The KAP Property

2024 Land Use Permit Application

Spill Contingency Plan

Version 1.1

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Introduction

This *Spill Contingency Plan* is effective from the date of issuance of the Land Use Permit currently being applied for by Integral Metals Corp. (Integral) on its KAP property located approximately 315 km northwest of Fort Simpson, NWT, until the expiry of said permit. The Spill Contingency Plan has been prepared for internal company use and distributed to the Sahtu Land and Water Board for approval, as part of Integral's Land Use Permit application. Copies and updates of this Plan may be obtained by contacting:

Jared Suchan
Vice President of Exploration
Phone: 306-531-6022
Email: jared@integralmetals.com

The purpose of Integral's *Spill Contingency Plan* is to provide a plan of action for any spill event during the Company's exploration programs in the project area. This plan provides protocol for responding to spills (or potential spills) that will minimize health and safety hazards, environmental damage, and clean-up costs, as well as defining responsibilities of response personnel. This plan includes details for the sites that operations will be conducted upon, and describes the response organization, action plans, reporting procedures and training exercises in place.

Site Information

The KAP campsite is tentatively located at the following coordinates: 63°16'38.8"N 126°47'55.0"W. Capacity for the camp will be to a maximum of 30 people with the average being around 15 for the majority of the exploration program. Table 1 presents a tentative list of structures to be erected at the campsite. Up to 30 bottles (100 lbs) of propane are to be stored in camp. Between the two fuel caches, up to 150 drums (205 L) of aviation fuel, diesel, and gasoline are to be stored. All fuel is to be stored within a secondary containment. The caches will be located a minimum of 100 m from the normal high-water mark, and in such a manner that no fuel can enter any such waterbody. Regular inspections of fuel will be conducted to ensure there are no leakage or spills. Spill kits will be provided at each cache and will be restocked after each use.

Table 1 Campsite structures.

Item, Purpose	Quantity	Dimensions (m)	Area (m^2)
Tent, Sleeper	3	4.3 x 4.8	20.6
Tent, Kitchen	1	4.3 x 9.8	42.1
Tent, Dry	1	4.3 x 12.2	52.5
Tent, Office	1	4.3 x 4.8	20.6
Tent, Core Logging	1	4.3 x 4.8	20.6
Tent, Washroom	1	4.3 x 4.8	20.6
Shack, Generators	1	2.4 x 2.4	5.8

Response Organization

The Camp Technician will be responsible for checking fuel drum conditions and evidence of leakage daily, assuring drip trays are in place and not overflowing; keeping spill kits and absorbent mats in good repair and accessible. If spill or likelihood of a spill occurs, the Technician will immediately report to the Project Supervisor. Pilots are to report spills or potential spills to the Project Supervisor. In the even of a spill, the Project Supervisor will follow the Reporting Procedure and initiate cleanup. The Project Supervisor will request additional aid from external sources if deemed necessary.

If one or more of these key personnel are absent from the site, then an alternative person will be named as either Camp Technician or Project Supervisor in the interim. Names of key personnel to be responsible for activating the spill contingency plan will be made available once crew members have been hired.

Reporting Procedure

Table 2 presents the reporting procedure, and Table 3 presents additional information and contacts regarding spills. Communication in the way of two-way radios will be set-up, such that in the event a spill occurs outside of camp, it can be immediately reported to the Project Supervisor. Spill kits located at all fuel sources will have contact information for the NWT Spill Report Line prominently displayed. A listing of the NWT 24-Hour Spill Report Line as well as other government contacts and company officials will be displayed adjacent to the satellite phone in camp. Appendix I provides a guide to reportable spill volumes.

Table 2 Spill reporting procedure.

Step	Item
1	Fill out "SPILL REPORT" form as completely as possible before making the report. The form is located in Appendix II.
2	Report IMMEDIATELY: To: Yellowknife using the 24-hour Spill Report Line: (867) 920-8130 Calls can be made collect by informing the Operator that you wish to report a spill. To: RCMP if other means are not available.

Table 3 Additional information or assistance regarding spills.

Contact	Phone Number
Regulatory Bodies	
Government of Northwest Territories Department of Lands – Sahtu Norman Wells	(867) 578-7200
Environment Canada Environmental Enforcement 24 Hour Duty Officer Edmonton	(780) 499-2432
National Environmental Emergencies Center (NEEC) Toll-Free	(866) 283-2333
Environment and Climate Change (ECCC) Environmental Enforcement	(867) 669-4730
RCMP Detachment Norman Wells	(867) 587-1111
Contractors	
Northridge Contracting Ltd. Norman Wells	(867) 587-5020
Kalo Due Limited Partnership Tulita	(867) 588-3745
Company	
Jared Suchan Integral Metals	(306) 531-6022

Initial Action

Table 4 presents the procedure any individual will follow when a spill is detected.

Table 4 Initial action procedure.

Step	Item
1	Stay alert and consider safety first.
2	Identify: a. The source of leak or spill b. The type of product
3	Assess the hazards to persons in the vicinity of the spill.
4	Isolate or remove any potential ignition source.
5	If possible, control danger to human life.
6	Assess whether the spill can be readily stopped or brought under control.
7	If safe and if possible, try to stop the flow.
8	Report the spill to the Project Supervisor, who will following the *Spill Reporting Procedure*.
9	When safe, begin clean-up.

Action Plans

The following responses are recommended for fuel spills in differing environments. Depending on the location and size of the exploration program, some of the equipment mentioned in the responses listed below will obviously not be located on site; however, they could be transported to the spill if deemed necessary. The most likely sources of fuel spills in this type of exploration program include: (a) leaking drums, (b) hydraulic-line malfunction, and (c) re-fueling operations. It is not anticipated that a spill of more than 205 L could occur, as no fuel container on-site will exceed this capacity.

Spills on Land

Table 5 presents the procedure to follow when a spill is detected on land. This includes gravel, rock, soil, and vegetated surface areas.

Table 5 Procedure for land spills.

Step	Item
1	Trench or ditch to intercept or contain flow of fuel or petroleum products on land where feasible (loose sand, gravel and surface layers of organic materials are amenable to ditching/trenching; ditching-trenching in rocky substrates is typically impractical and impossible.)
2	Construct a soil berm downslope of the spill. Use of synthetic, impervious sheeting can also be used to act as a barrier.
3	Where available, recover spills through manual or mechanical means including shovels, heavy equipment and pumps.
4	Absorb petroleum residue with synthetic sorbent pad materials.
5	Recover spilled and contaminated material, including soil and vegetation.
6	Transport contaminated material to approved disposal or recovery site. Equipment used will depend on the magnitude and location of the spill. Note that land-based disposal is only authorized with the approval of government authorities.

Spills on Snow

Table 6 presents the procedure to follow when a spill is detected on snow.

Table 6 Procedure for snow spills.

Step	Item
1	Trench or ditch to intercept or contain flow of fuel or petroleum products on snow, where feasible (ice, snow, loose sand, gravel and surface layers of organic materials as amenable to trenching/ditching; trenching in solid, frozen ground or rocky substrates is typically impractical and impossible).
2	Compact snow around the outside perimeter of the spill area.
3	Construct a dike or dam out of snow, either manually with shovels or with heavy equipment such a graