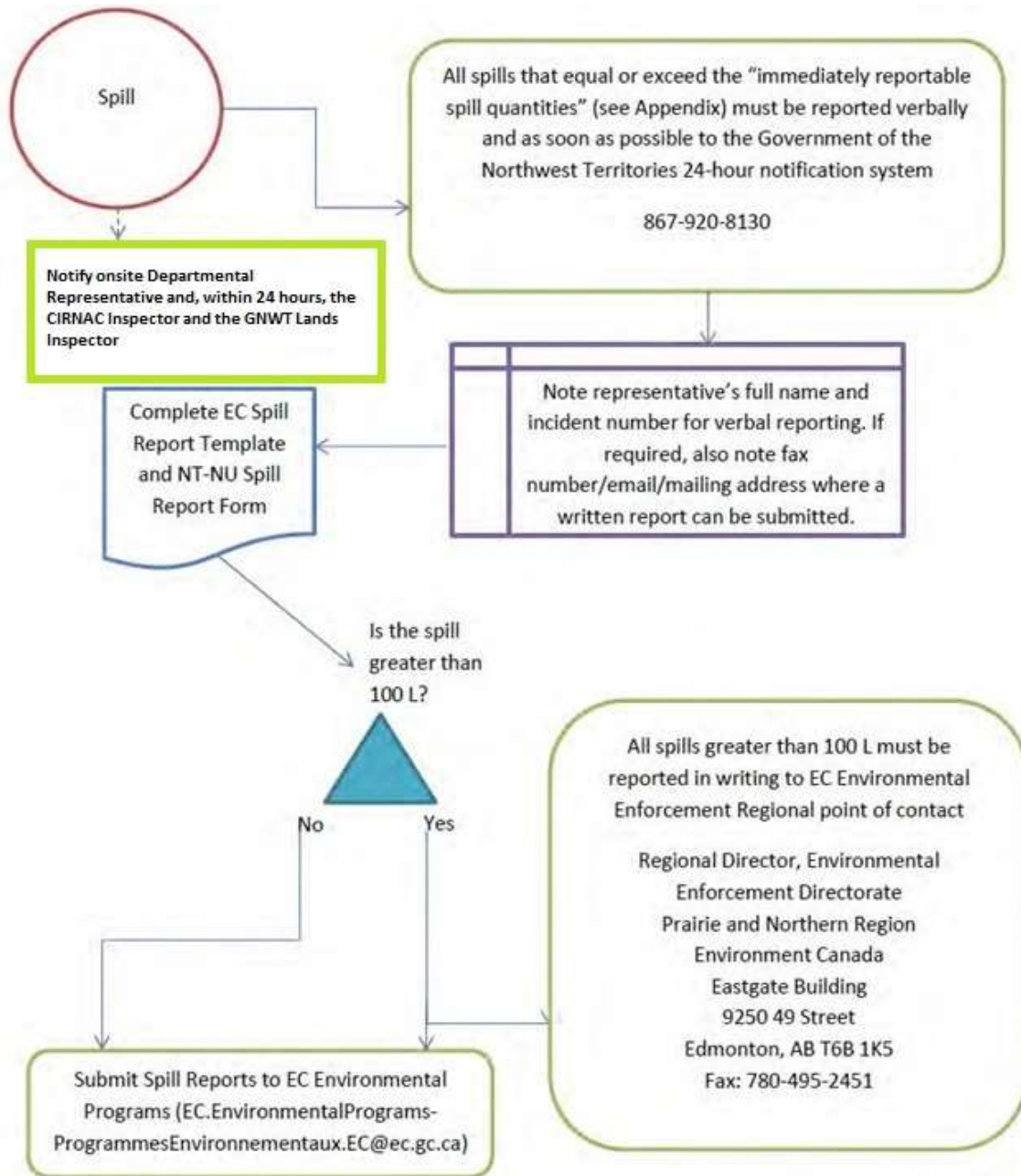
Spill kit contents, as listed below, may exceed; however, industry standards must be maintained. Items will be stored in overpack plastic drums. Standard Contents of Conventional Spill Kits include:

- ▶ 5 Tyvek coveralls
- ▶ 10 pairs of disposable gloves
- ▶ 2 x 100 absorbent pad packs
- ▶ 1 x 20 kg granular absorbent bag
- ▶ 4 x 2" diam. floating absorbent booms
- ▶ 10 yellow storage bags
- ▶ One shovel

Additionally, each vehicle will be equipped with a spill kit, to include:

- ▶ 4 pairs disposable gloves
- ▶ 20 absorbent pads
- ▶ 2 clear or yellow storage bags

Figure 4: Site Spill Response Flow Chart



In addition, Englobe will have onsite:

- ▶ Turbidity curtain: 18m x 1.5m
- ▶ Hydrophobic boom: 6 - 3m x 0.2m
- ▶ Fire extinguishers (A-B-C)
- ▶ Pumps
- ▶ Picks

5 Action Plan

This section outlines the procedures to be followed in the event of a spill.

5.1 Potential Impacts

Table 3 summarizes the potential discharges and associated impacts that could occur.

Table 3: Potential Discharge Summary

Material (Sources)	Potential Discharge Source	Volume (Worse Case)	Potential Direction	Potential Environmental Impacts
Diesel Fuel (On-site Equipment, Storage Area, Watercraft)	<ul style="list-style-type: none"> ▪ Large puncture or tipping over of multiple fuel drum(s) within storage area (very unlikely) ▪ Over fueling from drum into equipment ▪ Minor leaking from equipment or watercraft ▪ Minor leaking from fuel drum ▪ Leaking from connections or hoses 	Likely less than 205 L/ 1 drum (maximum 900 L/4 drums)	<ul style="list-style-type: none"> ▪ Likely to the northwest towards McLeod Bay or south towards Charlton bay. ▪ Fuel storage area will be on flat ground with a liner installed to prevent ground seepage and readily available spill kits. 	Diesel fuel may be harmful to humans, wildlife, and aquatic life. It is not readily degradable and has potential for bioaccumulation in soil or water. Runoff into water bodies must be avoided.
Gasoline (Generators, ATVs, Small Tools or Equipment)	<ul style="list-style-type: none"> ▪ Large puncture or tipping over of multiple fuel drum(s) within storage area (very unlikely) ▪ Over fueling from drum into equipment ▪ Minor leaking from equipment ▪ Minor leaking from fuel drum ▪ Leaking from connections or hoses 	Likely less than 205 L/ 1 drum (maximum 410 L/2 drums)	<ul style="list-style-type: none"> ▪ Likely to the northwest towards McLeod Bay or south towards Charlton bay. ▪ Fuel storage area will be on flat ground with a liner installed to prevent ground seepage and readily available spill kits. 	Gasoline fuel may be harmful to humans, wildlife, and aquatic life. It is not readily degradable and has potential for bioaccumulation in soil or water. Gasoline volatilizes quickly. Runoff into water bodies must be avoided
Propane (Kitchen Stove and Fridge)	<ul style="list-style-type: none"> ▪ All cylinders/tanks leaking at once (very unlikely) ▪ Minor leaking while in or outside fuel storage area ▪ Puncture/fast leaking while in or outside fuel storage area 	Likely less than 45 kg/ 1 cylinder (maximum 180 kg)	<ul style="list-style-type: none"> ▪ In camp area on flat ground or communal buildings with potential underground seepage. 	Propane may be harmful to wildlife and the surrounding environment. It has the potential to accumulate in the environment. It is very volatile and flammable, and therefore, immediate impacts to the surrounding are a concern

Petroleum, Oils and Lubricants (POLs)	<ul style="list-style-type: none"> ▪ Leaking from vehicles and equipment ▪ Leaking of drum(s) in/outside storage area 	Likely < 205 L Worst case <1,800 L	<ul style="list-style-type: none"> ▪ To ground from equipment or POL. Seepage into groundwater. 	May be harmful to animal and plant life. Not readily biodegradable. Must not be allowed to enter water bodies. Have means to clean and treat spills on site.
Non-petroleum based vehicle fuels (antifreeze & coolants)	<ul style="list-style-type: none"> ▪ Leaking from vehicles and equipment ▪ Leaking of hose or fittings 	Likely <205 L Worst case <205 L	<ul style="list-style-type: none"> ▪ To ground from equipment operation, or fuel storage area(s), however very little potential for underground seepage (limited volumes). 	May be harmful to animal and plant life. Not readily biodegradable. Must not be allowed to enter water bodies. Have means to clean and treat spills on site.
Waste Oil and Miscellaneous Oil and Grease	<ul style="list-style-type: none"> ▪ Various buildings and infrastructure at the site during decommissioning 	Likely less than 10 L (maximum 30 L)	<ul style="list-style-type: none"> ▪ Likely to the northwest towards McLeod Bay or south towards Charlton bay. ▪ Fuel storage area will be on flat ground with a liner installed to prevent ground seepage and readily available spill kits. 	May be harmful to humans, wildlife and aquatic life. Likely not readily biodegradable and has potential for bioaccumulation in soil or water. Runoff into water bodies must be avoided.
Cleaning supplies	<ul style="list-style-type: none"> ▪ Leaking or broken container 	Likely under 24 L (storage in 24 L containers)	<ul style="list-style-type: none"> ▪ To ground from camp operation, however very little potential for underground seepage and contained within the camp. 	May be harmful to animal and plant life. Not readily biodegradable. Must not be allowed to enter water bodies. Have means to clean and treat spills on site.

5.2 Initial Response Procedures

In the event of a spill, the first person noticing the incident shall:

- Ensure personal and public safety
- Notify all personnel, including Contractor’s designated foreman
- Shutting off any ignition sources, if safe to do so
- Identify the spilled product and stop the flow, if safe to do so
- Identify and stop the likely source of spill, if safe to do so
- Ensure the spill does not enter water bodies, if possible and safe to do so
- Take actions to contain and clean up the spill
- Record information for reporting purposes (i.e. type of product that was released, quantity or estimate, description of the circumstances, mitigation measures taken).

5.3 Spill Reporting Procedures

Once Englobe's Site Superintendent has been notified (or other designated person), it will be his responsibility to ensure that the required reporting protocols are followed (see flowchart in Section 2.0). In general, the following steps will be followed:

- 1- Notify the on-site Departmental Representative, the off-site ECCC/PSPC representative and CIRNAC Inspector, the CIRNAC Inspector and the GNWT Inspector within 24 hours.
- 2- Determine whether the quantity spilled meets the Immediately Reportable Quantity as defined by the Government of the NT (see Appendix 4).
- 3- If required, report the spill to the NT 24-hour notification system (867.920.8130).
- 4- Proceed with containing and cleaning up the spill.
- 5- Complete the ECCC Spill Report Template and the NT-NU Spill Report Form. Forward to ECCC Environmental Programs (EC.EnvironmentalPrograms-ProgrammesEnvironnementaux.EC@ec.gc.ca) or the on-site ECCC/PSPC representative within 24 hours of the spill (see Appendix 5).

5.4 Containing and Cleaning Up a Spill

This section identifies the general procedures for containing and cleaning up a spill on land and water. Regular project meetings will be scheduled to occur leading up to the start of decommissioning and remediation work and involve all pertinent personnel. At these meetings, spill response procedures will be reviewed to ensure all personnel are aware of their responsibilities and location of equipment.

Depending on the physical location of the spill, specific supplemental precautions will be taken with regards to the spill response procedures.

➤ **On Land**

- Prevent dispersion in drainage system and ditch;
- Contain material with sorbent booms, dyke of snow or earth; and,
- Remove small spills with sorbent pads and dig by hand the impacted soil.

➤ **On Water**

- Contain spill as close to release point as possible;
- Use sorbent booms to contain free-phase product;
- Use skimmer or sorbent pads to recover free-phase product; and,
- Do not deploy personnel or equipment on wetlands.

Any necessary erosion, sedimentation and drainage control mitigation measures will be implemented before the barge lands, thereby minimizing impacts to the shore and preventing bank alteration. Ramps will be deployed at the beach landing by MTSD to prevent damage to the shore and equipment. Floating absorbent booms and adapted spill kits will be available in case of a spill. Offloading and loading of the barges will take place once the barge is securely landed and fastened. MTSD personnel ensure there are no traces of landing on the beaches.

The Site Superintendent will take charge of the spill response involving the Hazardous Waste Specialist and the Health and Safety Coordinator. When applicable, a response team composed of the Hazardous Waste Specialist and hazardous waste management trained employees will cleanup and/or contain the spill using appropriate PPE's, spill kits and required equipment (shovels, containers, absorbent pads/booms, etc.).

Verbal notice to DR will be given immediately or as soon as possible in the event of a spill. The DR will be consulted on how to best remediate the area affected by the spill.

5.4.1 Probable Spill Location and Worst-Case Scenario

Spills on land would likely follow the local topography to the northwest toward McLeod Bay in Great Slave Lake. The most probable spill location during the project would be within the equipment fueling area. A liner will be installed in this area and it will be used to store fuel for the on-site equipment and vehicles. Fuel will likely be stored in 205 L drums within a lined storage area. In a worst-case scenario of a 3 to 4 drums fuel spill, the storage area would be lined, with spill kits readily available near the storage area, and front-end loader and/or excavator equipment will be available to scrape up and load out any contaminated materials, if needed. Contaminated materials would then be stored in appropriate containers for offsite disposal.

5.5 Managing Spill-Related Wastes

All spill-related wastes will be stored in drums within the Temporary Storage Area and removed from the site using a barge. Materials used in any clean-up activities will be consolidated and containerized for off-site disposal at an appropriate facility. Englobe's representative, the on-site Departmental Representative and off-site ECCC/PSPC representatives, in conjunction with applicable regulatory agencies, will determine the appropriate disposal location for any wastes generated from spill clean-up procedures.

5.6 Site Restoration

In the event of a spill and clean-up taking place on the site, the site will be restored to a condition consistent with, or better than, the conditions prior to the spill. The details of the restoration plan will be determined by the Departmental Representative and off-site ECCC/PSPC representatives and applicable regulatory agencies.

6 Resource Inventory

6.1 On-Site Resources

The following Table presents Emergency Contact Call-Down List in Case of a Spill.

Table 4: Emergency Call-Down List Contact Information

Name	Company	Emergency Phone
Guy Aerts	Englobe Site Superintendent	Satellite phone number to be determined at the beginning of operations
Mireille Rigaux	Departmental Representative	403-332-0323
Deniz Baykal	Environment Climate Change Canada	873-353-2346
Above to confirm if spill is reportable prior to continuing with call-down		
Claudia Simonato	PSPC Project Manager	403-613-6328
NWT/NU Spill Reporting Line		867-920-8130
Tim Morton	Environmental Inspector, CIRNAC	(867) 669-2442

6.2 Off-Site Resources

Appendix 6 presents the Emergency Contact List and Project Management Team. Additional off-site resources will become available prior to mobilization, including but not limited to; Departmental Representative, Site Superintendent, and Health and Safety Officer/First Aid Personnel.

7 Training Program

During the Worker Orientation Seminar (WOS) in which all site personnel are required to participate, the Site-Specific Health and Safety Plan, the Spill Contingency Plan, and the Emergency Response Plan will be presented and reviewed. The location of all spill response resources will also be reviewed. Site personnel will also be shown the contents of a spill kit and the function of the contents will be explained. Specific training sessions, including mock spill exercises, may be scheduled for individuals directly involved in handling hazardous materials to ensure they know all steps to be undertaken in handling these materials, as well as the steps involved in the event of a spill, including the proper use of spill kits.

All employees and subcontractors are required to have their basic first aid training, as well as GHS training, before working on the site.

Englobe will follow guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No.85-115, or

Hazardous Waste Worker Training Manual: Canadian LIUNA-Contractors Training Council, 1992. All activities involving the handling of hazardous materials are to be directly supervised by the Contractor's Hazardous Waste Specialist who has successfully completed a 40-hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other approved equivalent training courses such as the Canadian Hazardous Waste Workers Program. The trained personnel are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.

All other training needs and records will be provided by Englobe before the initiation of site activities, as well as a site orientation for all personnel.

8 Safety Data Sheets (SDS)

Relevant SDS for this remediation project are provided in Appendix 7.

9 Reference

Tetra Tech Canada Inc. 2019. Spill Contingency Plan Fort Reliance Weather Station, Northwest Territories. Report submitted to Environment and Climate Change Canada and Public Services and Procurement Canada, March 2019. Tetra Tech file no.: ENW.EENW03031-09.

Appendix 1 Differences between Tetra Tech’s and Englobe’s SCP

Fort Reliance Weather Station Remediation Project
Spill Contingency Plan
Differences between Tetra Tech's and Englobe's Version



Section #	Tetra Tech SCP	Englobe SCP	Modifications
1	INTRODUCTION AND PROJECT DETAILS	NA	
1.1	Company Info	Section 1	
1.1.1	Effective Date of Waste Management Plan	Section 1	
1.1.2	Most Recent Revisions to Waste Management Plan	Section 1	
1.2	Distribution List	NA	
		Section 2 Introduction	
1.3	Purpose and Scope	Section 2.1	No change
1.4	Company Environmental Policy	See Section 1.1	Only referencing Englobe's (Appendix 2)
1.5	Site Description	Section 2.2	No change
1.6	Project Description	Section 2.3	No change
		Section 2.4 Additional Copies	No Change
		Section 2.5 Process for Staff Response to Media and Public Inquiries	No change
1.7	Hazardous Material	Section 3	Separated Hazardous Material into hazardous waste and hazardous material
		Section 3.1 Hazardous Waste	No change
		Section 3.2 Hazardous Material	Included hazardous material to be brought onsite; added map showing various laydown areas
1.8	Existing Preventive Measures	Section 3.3 Preventive Measures	Included details on Englobe's Preventive Measures to be implemented
2	Response Organization	Section 4	Flow chart modified to include notification to CIRNAC inspector; Additional details on Englobe's response to spill
		Section 4.1 Response Equipment	Details of Spill Response Equipment
3	Action Plan	Section 5	
3.1	Potential Impacts	Section 5.1	Table updated to include material to be used by Englobe
3.2	Initial Response Procedures	Section 5.2	No change
3.3	Spill Reporting Procedures	Section 5.3	No significant change: only included Englobe's name
3.4	Containing and Cleaning up a Spill	Section 5.4	
3.4.1	Spill on Land	Section 5.4	Removed references to response equipment and flaking of paint (not a spill); added info on Englobe's general response and spills associated to barge landing, off-loading and loading
3.4.2	Spills on Water	Section 5.4	
3.4.3	Probable Spill Location and Worst-Case Scenario	Section 5.4.1	No change
3.5	Managing Spill-Related Wastes	Section 5.5	No change
3.6	Site Restoration	Section 5.6	No change
4	Resource Inventory	Section 6	
4.1	On-Site Resources	Section 6.1	Added table with contact names and numbers
4.2	Off-Site Resources	Section 6.2	Added appendix for Emergency Contact List
5	Training Program	Section 7	Added training to be provided by Englobe
6	Safety Data Sheet	Section 8	Added SDS for motor oil, lubricants, antifreeze and brake cleaner
7	Closure	NA	
	References	Section 9 Reference	Only referenced Tetra Tech's WMP

Appendix 2 Englobe's Environmental Policy

QUALITY, OCCUPATIONAL HEALTH & SAFETY AND ENVIRONMENTAL POLICY



The senior management of Englobe Corp. (Englobe), one of Canada's leaders in soil, materials and environmental engineering, having additional places of business in France and the United Kingdom and completing projects on an international scale, considers quality, occupational health & safety as well as the protection of the environment to be fundamental priorities for the company.

Englobe is committed to the highest standards concerning ethical professional practices and business conduct as well as:

<p><u>OCCUPATIONAL HEALTH & SAFETY</u></p>	<ul style="list-style-type: none"> • Taking the necessary steps to ensure that all operations are conducted in the safest possible manner for the prevention of work-related injuries and illnesses as well as promoting personal well-being • Providing human, financial and material resources to develop and implement a core prevention program to eliminate any risks that could endanger the physical health, safety and integrity of employees or other individuals in the workplace in addition to overseeing its application and applying corrective measures when necessary • Providing employees with all necessary training, information, tools, protective equipment and coaching required to work safely • Ensuring that we comply with legal requirements and regulations in effect in areas where our operations are conducted and with rules, instructions, procedures and methods established by the company and its clients as well as all permits, organizations and certifications to which we subscribe • Determining and communicating objectives and periodically assessing and reviewing results to determine whether objectives are being met and ensure the continuous improvement of its management system • Ensuring that subcontractors are properly informed of the company policy and that they agree to adopt the same principles
<p><u>QUALITY</u></p>	<ul style="list-style-type: none"> • Maintaining reliable and quality services that meet the needs of its clients • Determining and communicating objectives and periodically assessing and reviewing results to determine whether objectives are being met and ensure the continuous improvement of its management system • Ensuring that we comply with rules, instructions, procedures and methods established by the company and its clients as well as organizations and certifications to which we subscribe
<p><u>ENVIRONMENT</u></p>	<ul style="list-style-type: none"> • Reducing environmental nuisances and the impact of their activities • Ensuring that we comply with legal requirements and regulations in effect in areas where our operations are conducted and with rules, instructions, procedures and methods established by the company and its clients as well as all permits, organizations and certifications to which we subscribe

Each employee is responsible to apply the established rules and report events that could adversely affect quality, occupational health & safety and the environment. All members of the organization must actively participate in the success of this policy by seriously considering quality, occupational health & safety and the environment as well as continuous improvement when conducting daily activities.

This policy is reviewed annually, communicated to all personnel and displayed. It is also made available to all interested parties.

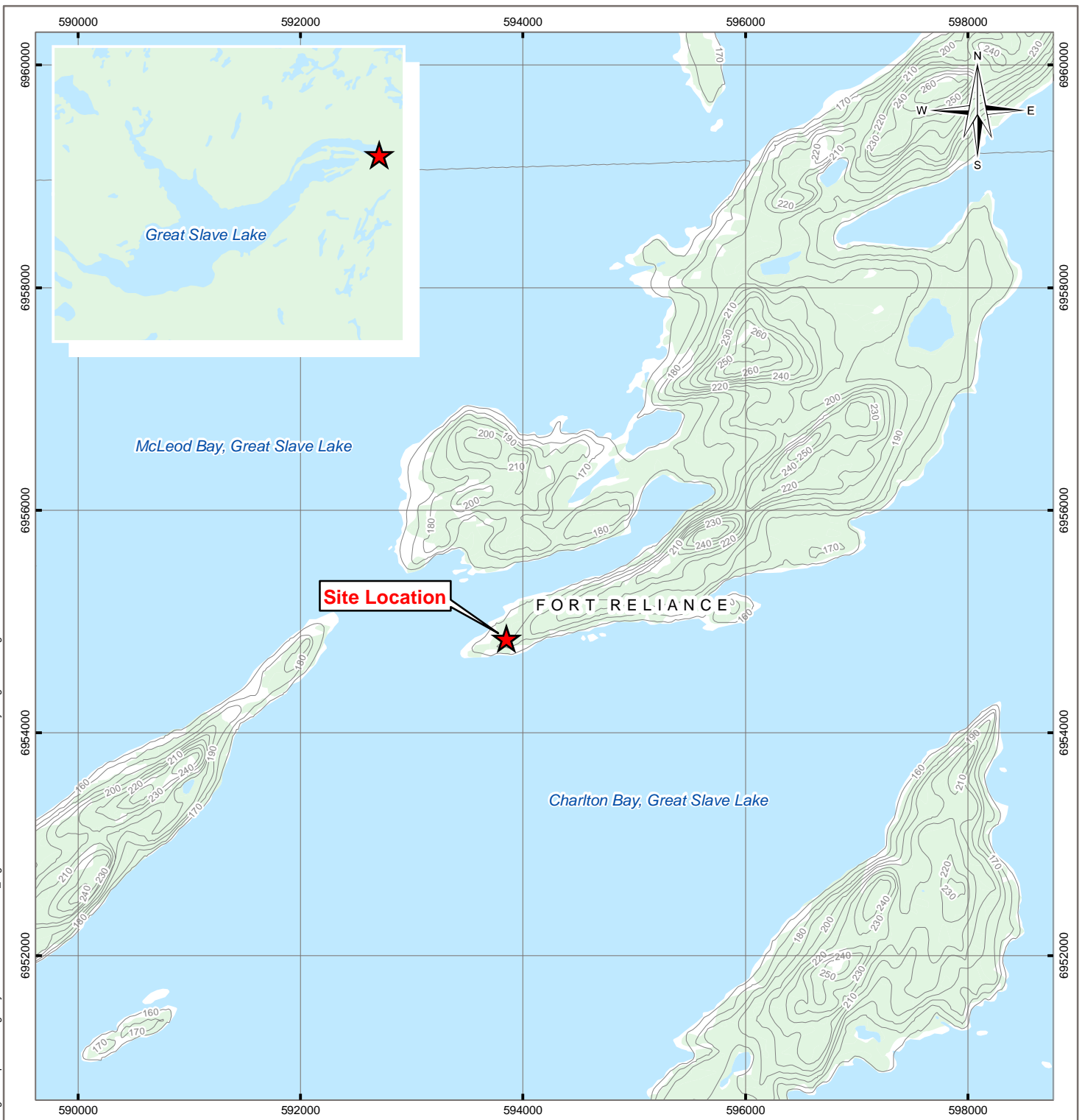



Alain Robichaud Mike Cormier
 Copresident of Englobe Copresident of Englobe

PL-01-AD-001-EN04 (2019.03.12)

Appendix 3 Site Maps (Figures 1 and 2)

Q:\Edmonton\Environmental\ENW\EENW03031-09 Ft. Reliance\CA\DFigures\Spill Contingency Plan\EENW03031-09_Figure1.mxd modified 1/14/2019 by megan.verburg



LEGEND

- Contour (10 m)
- Waterbody
- Wooded Area

NOTES
Base data source: CanVec 1:50,000.

**SPILL CONTINGENCY PLAN
FORT RELIANCE WEATHER STATION, NT**

Site Location Plan

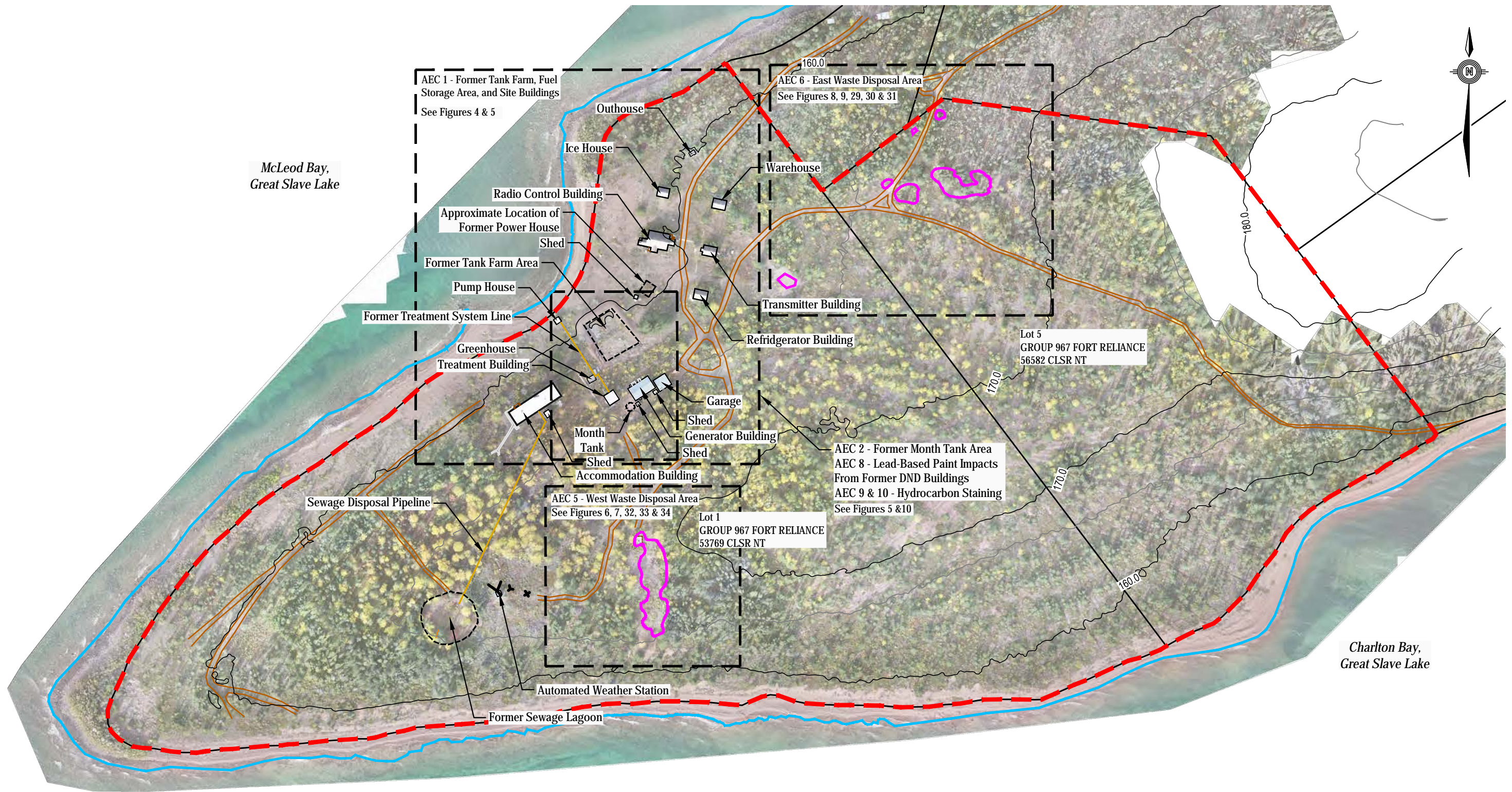
PROJECTION UTM Zone 12N	DATUM NAD83				
Scale: 1:50,000					
FILE NO. EENW03031-09_Figure1.mxd					
OFFICE Tt-EDM	<table border="1"> <tr> <td>DWN MRV</td> <td>CKD BB</td> <td>APVD BB</td> <td>REV 0</td> </tr> </table>	DWN MRV	CKD BB	APVD BB	REV 0
DWN MRV	CKD BB	APVD BB	REV 0		
DATE January 14, 2019	PROJECT NO. ENW.EENW03031-09				

CLIENT
Public Services & Procurement Canada

Figure 1

STATUS
DRAFT

Q:\Edmonton\Environmental\ENW\ENW03031-09_Ft Reliance\CAD\Figures\Spill Contingency Plan\ENW03031-09_Ft Reliance\CAD\Figures\Spill Contingency Plan\Figure 2.dwg [FIGURE 2] January 14, 2019 - 8:26:58 am (BY: DAS, DEBASHIS)



LEGEND:

- - ACCESS ROAD
- 170.0— - MAJOR CONTOUR
- - MINOR CONTOUR
- LOT BOUNDARY
- SITE BOUNDARY
- BUILDING / SITE FEATURE
- FORMER BUILDING / SITE FEATURE
- WASTE DISPOSAL AREA
- - UTILITY LINE (ABOVE GROUND)
- - SHORELINE

NOTES
Base data source: IerStar Topographic Survey
Imagery: IerStar UAV Survey (2018)

STATUS
FINAL



Scale: 1: 2 000

CLIENT

Public Services &
Procurement Canada



**SPILL CONTINGENCY PLAN
FORT RELIANCE WEATHER STATION, NT**

Site Overview

PROJECT NO. ENW.EENW03031-09	DWN MRV/DBD	CKD NO	REV 0
OFFICE EDM	DATE January 14, 2019		

Figure 2

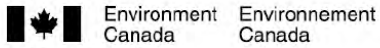
Appendix 4 Immediately Reportable Spill

Fort Reliance
Spill Contingency Plan

TDG Class	Substance for NWT 24 Hour Spill Line	Immediately Reportable Quantities
1 2.3 2.4 6.2 7 None	Explosives Compressed gas (toxic) Compressed gas (corrosive) Infectious substances Radioactive Unknown substance	Any amount
2.1 2.2	Compressed gas (flammable) Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100 L
3.1 3.2 3.3	Flammable liquids	> 100 L
4.1 4.2 4.3	Flammable solids Spontaneously combustible solids Water reactant	> 25 kg
5.1 9.1	Oxidizing substances Miscellaneous products or substances excluding PCB mixtures	> 50 L or 50 kg
5.2 9.2	Organic peroxides Environmentally hazardous	> 1 L or 1 kg
6.1 8 9.3	Poisonous substances Corrosive substances Dangerous wastes	> 5 L or 5 kg
9.1	PCB mixtures of 5 or more ppm	> 0.5 L or 0.5 kg
None	Other contaminants (e.g. crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, waste water, etc.)	> 100 L or 100 kg
None	Sour natural gas (i.e. contains H ₂ S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more

In addition, all releases of harmful substances, regardless of quantity, are to be reported to the NWT spill line if the release is near or into a water body, is near or into a designated sensitive environment or sensitive wildlife habitat, poses imminent threat to human health or safety, poses imminent threat to a listed species at risk or its critical habitat, or is uncontrollable.

Appendix 5 ECCC Spill Report Template and NT Spill Report Form



Appendix H
Departmental report in the event of a spill
Storage Tank Systems Containing Petroleum and Allied Petroleum
Products Regulations

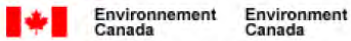
Please send this report by mail to Environmental Compliance, 335 River Rd. #233, Ottawa, ON K1A 0H3, or by email to: Darryl.Roberts@ec.gc.ca

All releases of petroleum product or allied product **MUST** be reported by telephone as soon as possible.

This form should be completed by the owner, operator, or the person responsible for managing the response.

EC Property	<input type="text"/>	
Date of Incident	Time of Incident	Weather Conditions
<input type="text"/>	<input type="text"/>	<input type="text"/>
Owner Name:	<input type="text"/>	Telephone Number: <input type="text"/>
Division and Direction:	<input type="text"/>	
Operator Name:	<input type="text"/>	Telephone Number: <input type="text"/>
Reported by:	<input type="text"/>	Telephone Number: <input type="text"/>
Signature:	<input type="text"/>	





EC Tank Registration Number (if applicable):	<input type="text"/>
Type of Fuel:	<input type="text"/>
Source of Spill:	<input type="checkbox"/> Storage Tank <input type="checkbox"/> Barrel/Drums <input type="checkbox"/> Pumping Operation
	<input type="checkbox"/> Vehicle <input type="checkbox"/> Other: <input type="text"/>
How much fuel spilled?	<input type="text"/> Liters
* If more than 100L, this report SHALL be faxed or scanned to the federal authority with 48 hours. *	
Description of the spill:	Location of spill: <input type="text"/>
	Surface or approximate area affected: <input type="text"/>
Release Site Description:	Is the spill contained? <input type="checkbox"/> YES <input type="checkbox"/> NO
	Surface at Site: <input type="checkbox"/> Paved <input type="checkbox"/> Gravel <input type="checkbox"/> Vegetation <input type="checkbox"/> Concrete Surface
What waterways are in the vicinity of the product release (if applicable)?	<input type="text"/>



Environnement
Canada

Environment
Canada

Did you contact the appropriate federal authority spill action centres?¹ YES NO

Which centre did you contact?

Who at EC spill center did you talk to?

Name:

Function:

Date:

Incident Number:

Was a 3rd party property affected by the release? YES NO

If yes, who:

What mitigating measures did you take?

- Stop the flow of product
- Turned off pumping unit or close manifold valve (if applicable)
- Eliminated all sources of ignition
- Secured the area
- Put on goggles and petroleum resistant gloves and boots
- Used absorbents located in storage units to contain and clean up all product
- Placed all absorbents in metal drums for disposal
- Transport drums to a secure area within facility for temporary storage
- Made arrangements to dispose of contaminated materials at an authorized disposal site
- Other:

¹ Refer to PDF Canadian Environmental Emergencies Notification System in Appendix I



Environnement
Canada

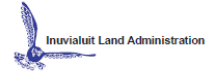
Environment
Canada

Is it possible to keep the system running?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
Does the system need to be repaired?	If yes, what and by who:		
<input type="checkbox"/> YES <input type="checkbox"/> NO	<div style="border: 1px solid black; height: 60px;"></div>		
The organizations that were notified and / or are involved as well as other relevant information:			
<div style="border: 1px solid black; height: 100px;"></div>			

Internal Use Only

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND
OTHER HAZARDOUS MATERIALS



NT-NU 24-HOUR SPILL REPORT LINE
Tel: (867) 920-8130 • Fax: (867) 873-6924 • Email: spills@gov.nt.ca

REPORT LINE USE ONLY

A	Report Date: MM DD YY	Report Time:	<input type="checkbox"/> Original Spill Report		Report Number:
	Occurrence Date: MM DD YY	Occurrence Time:	OR <input type="checkbox"/> Update # _____ to the Original Spill Report		
C	Land Use Permit Number (if applicable):		Water Licence Number (if applicable):		
D	Geographic Place Name or Distance and Direction from the Named Location:			Region: <input type="checkbox"/> NT <input type="checkbox"/> Nunavut <input type="checkbox"/> Adjacent Jurisdiction or Ocean	
E	Latitude: _____ Degrees _____ Minutes _____ Seconds		Longitude: _____ Degrees _____ Minutes _____ Seconds		
F	Responsible Party or Vessel Name:		Responsible Party Address or Office Location:		
G	Any Contractor Involved:		Contractor Address or Office Location:		
H	Product Spilled: <input type="checkbox"/> Potential Spill	Quantity in Litres, Kilograms or Cubic Metres:		U.N. Number:	
I	Spill Source:		Spill Cause:		Area of Contamination in Square Metres:
J	Factors Affecting Spill or Recovery:		Describe Any Assistance Required:		Hazards to Persons, Property or Environment:
K	Additional Information, Comments, Actions Proposed or Taken to Contain, Recover or Dispose of Spilled Product and Contaminated Materials:				
L	Reported to Spill Line by:	Position:	Employer:	Location Calling From:	Telephone:
M	Any Alternate Contact:	Position:	Employer:	Alternate Contact Location:	Alternate Telephone:

REPORT LINE USE ONLY

N	Received at Spill Line by:	Position:	Employer:	Location Called:	Report Line Number:
Lead Agency: <input type="checkbox"/> EC <input type="checkbox"/> CCG/TCMSS <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> AANDC <input type="checkbox"/> NEB <input type="checkbox"/> Other: _____			Significance: <input type="checkbox"/> Minor <input type="checkbox"/> Major <input type="checkbox"/> Unknown		File Status: <input type="checkbox"/> Open <input type="checkbox"/> Closed
Agency:	Contact Name:	Contact Name:	Remarks:		
Lead Agency:					
First Support Agency:					
Second Support Agency:					
Third Support Agency:					

Instructions for Completing the NT-NU Spill Report Form

This form can be filled out electronically and faxed to the spill line at 867-873-6924. Commencing on January 2, 2007, the form can also be e-mailed as an attachment to spills@gov.nt.ca. Until further notice, please verify receipt of e-mail transmissions with a follow-up telephone call. Spills can still be phoned in by calling collect at 867-920-8130.

A. Report Date/Time	The actual date and time that the spill was reported to the spill line. If the spill is phoned in, the Spill Line will fill this out. Please do not fill in the Report Number : the spill line will assign a number after the spill is reported.
B. Occurrence Date/Time	Indicate, to the best of your knowledge, the exact date and time that the spill occurred. Not to be confused with the report date and time (see above).
C. Land Use Permit Number /Water Licence Number	This only needs to be filled in if the activity has been licenced by the Nunavut Water Board and/or if a Land Use Permit has been issued. Applies primarily to mines and mineral exploration sites.
D. Geographic Place Name	In most cases, this will be the name of the city or town in which the spill occurred. For remote locations – outside of human habitations – identify the most prominent geographic feature, such as a lake or mountain and/or the distance and direction from the nearest population center. You must include the geographic coordinates (Refer to Section E).
E. Geographic Coordinates	This only needs to be filled out if the spill occurred outside of an established community such as a mine site. Please note that the location should be stated in degrees, minutes and seconds of Latitude and Longitude.
F. Responsible Party Or Vessel Name	This is the person who was in management/control/ownership of the substance at the time that it was spilled. In the case of a spill from a ship/vessel, include the name of the ship/vessel. Please include full address, telephone number and e-mail. Use box K if there is insufficient space. Please note that, the owner of the spilled substance is ultimately responsible for any spills of that substance, regardless of who may have actually caused the spill.
G. Contractor involved?	Were there any other parties/contractors involved? An example would be a construction company who is undertaking work on behalf of the owner of the spilled substance and who may have contributed to, or directly caused the spill and/or is responding to the spill.
H. Product Spilled	Identify the product spilled; most commonly, it is gasoline, diesel fuel or sewage. For other substances, avoid trade names. Wherever possible, use the chemical name of the substance and further, identify the product using the four digit UN number (eg: UN1203 for gasoline; UN1202 for diesel fuel; UN1863 for Jet A & B)
I. Spill Source	Identify the source of the spill: truck, ship, home heating fuel tank and, if known, the cause (eg: fuel tank overflow, leaking tank; ship ran aground; traffic accident, vandalism, storm, etc.). Provide an estimate of the extent of the contaminated/impacted area (eg: 10 m ²)
J. Factors Affecting Spill	Any factors which might make it difficult to clean up the spill: rough terrain, bad weather, remote location, lack of equipment. Do you require advice and/or assistance with the cleanup operation? Identify any hazards to persons, property or equipment: for example, a gasoline spill beside a daycare centre would pose a safety hazard to children. Use box K if there is insufficient space.
K. Additional Information	Provide any additional, pertinent details about the spill, such as any peculiar/unique hazards associated with the spilled material. State what action is being taken towards cleaning up the spill; disposal of spilled material; notification of affected parties. If necessary, append additional sheets to the spill report. Number the pages in the same format found in the lower right hand corner of the spill form: eg. "Page 1 of 2", "Page 2 of 2" etc. Please number the pages to ensure that recipients can be certain that they received all pertinent documents. If only the spill report form was filled out, number the form as "Page 1 of 1".
L. Reported to Spill Line by	Include your full name, employer, contact number and the location from which you are reporting the spill. Use box K if there is insufficient space.
M. Alternate Contact	Identify any alternate contacts. This information assists regulatory agencies to obtain additional information if they cannot reach the individual who reported the spill.
N. Report Line Use Only	Leave Blank. This box is for the Spill Line's use only.

Appendix 6 Emergency Contact List and Project Management Team



EMERGENCY CONTACT LIST

RESOURCE	CONTACT/LOCATION	PHONE NUMBER
Site Phones		
Guy Aerts	On Site	TBD
Robert Desjardins	On Site	TBD
Mireille Rigaux	On Site	TBD
Seth Slipp	On Site	TBD
Air Transportation		
Air Tindi	Yellowknife	867-669-8201
Fire		
Local Fire Department	Yellowknife	867-873-2222
	ENR Fire Management Division	867-872-7700
Police		
RCMP	24-hour emergency call centre	867-370-1111
Hospitals		
Stanton Territorial Hospital, Yellowknife	Emergency Room	867-669-4100
Lutsel K'e Health Centre	Lutsel K'e	867-370-3111
Health and Safety		
Workers' Compensation Board 24-hour Accident Reporting Line	Centre Square Tower, 5th Floor 5022 49 Street	867-920-3888

EMERGENCY CONTACT LIST

RESOURCE	CONTACT/LOCATION	PHONE NUMBER
Environmental Emergency (cont.)		
24-hour Spill Line	NWT/Nunavut	867-920-8130
Canadian Transport Emergency Centre (CANUTEC)	24-hour service	613-996-6666
Environment and Natural Resources, GNWT	Yellowknife Regional Office	867-767-9238
INAC Resource Officers (Inspectors)	Tim Morton - Yellowknife	867-669-2442
	Devin Penney – Yellowknife	867-669-2468
GNWT Department of Lands – North Slave Regional Office	Clint Ambrose - Yellowknife	867-767-9188 867-446-0769
Wildlife Management		
Environment and Natural Resources, GNWT	Yellowknife Regional Office	867-767-9238
Management		
Environment and Climate Change Canada	Mark Konecky	
	Denyz Baykal	873-353-2346
PSPC Project Management Office	Claudia Simonato	403-613-6328
	Ed Domijan	780-720-5893
Tetra Tech DR	Nick Oke	780-718-6078
	Ben Barton	250-713-1643
Englobe Project Management	Jean-Pierre Pelletier	581-984-2586
	Guillaume Robert	514-233-4606

Appendix 7 Safety Data Sheets

Material Safety Data Sheet

DIESEL FUEL

000003000395

Version 1.0

Revision Date 2015/05/14

Print Date 2015/05/14



SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DIESEL FUEL

Synonyms : Seasonal Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, D50, Arctic Diesel, Farm Diesel, Marine Diesel, Low Sulphur Diesel, LSD, Ultra Low Sulphur Diesel, ULSD, Mining Diesel, Naval Distillate, Dyed Diesel, Marked Diesel, Coloured Diesel, Furnace special, Biodiesel blend, B1, B2, B5, Diesel Low Cloud (LC). Marine Gas Oil

Product code : 101802, 100107, 100668, 100658, 100911, 100663, 100652, 100460, 100065, 101796, 101793, 101795, 101792, 101794, 101791, 100768, 100643, 100642, 100103, 101798, 101800, 101797, 101788, 101789, 101787, 102531, 100734, 100733, 100640, 100997, 100995, 100732, 100731, 100994

Manufacturer or supplier's details
Petro-Canada
P.O. Box 2844, 150 - 6th Avenue South-West
Calgary Alberta T2P 3E3
Canada

Emergency telephone number : Suncor Energy: +1 403-296-3000;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining diesels, marine diesels, MDO and naval distillates may have a higher 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.
Hazard Summary	Combustible liquid. May cause cancer. Irritating to eyes and skin.

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Potential Health Effects

- Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact
Skin Absorption
- Target Organs : Skin
Eyes
Respiratory Tract
- Inhalation : May cause respiratory tract irritation.
Inhalation may cause central nervous system effects.
Symptoms and signs include headache, dizziness, fatigue,
muscular weakness, drowsiness and in extreme cases, loss of
consciousness.
- Skin : Causes skin irritation.
- Eyes : Causes eye irritation.
- Ingestion : Ingestion may cause gastrointestinal irritation, nausea,
vomiting and diarrhoea.
Aspiration hazard if swallowed - can enter lungs and cause
damage.
- Aggravated Medical Condition : None known.

Carcinogenicity:

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

Hazardous components

Chemical Name	CAS-No.	Concentration (%)
kerosine (petroleum), hydrodesulfurized	64742-81-0	70 - 100 %
kerosine (petroleum)	8008-20-6	
fuels, diesel	68334-30-5	
fuel oil no. 2	68476-30-2	
Alkanes, C10-20-branched and linear	928771-01-1	0 - 25 %
Soybean oil, Methyl ester	67784-80-9	0 - 5 %
Rape oil, Methyl ester	73891-99-3	

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Fatty acids, tallow, Methyl esters	61788-61-2	
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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 physician 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 : First aider needs to protect himself.

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 firefighting : Cool closed containers exposed to fire with water spray.
- Hazardous combustion products : Carbon oxides (CO, CO₂), nitrogen oxides (NO_x), sulphur oxides (SO_x), sulphur compounds (H₂S), 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 : Wear self-contained breathing apparatus for firefighting if

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for firefighters

necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
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.
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 with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
kerosine (petroleum),	64742-81-0	TWA	200 mg/m ³	ACGIH

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hydrodesulfurized			(As total hydrocarbon vapour)	
		TWA	200 mg/m3 (As total hydrocarbon vapour)	ACGIH
		TWA	200 mg/m3 (As total hydrocarbon vapour)	ACGIH
kerosine (petroleum)	8008-20-6	TWA	200 mg/m3 (As total hydrocarbon vapour)	CA BC OEL

Engineering measures : Use only in well-ventilated areas.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour cartridge or canister may be permissible under 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 circumstances where air-purifying respirators may not provide adequate protection.

Hand protection
Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R). 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 imperviousness, 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-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to

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the specific work-place.

- Protective measures : Wash contaminated clothing before re-use.
- Hygiene measures : Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Wash face, hands and any exposed skin thoroughly after handling.

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
- pH : No data available
- Pour point : No data available
- Boiling point/boiling range : 150 - 371 °C (302 - 700 °F)
- 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)
- 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)

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Explosive properties : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Runoff to sewer may create fire or explosion hazard.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions : Hazardous polymerisation does not occur. Stable under normal conditions.

Conditions to avoid : Extremes of temperature and direct sunlight.

Incompatible materials : Reactive with oxidising agents and acids.

Hazardous decomposition products : May release CO_x, NO_x, SO_x, H₂S, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Eye contact
Ingestion
Inhalation
Skin contact
Skin Absorption

Acute toxicity

Product:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Components:

kerosine (petroleum), hydrodesulfurized:

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):

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

Acute inhalation toxicity : LC50 Rat: > 5 mg/l

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Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 Rabbit: > 2,000 mg/kg,

fuels, diesel:

Acute oral toxicity : LD50 Rat: 7,500 mg/kg,

Acute dermal toxicity : LD50 Mouse: 24,500 mg/kg,

fuel oil no. 2:

Acute oral toxicity : LD50 Rat: 12,000 mg/kg,

Acute inhalation toxicity : LC50 Rat: 4.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Skin corrosion/irritation

Product:

Remarks: No data available

Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

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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:

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 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.

Contaminated packaging : Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA-DGR

UN/ID No. : 1202

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Proper shipping name : Diesel fuel
Class : 3
Packing group : III
Labels : 3
Packing instruction (cargo aircraft) : 366

IMDG-Code

UN number : 1202
Proper shipping name : DIESEL FUEL
Class : 3
Packing group : III
Labels : 3
EmS Code : F-E, S-E
Marine pollutant : no

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

Not applicable for product as supplied.

TDG

UN number : 1202
Proper shipping name : DIESEL FUEL
Class : 3
Packing group : III
Labels : 3
ERG Code : 128
Marine pollutant : no

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : B3: Combustible Liquid
D2A: Very Toxic Material Causing Other Toxic Effects
D2B: Toxic Material Causing Other Toxic Effects

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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

DSL : On the inventory, or in compliance with the inventory
TSCA : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
EINECS : On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

For Copy of (M)SDS : Internet: www.petro-canada.ca/msds
Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-

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For Product Safety Information: 1 905-804-4752

Prepared by : Product Safety: +1 905-804-4752

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.

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : GASOLINE, UNLEADED

Synonyms : Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, SummerGas, Supreme, SuperClean, SuperClean WinterGas, RegularClean, PlusClean, Premium, marked or dyed gasoline, TQRUL, transitional quality regular unleaded, BOB, Blendstock for Oxygenate Blending, Conventional Gasoline, RUL, MUL, SUL, PUL.

Product code : 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 number : Suncor Energy: +1 403-296-3000;
 Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical 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 recreational 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

Skin irritation : Category 2

Germ cell mutagenicity : Category 1B

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- 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 element

- Hazard pictograms :

- Signal word : Danger

- Hazard statements : H224 Extremely flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.

- Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a

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POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/
attention.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/
attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or
alcohol-resistant foam for extinction.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container
tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

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

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Target Organs : Blood
Immune system

Inhalation : Inhalation may cause central nervous system effects.
Symptoms and signs include headache, dizziness, fatigue,
muscular weakness, drowsiness and in extreme cases, loss of
consciousness.

Skin : May irritate skin.

Eyes : May irritate eyes.

Ingestion : Ingestion may cause gastrointestinal irritation, nausea,
vomiting and diarrhoea.
Aspiration hazard if swallowed - can enter lungs and cause
damage.

Chronic Exposure : Chronic exposure to benzene may result in increased risk of
leukemia and other blood disorders.

Aggravated Medical Condition : None known.

Carcinogenicity:

IARC

Group 1: Carcinogenic to humans

Benzene 71-43-2

ACGIH

Confirmed human carcinogen

Benzene 71-43-2

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	Confirmed animal carcinogen with unknown relevance to humans	
	Ethanol	64-17-5
	Gasoline, natural	8006-61-9
OSHA	OSHA specifically regulated carcinogen	
	Benzene	71-43-2
NTP	Known to be human carcinogen	
	Benzene	71-43-2

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Hazardous components

Chemical Name	CAS-No.	Concentration (%)
gasoline, natural	8006-61-9	95 - 100 %
toluene	108-88-3	1 - 40 %
benzene	71-43-2	0.5 - 1.5 %
ethanol	64-17-5	0.1 - 0.3 %

SECTION 4. FIRST AID MEASURES

- If inhaled : Artificial respiration and/or oxygen may be necessary.
Move to fresh air.
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 physician or poison control center.
Never give anything by mouth to an unconscious person.

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Seek medical advice.

Most important symptoms and effects, both acute and delayed : First aider needs to protect himself.

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 firefighting : Cool closed containers exposed to fire with water spray.
- Hazardous combustion products : Carbon oxides (CO, CO₂), nitrogen oxides (NO_x), polynuclear aromatic hydrocarbons, phenols, aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.
- Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
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.
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 with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
		TWA	300 ppm 900 mg/m ³	OSHA P0
		STEL	500 ppm 1,500 mg/m ³	OSHA P0
		TWA	500 ppm 2,000 mg/m ³	OSHA Z-1
toluene	108-88-3	TWA	20 ppm	ACGIH
		TWA	100 ppm 375 mg/m ³	NIOSH REL
		ST	150 ppm 560 mg/m ³	NIOSH REL
		TWA	200 ppm	OSHA Z-2
		CEIL	300 ppm	OSHA Z-2
		Peak	500 ppm	OSHA Z-2
		TWA	100 ppm 375 mg/m ³	OSHA P0
		STEL	150 ppm 560 mg/m ³	OSHA P0
benzene	71-43-2	TWA	0.5 ppm	ACGIH
		STEL	2.5 ppm	ACGIH
		TWA	0.1 ppm	NIOSH REL
		ST	1 ppm	NIOSH REL
		TWA	10 ppm	OSHA Z-2
		CEIL	25 ppm	OSHA Z-2
		Peak	50 ppm	OSHA Z-2
		PEL	1 ppm	OSHA CARC
		STEL	5 ppm	OSHA CARC
ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m ³	NIOSH REL
		TWA	1,000 ppm 1,900 mg/m ³	OSHA Z-1

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		TWA	1,000 ppm 1,900 mg/m ³	OSHA P0
		STEL	1,000 ppm	ACGIH

Biological occupational exposure limits

Component	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Toluene	108-88-3	Toluene	In blood	Prior to last shift of workweek	0.02 mg/l	ACGIH BEI
Toluene		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI

Engineering measures : Use only in well-ventilated areas.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister may be permissible under 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 circumstances where air-purifying respirators may not provide adequate protection.

Hand protection
Material : polyvinyl alcohol (PVA), Viton(R). 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 imperviousness, 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-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

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Eye protection	: Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Protective measures	: Wash contaminated clothing before re-use.
Hygiene measures	: Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash face, hands and any exposed skin thoroughly after handling.

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
pH	: No data available
Pour point	: No data available
Boiling point/boiling range	: 25 - 225 °C (77 - 437 °F)
Flash point	: -50 - -38 °C (-58 - -36 °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)	

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Water solubility	: insoluble
Partition coefficient: n-octanol/water	: No data available
Viscosity	
Explosive properties	: Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Containers may explode in heat of fire. Vapours may form explosive mixtures with air.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	: Hazardous polymerisation does not occur. Stable under normal conditions.
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 hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	Eye contact Ingestion Inhalation Skin contact
--	--

Acute toxicity

Product:

Acute oral toxicity	Remarks: No data available
Acute inhalation toxicity	Remarks: No data available
Acute dermal toxicity	Remarks: No data available

Components:

toluene:

Acute oral toxicity	LD50 (Rat): 5,580 mg/kg
Acute inhalation toxicity	LC50 (Rat): 7585 ppm Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	LD50 (Rabbit): 12,125 mg/kg

benzene:

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Acute oral toxicity	LD50 (Rat): 2,990 mg/kg
Acute inhalation toxicity	LC50 (Rat): 13700 ppm Exposure time: 4 h Test atmosphere: dust/mist
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

Skin corrosion/irritation

Product:

Remarks: No data available

Components:

toluene:

Result: Moderate skin irritant

benzene:

Result: Moderate skin irritant

ethanol:

Result: Skin irritation

Serious eye damage/eye irritation

Product:

Remarks: No data available

Components:

toluene:

Result: Mild eye irritation

benzene:

Result: Moderate eye irritation

ethanol:

Result: Eye irritation

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

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Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

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:

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 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.



Contaminated packaging : Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulation****IATA-DGR**

UN/ID No. : 1203
Proper shipping name : Gasoline
Class : 3
Packing group : II
Labels : 3
Packing instruction (cargo aircraft) : 364

IMDG-Code

UN number : 1203
Proper shipping name : GASOLINE
Class : 3
Packing group : II
Labels : 3
EmS Code : F-E, S-E
Marine pollutant : no

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

Not applicable for product as supplied.

49 CFR

UN/ID/NA number : 1203
Proper shipping name : Gasoline
Class : 3
Packing group : II
Labels : 3
ERG Code : 128
Marine pollutant : no

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

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

DSL On the inventory, or in compliance with the inventory
TSCA All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
EINECS On the inventory, or in compliance with the inventory

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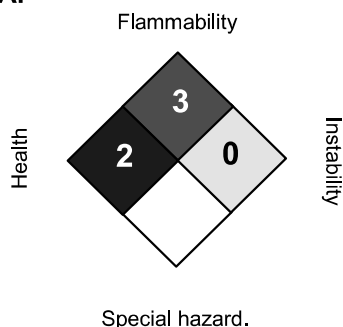
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SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	3
PHYSICAL HAZARD	0
PERSONAL PROTECTION	H

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

For Copy of (M)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

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.

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SECTION 1. IDENTIFICATION

Product name : PROPANE

Synonyms : Propane HD-5, Propane commercial, Liquefied Petroleum Gas (LPG), C₃H₈, CGSB Propane Grade 1, CGSB Propane Grade 2, odorized propane, stench propane, automotive propane.

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 number : Suncor Energy: +1 403-296-3000;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : Propane is used as a fuel gas, refrigerant and as a raw material 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., Liquefied compressed 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

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

Inhalation

: Inhalation may cause central nervous system effects.
May cause respiratory tract irritation.
Inhalation of vapours may cause drowsiness, headache, dizziness, and disorientation.

Skin

: Contact with rapidly expanding gas may cause burns or frost-bite.

Eyes

: Contact with rapidly expanding gas may cause burns or frost-bite.

Ingestion

: Exposure by this route unlikely.

Aggravated Medical Condition

: Overexposure may lead to cardiac sensitization.

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.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration
propane	74-98-6	90 - 100 %
propylene	115-07-1	1 - 5 %
butane	106-97-8	1 - 2.5 %
ethane	74-84-0	1 - 1.5 %
methane	74-82-8	0.1 - 0.2 %

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 contaminated 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 : Not a significant route of exposure.
- Most important symptoms and effects, both acute and delayed : First aider needs to protect himself.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances 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- : Carbon oxides (CO, CO₂), smoke and irritating vapours as

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- ucts : 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 and full protective wear.
Wear a positive-pressure supplied-air respirator with full face-piece.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency 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.

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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 parameters / Permissible concentration	Basis
propane	74-98-6	TWA	1,000 ppm	CA AB OEL
		TWA	1,000 ppm	CA BC OEL
		TWAEV	1,000 ppm 1,800 mg/m ³	CA QC OEL
propylene	115-07-1	TWA	500 ppm 860 mg/m ³	CA AB OEL
		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 1,900 mg/m ³	CA QC OEL
ethane	74-84-0	TWA	1,000 ppm	CA AB OEL
		TWA	1,000 ppm	CA BC OEL

Engineering measures : Use only in well-ventilated areas.
Use explosion-proof ventilation equipment.
Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.

Personal protective equipment

Respiratory protection : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : Always wear NIOSH-approved self-contained breathing apparatus when handling this material.

Hand protection
Material : Wear insulated gloves to prevent frostbite.

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

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- Protective measures : Wash contaminated clothing before re-use.
Wear suitable protective equipment.
- Hygiene measures : Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Gas at room temperature; liquid when stored under pressure.,
Liquefied compressed 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
- pH : No data available
- Pour point : No data available
- Boiling point/boiling range : -42 °C (-44 °F)
- Flash point : -104 °C (-155 °F)
Method: closed cup
- Fire Point : No data available
- 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 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 : 9.5 %(V)
- Lower explosion limit : 2.1 %(V)
- Vapour pressure : 10,763 mmHg (38 °C / 100 °F)
- Relative vapour density : 1.56
- Relative density :
No data available
- Density : No data available
- Solubility(ies)

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Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Containers may explode in heat of fire. Vapour explosion hazard indoors, outdoors or in sewers. Propane may form explosive mixtures with air.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	:	Hazardous polymerisation does not occur. Stable under normal conditions.
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 of exposure

Eye contact
Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: No data available
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	Remarks: No data available

Components:

butane:

Acute inhalation toxicity	:	LC50 (Rat): 658 mg/l Exposure time: 4 h Test atmosphere: gas
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Skin corrosion/irritation

Product:

Remarks: No data available

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Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

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:

Biodegradability :
Remarks: No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

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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
Proper shipping name : Propane
Class : 2.1
Packing group : Not assigned by regulation
Labels : Class 2 - Gases: Flammable (Division 2.1)
Packing instruction (cargo aircraft) : 200

IMDG-Code

UN number : UN 1978
Proper shipping name : PROPANE

Class : 2.1
Packing group : Not assigned by regulation
Labels : 2.1
EmS Code : F-D, S-U
Marine pollutant : no

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

National Regulations

TDG

UN number : UN 1978
Proper shipping name : PROPANE

Class : 2.1
Packing group : Not assigned by regulation
Labels : 2.1
ERG Code : 115

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Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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

DSL	On the inventory, or in compliance with the inventory
TSCA	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
EINECS	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

For Copy of (M)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 : 2016/07/20

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.

Material Safety Data Sheet

DURON^{TM/MC} -E 10W-30

000003001098

Version 2.0

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DURON^{TM/MC} -E 10W-30

Product code : DE13ICT, DE13P5R, DE13P20, DE13IBC, DE13DRR, DE13DRM, DE13DCT, DE13C16, DE13C12, DE13, DE13BLK

Manufacturer or supplier's details
Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga ON L5J 1K2
Canada

Emergency telephone number : Suncor Energy: +1 403-296-3000;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : A superior performance heavy duty engine oil suitable for 4-stroke diesel, gasoline and natural gas automotive applications where SAE 10W-30 is recommended. Applications include vehicles equipped with exhaust after-treatment devices such as diesel particulate filters and catalytic converters. It is suitable for wet clutch transmission and hydraulic applications in mobile equipment where a 10W-30 engine oil is recommended.

Prepared by : Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	viscous liquid
Colour	Light amber.
Odour	Mild petroleum oil like.

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Aggravated Medical Condition : None known.

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Carcinogenicity:

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

Hazardous components

No hazardous ingredients

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 eyes or 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 physician 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 : First aider needs to protect himself.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local

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circumstances and the surrounding environment.

- Unsuitable extinguishing media : No information available.
 - Specific hazards during firefighting : Cool closed containers exposed to fire with water spray.
 - Hazardous combustion products : Carbon oxides (CO, CO₂), sulphur oxides (SO_x), calcium oxides (CaO_x), aldehydes, smoke and irritating vapours as products of incomplete combustion.
 - Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
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.
In case of insufficient ventilation, wear suitable respiratory equipment.
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.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour filter

Hand protection
Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R).

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Wear face-shield if splashing hazard is likely.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Protective measures : Wash hands and face before breaks and immediately after handling the product.
Wash contaminated clothing before re-use.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Hygiene measures : Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : viscous liquid

Colour : Light amber.

Odour : Mild petroleum oil like.

Odour Threshold : No data available

pH : No data available

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Pour point	: -45 °C (-49 °F)
Boiling point/boiling range	: No data available
Flash point	: 235 °C (455 °F) Method: Cleveland open cup
Fire Point	: 262 °C (504 °F)
Auto-Ignition Temperature	: No data available
Evaporation rate	: No data available
Flammability	: Low fire hazard. This material must be heated before ignition will occur.
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: No data available
Density	: 0.864 kg/l (15 °C / 59 °F)
Solubility(ies)	
Water solubility	: insoluble
Partition coefficient: n-octanol/water	: No data available
Viscosity	
Viscosity, kinematic	: 79.0 cSt (40 °C / 104 °F) 11.80 cSt (100 °C / 212 °F)
Explosive properties	: Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	: Hazardous polymerisation does not occur. Stable under normal conditions.
Conditions to avoid	: No data available
Incompatible materials	: Reactive with oxidising agents, acids, halogens and halogenated compounds.
Hazardous decomposition products	: May release COx, H2S, aldehydes, alkyl mercaptans, sulfides, methacrylate monomers, smoke and irritating vapours when heated to decomposition.

Material Safety Data Sheet

DURON™/MC -E 10W-30

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SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Eye contact
Ingestion
Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Skin corrosion/irritation

Product:

Remarks: No data available

Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

SECTION 12. ECOLOGICAL INFORMATION

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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:

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 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 Regulation

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Not applicable for product as supplied.

Internet: lubricants.petro-canada.ca/msds

Petro-Canada is a Suncor Energy business.

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Revision Date 2015/01/27

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Not regulated as a dangerous good

TDG

Not regulated as a dangerous good

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : Not Rated

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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

DSL	On the inventory, or in compliance with the inventory
TSCA	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
IECSC	On the inventory, or in compliance with the inventory
ELINCS	At least one component is not listed in EINECS but all such components are listed in ELINCS.

SECTION 16. OTHER INFORMATION

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.

Material Safety Data Sheet

SUPREME^{TM/MC} 10W-40

000003000422



Version 2.0

Revision Date 2015/02/09

Print Date 2015/02/09

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : SUPREME^{TM/MC} 10W-40

Product code : MOSP14DRM, MOSP14C16, MOSP14C12, MOSP14, MOSP14BLK

Manufacturer or supplier's details
Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga ON L5J 1K2
Canada

Emergency telephone number : Suncor Energy: +1 403-296-3000;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : Supreme motor oils are for use in all engines fuelled with gasoline, gasoline-ethanol blends up to E85, propane or CNG where the manufacturer recommends the use of API SN or SM quality oils. SAE 5W-20, 5W-30 and 10W-30 grades also meet the requirements of ILSAC GF-5 and GF-4.

Prepared by : Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	viscous liquid
Colour	Light amber.
Odour	Mild petroleum oil like.

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Aggravated Medical Condition : None known.

Carcinogenicity:

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.

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SUPREME^{TM/MC} 10W-40

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Version 2.0

Revision Date 2015/02/09

Print Date 2015/02/09

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

Hazardous components

No hazardous ingredients

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 physician 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 : First aider needs to protect himself.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : No information available.

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- Specific hazards during firefighting : Cool closed containers exposed to fire with water spray.
- Hazardous combustion products : Carbon oxides (CO, CO₂), smoke and irritating vapours as products of incomplete combustion.
- Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
Material can create slippery conditions.
- Environmental precautions : Do not allow uncontrolled discharge of product into the environment.
- 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 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.
-

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Material Safety Data Sheet

SUPREME^{TM/MC} 10W-40

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Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour filter

Hand protection
Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R).

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Protective measures : Wash contaminated clothing before re-use.
No special protective equipment required.

Hygiene measures : Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : viscous liquid

Colour : Light amber.

Odour : Mild petroleum oil like.

Odour Threshold : No data available

pH : No data available

Pour point : -42 °C (-44 °F)

Boiling point/boiling range : No data available

Flash point : 206 °C (403 °F)

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Method: Pensky-Martens closed cup

Fire Point	:	No data available
Auto-Ignition Temperature	:	No data available
Evaporation rate	:	No data available
Flammability	:	Low fire hazard. This material must be heated before ignition will occur.
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	0.8634 kg/l (15 °C / 59 °F)
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	105.4 cSt (40 °C / 104 °F)
		15.4 cSt (100 °C / 212 °F)
Explosive properties	:	Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	:	Hazardous polymerisation does not occur. Stable under normal conditions.
Conditions to avoid	:	No data available
Incompatible materials	:	Reactive with oxidising agents, reducing agents, acids and alkalis.
Hazardous decomposition products	:	May release COx, H2S, metal oxides, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Eye contact Ingestion Inhalation Skin contact
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Acute toxicity

Product:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Skin corrosion/irritation

Product:

Remarks: No data available

Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Remarks: No data available

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

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Toxicity to algae : Remarks: No data available

Toxicity to bacteria : Remarks: No data available

Persistence and degradability

Product:

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 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 Regulation

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Not applicable for product as supplied.

49 CFR

Not regulated as a dangerous good

TDG

Not regulated as a dangerous good

Special precautions for user

Not applicable

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Print Date 2015/02/09

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : Not Rated

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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

DSL	On the inventory, or in compliance with the inventory
TSCA	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
IECSC	On the inventory, or in compliance with the inventory
ELINCS	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

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.

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DURON^{TM/MC} -E 15W-40

000003000916

Version 3.0

Revision Date 2015/11/17

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DURON^{TM/MC} -E 15W-40

Product code : DE15P5R, DE15P20, DE15ICT, DE15IBC, DE15DRR, DE15DRM, DE15DR1, DE15DCT, DE15C16, DE15C12, DE15C02, DE15, DE15BLK

Manufacturer or supplier's details
Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga ON L5J 1K2
Canada

Emergency telephone number : Suncor Energy: +1 403-296-3000;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : DURON-E 15W-40 is a superior quality heavy duty diesel engine oil specifically designed for '07 EPA engine requirements along with improved performance benefits in legacy engines. Application includes modern low emission diesel engines with cooled exhaust gas recirculation and exhaust after treatment technology. It is suitable also for passenger car and light truck diesel engines, and spark ignition engines.

Prepared by : Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	viscous liquid
Colour	Light amber.
Odour	Mild petroleum oil like.

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Aggravated Medical Condition : None known.

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Carcinogenicity:

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

Hazardous components

No hazardous ingredients

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 eyes or 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 physician 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 : First aider needs to protect himself.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local

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circumstances and the surrounding environment.

- Unsuitable extinguishing media : No information available.
 - Specific hazards during firefighting : Cool closed containers exposed to fire with water spray.
 - Hazardous combustion products : Carbon oxides (CO, CO₂), sulphur oxides (SO_x), calcium oxides (CaO_x), aldehydes, smoke and irritating vapours as products of incomplete combustion.
 - Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
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.
In case of insufficient ventilation, wear suitable respiratory equipment.
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.



SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour filter

Hand protection
Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R).

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Protective measures : Wash hands and face before breaks and immediately after handling the product.
Wash contaminated clothing before re-use.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Hygiene measures : Wash face, hands and any exposed skin thoroughly after handling.
Remove and wash contaminated clothing and gloves, including the inside, before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : viscous liquid

Colour : Light amber.

Odour : Mild petroleum oil like.

Odour Threshold : No data available

pH : No data available

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Pour point	:	-42 °C (-44 °F)
Boiling point/boiling range	:	No data available
Flash point	:	235 °C (455 °F) Method: Cleveland open cup
Fire Point	:	239 °C (462 °F)
Auto-Ignition Temperature	:	No data available
Evaporation rate	:	No data available
Flammability	:	Low fire hazard. This material must be heated before ignition will occur.
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	0.8727 kg/l (15 °C / 59 °F)
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	118.2 cSt (40 °C / 104 °F) 15.6 cSt (100 °C / 212 °F)
Explosive properties	:	Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	:	Hazardous polymerisation does not occur. Stable under normal conditions.
Conditions to avoid	:	No data available
Incompatible materials	:	Reactive with oxidising agents, acids, halogens and halogenated compounds.
Hazardous decomposition products	:	May release COx, H2S, aldehydes, alkyl mercaptans, sulfides, methacrylate monomers, smoke and irritating vapours when heated to decomposition.

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SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Eye contact
Ingestion
Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Skin corrosion/irritation

Product:

Remarks: No data available

Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

SECTION 12. ECOLOGICAL INFORMATION

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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:

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 disposal company.
Waste must be classified and labelled prior to recycling or disposal.
Send to a licensed waste management company.
Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Not applicable for product as supplied.

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Not regulated as a dangerous good

TDG

Not regulated as a dangerous good

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : Not Rated

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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

DSL	On the inventory, or in compliance with the inventory
TSCA	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
IECSC	On the inventory, or in compliance with the inventory
ELINCS	At least one component is not listed in EINECS but all such components are listed in ELINCS.

SECTION 16. OTHER INFORMATION

For Copy of (M)SDS : The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:
Internet: lubricants.petro-canada.ca/msds
Western Canada, telephone: 1-800-661-1199; fax: 1-800-378-4518
Ontario & Central Canada, telephone: 1-800-268-5850; fax: 1-800-201-6285
Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 1-800-201-6285
For Product Safety Information: 1 905-804-4752

Prepared by : Product Safety: +1 905-804-4752

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

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DURON^{TM/MC} -E 15W-40

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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

PETRO-CANADA ANTIFREEZE



000003000606

Version 2.0

Revision Date 2016/03/07

Print Date 2016/03/07

SECTION 1. IDENTIFICATION

Product name : PETRO-CANADA ANTIFREEZE

Synonyms : Universal Antifreeze, Radiator Antifreeze, Diesel Antifreeze, Petro-Canada Antifreeze-Coolant, Petro-Canada Heavy Duty Antifreeze-Coolant, Pre-Mix Antifreeze, Petro-Canada Premium Radiator Antifreeze, Diesel Engine Coolant, Pre-Mixed Radiator Antifreeze/Coolant Petro-Canada.

Product code : RADDRX, RAD, RADC4U

Manufacturer or supplier's details
Petro-Canada
P.O. Box 2844, 150 - 6th Avenue South-West
Calgary Alberta T2P 3E3
Canada

Emergency telephone number : Suncor Energy: +1 403-296-3000;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : Used as an engine antifreeze coolant.

Prepared by : Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Clear liquid.
Colour	green
Odour	No data available
Hazard Summary	Toxic if swallowed. May cause teratogenicity/embryotoxicity

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Inhalation : May cause respiratory tract irritation.

Eyes : May cause eye irritation.

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Ingestion : Toxic if swallowed.
Ingestion of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.

Aggravated Medical Condition : 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

Hazardous components

Chemical Name	CAS-No.	Concentration
ethanediol	107-21-1	60 - 100 %

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 eyes or 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 contaminated 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 physician or poison control center.

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Never give anything by mouth to an unconscious person.
Seek medical advice.

Most important symptoms and effects, both acute and delayed : First aider needs to protect himself.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO₂)
Dry chemical
Foam
- Unsuitable extinguishing media : No information available.
- Specific hazards during fire-fighting : Cool closed containers exposed to fire with water spray.
- Hazardous combustion products : Carbon oxides (CO, CO₂), smoke and irritating vapours as products of incomplete combustion.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus and full protective wear.
Wear a positive-pressure supplied-air respirator with full face-piece.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
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 : Smoking, eating and drinking should be prohibited in the application area.
Do not ingest.
Avoid contact with skin, eyes and clothing.
Use only with adequate ventilation.

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In case of insufficient ventilation, wear suitable respiratory equipment.
Ensure all equipment is electrically grounded before beginning transfer operations.
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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
ethanediol	107-21-1	Ceiling	100 mg/m ³	CA AB OEL
		TWA (particulate)	10 mg/m ³	CA BC OEL
		STEL (particulate)	20 mg/m ³	CA BC OEL
		Ceiling (aerosol)	100 mg/m ³	CA BC OEL
		Ceiling (Vapour)	50 ppm	CA BC OEL
		Ceiling (Vapour and mist)	50 ppm 127 mg/m ³	CA QC OEL
		Ceiling (Aerosol only)	100 mg/m ³	ACGIH

Engineering measures : Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.

Personal protective equipment

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.
Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour filter

Hand protection
Material : nitrile rubber. 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

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material regardless of their imperviousness, 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-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eye protection	: Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Protective measures	: Wash contaminated clothing before re-use.
Hygiene measures	: Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Clear liquid.
Colour	: green
Odour	: No data available
Odour Threshold	: No data available
pH	: No data available
Melting point/range	: -13 °C (9 °F)
Boiling point/boiling range	: 197 °C (387 °F)
Flash point	: 111 °C (232 °F) Method: closed cup
Fire Point	: No data available
Auto-Ignition Temperature	: 398 °C (748 °F)
Evaporation rate	: < 0.01
Flammability	: May be combustible at high temperature.
Upper explosion limit	: 21.6 - 22.0 %(V)
Lower explosion limit	: 3.2 %(V)

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Vapour pressure	:	0.09 mmHg (20 °C / 68 °F)
Relative vapour density	:	estimated 2.14 Air = 1
Relative density	:	1.12 - 1.15 (20 °C / 68 °F) Water = 1
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: -1.36 (20 °C)
Viscosity		
Viscosity, kinematic	:	estimated 18.86 mm ² /s (20 °C / 68 °F)
Explosive properties	:	Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	:	Hazardous polymerisation does not occur. Stable under normal conditions.
Conditions to avoid	:	Heat, flames and sparks. Avoid temperatures above 111°C.
Incompatible materials	:	Reactive with oxidising agents, acids and alkalis.
Hazardous decomposition products	:	May release CO _x , smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Ingestion
Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: No data available
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	Remarks: No data available

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Components:

ethanediol:

Acute oral toxicity : LD50 (Rat): 4,700 mg/kg,
LD50 (Mouse): 5,500 mg/kg,
Acute inhalation toxicity : LC50 (Rat): 2.725 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Acute dermal toxicity : LD50 (Rabbit): 9,530 mg/kg,

Skin corrosion/irritation

Components:

ethanediol:

Result: Mild skin irritation

Serious eye damage/eye irritation

Components:

ethanediol:

Result: Mild eye irritation

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish :
Remarks: No data available

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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:

Biodegradability : Remarks: No data available

Bioaccumulative potential

Components:

ethanediol :

Partition coefficient: n-octanol/water : log Pow: -1.36

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : 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 Regulation

IATA-DGR

Not regulated as a dangerous good

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IMDG-Code

Not regulated as a dangerous good

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

Not applicable for product as supplied.

National Regulations

TDG

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : D1B: Toxic Material Causing Immediate and Serious Toxic Effects
D2A: Very Toxic Material Causing Other Toxic Effects

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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

DSL : On the inventory, or in compliance with the inventory
TSCA : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

SECTION 16. OTHER INFORMATION

For Copy of (M)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 : 2016/03/07

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.



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1. Identification

Product identifier	Brakleen® Brake Parts Cleaner
Other means of identification	
Product code	05089, 05089T, 85089, 85089AZ
Recommended use	Brake cleaner
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufactured or sold by:	
Company name	CRC Industries, Inc.
Address	885 Louis Dr. Warminster, PA 18974 US
Telephone	
General Information	215-674-4300
Technical Assistance	800-521-3168
Customer Service	800-272-4620
24-Hour Emergency (CHEMTREC)	800-424-9300 (US) 703-527-3887 (International)
Website	www.crcindustries.com

2. Hazard(s) identification

Physical hazards	Gases under pressure	Compressed gas
Health hazards	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 1B
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Contains gas under pressure; may explode if heated. Causes skin irritation. May cause drowsiness or dizziness. May cause cancer. Toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49°C/120°F. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Avoid breathing mist or vapor. Avoid breathing gas. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.
Response	If on skin: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash before reuse. 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 attention. Collect spillage.
Storage	Store locked up. Protect from sunlight. Store in a well-ventilated place. Exposure to high temperature may cause can to burst.

Disposal	Dispose of contents/container in accordance with local/regional/national regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

Supplemental information

When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Tetrachloroethylene	Perchloroethylene	127-18-4	90 - 100
Carbon dioxide		124-38-9	1 - 5

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	In the unlikely event of swallowing contact a physician or poison control center. Rinse mouth.
Most important symptoms/effects, acute and delayed	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Irritation of eyes and mucous membranes. Irritation of nose and throat. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Dry chemical, CO2, or water spray.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Contents under pressure. Exposure to high temperature may cause can to burst. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire fighting equipment/instructions	In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Avoid breathing gas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop the flow of material, if this is without risk. Collect spillage. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Use with adequate ventilation. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Use caution around energized equipment. The metal container will conduct electricity if it contacts a live source. This may result in injury to the user from electrical shock and/or flash fire. Avoid breathing mist or vapor. Avoid breathing gas. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only in well-ventilated areas. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid release to the environment. Do not empty into drains. For product usage instructions, please see the product label.

Conditions for safe storage, including any incompatibilities

Level 1 Aerosol.

Contents under pressure. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 49 °C/120 °F. Do not handle or store near an open flame, heat or other sources of ignition. Exposure to high temperature may cause can to burst. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	PEL	9000 mg/m3
		5000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Tetrachloroethylene (CAS 127-18-4)	Ceiling	200 ppm
	TWA	100 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
Tetrachloroethylene (CAS 127-18-4)	STEL	100 ppm
	TWA	25 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3
		30000 ppm
	TWA	9000 mg/m3 5000 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Tetrachloroethylene (CAS 127-18-4)	0.5 mg/l	Tetrachloroethylene	Blood	*
	3 ppm	Tetrachloroethylene	End-exhaled air	*

* - For sampling details, please see the source document.

Exposure guidelines

US - Minnesota Haz Subs: Skin designation applies

Tetrachloroethylene (CAS 127-18-4)

Skin designation applies.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower should be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear protective gloves such as: Viton®. Polyvinyl alcohol (PVA). Nitrile. Silver Shield®

Other

Wear appropriate chemical resistant clothing.

Respiratory protection

If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with an organic vapor cartridge. Use a self-contained breathing apparatus in confined spaces and for emergencies. Air monitoring is needed to determine actual employee exposure levels.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state

Liquid.

Form

Aerosol.

Color

Colorless.

Odor

Irritating.

Odor threshold

50 ppm

pH

Not available.

Melting point/freezing point

-8.1 °F (-22.3 °C) estimated

Initial boiling point and boiling range

250.3 °F (121.3 °C) estimated

Flash point

None (Tag Closed Cup)

Evaporation rate

Very fast.

Flammability (solid, gas)

Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

Not available.

Flammability limit - upper (%)

Not available.

Vapor pressure

1352.4 hPa estimated

Vapor density

5.76 (air = 1)

Relative density

1.62

Solubility (water)

0.02 % (77 °F (25 °C))

Partition coefficient (n-octanol/water)

Not available.

Auto-ignition temperature

Not available.

Decomposition temperature

Not available.

Viscosity (kinematic)

Not available.

Percent volatile

97.7 % estimated

Other information

Partition coefficient (oil/water)

2.88

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames and sparks. Contact with incompatible materials. When exposed to extreme heat or hot surfaces, vapors may decompose to harmful or fatal corrosive gases such as hydrogen chloride and possibly phosgene.
Incompatible materials	Strong oxidizing agents. Strong acids. Strong bases.
Hazardous decomposition products	Hydrogen chloride. Trace amounts of chlorine and phosgene. Carbon oxides. Halogenated materials. Carbonyl halides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful. May cause drowsiness and dizziness. Headache. Nausea, vomiting.
Skin contact	Causes skin irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics
May cause drowsiness and dizziness. Headache. Nausea, vomiting. Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity Narcotic effects.

Product	Species	Test Results
Brakleen® Brake Parts Cleaner		
Acute		
Dermal		
LD50	Rabbit	3305 mg/kg estimated
Inhalation		
LC50	Rat	20 mg/l, 4 Hours estimated
Oral		
LD50	Rat	2692 mg/kg estimated

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Tetrachloroethylene (CAS 127-18-4) 2A Probably carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

Tetrachloroethylene (CAS 127-18-4) Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause drowsiness and dizziness.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	May be an aspiration hazard.

Chronic effects

Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information**Ecotoxicity** Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
Brakleen® Brake Parts Cleaner		
Aquatic		
Fish	LC50	Fish
		19.1805 mg/l, 96 hours estimated
Components	Species	Test Results
Tetrachloroethylene (CAS 127-18-4)		
Aquatic		
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)
		4.73 - 5.27 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability Not available.**Bioaccumulative potential** Not available.**Partition coefficient n-octanol / water (log Kow)**

Tetrachloroethylene 2.88

Mobility in soil No data available.**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.**13. Disposal considerations****Disposal of waste from residues / unused products** This material and its container must be disposed of as hazardous waste. Consult authorities before disposal. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations.**Hazardous waste code**
D039: Waste Tetrachloroethylene
F001: Waste Halogenated Solvent - Spent Halogenated Solvent Used in Degreasing
F002: Waste Halogenated Solvent - Spent Halogenated Solvent**US RCRA Hazardous Waste U List: Reference**

Tetrachloroethylene (CAS 127-18-4) U210

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.**14. Transport information****DOT**

UN number UN1950
UN proper shipping name Aerosols, poison, Packing Group III, Limited Quantity
Transport hazard class(es)
Class 2.2
Subsidiary risk 6.1(PGIII)
Label(s) 2.2, 6.1
Packing group Not applicable.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Packaging exceptions 306
Packaging non bulk None
Packaging bulk None

IATA

UN number UN1950
UN proper shipping name Aerosols, non-flammable, containing substances in Division 6.1, Packing Group III, Limited Quantity
Transport hazard class(es)
Class 2.2
Subsidiary risk 6.1
Packing group Not applicable.

Environmental hazards	No.
ERG Code	2P
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS
Transport hazard class(es)	
Class	2
Subsidiary risk	6.1
Packaging group	Not applicable.
Environmental hazards	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

SARA 304 Emergency release notification

Not regulated.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Tetrachloroethylene (CAS 127-18-4) LISTED

CERCLA Hazardous Substance List (40 CFR 302.4)

Tetrachloroethylene (CAS 127-18-4) Listed.

CERCLA Hazardous Substances: Reportable quantity

Tetrachloroethylene (CAS 127-18-4) 100 LBS

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Tetrachloroethylene (CAS 127-18-4)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 Immediate Hazard - Yes

Hazard categories Delayed Hazard - Yes

Fire Hazard - No

Pressure Hazard - Yes

Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

US state regulations

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Tetrachloroethylene (CAS 127-18-4)

US. New Jersey Worker and Community Right-to-Know Act

Carbon dioxide (CAS 124-38-9)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Carbon dioxide (CAS 124-38-9)

Tetrachloroethylene (CAS 127-18-4)

US. New Jersey Worker and Community Right-to-Know Act

Tetrachloroethylene (CAS 127-18-4)

US. Pennsylvania Worker and Community Right-to-Know Law

Tetrachloroethylene (CAS 127-18-4)

US. Rhode Island RTK

Tetrachloroethylene (CAS 127-18-4)

US. Pennsylvania Worker and Community Right-to-Know Law

Carbon dioxide (CAS 124-38-9)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Tetrachloroethylene (CAS 127-18-4)

Listed: April 1, 1988

Volatile organic compounds (VOC) regulations**EPA****VOC content (40 CFR 51.100(s))** 0 %**Consumer products (40 CFR 59, Subpt. C)** Not regulated**State****Consumer products** This product is regulated as a Brake Cleaner. This product is not compliant to be sold for use in California and New Jersey. This product is compliant in all other states.**VOC content (CA)** 0 %**VOC content (OTC)** 0 %**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	12-20-2013
Revision date	10-29-2015
Prepared by	Allison Cho
Version #	03
Further information	CRC # 491G

HMIS® ratings

Health: 2*
Flammability: 0
Physical hazard: 0
Personal protection: B

NFPA ratings

Health: 2
Flammability: 0
Instability: 0

NFPA ratings



Disclaimer

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries' knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this (M)SDS consult your supervisor, a health & safety professional, or CRC Industries.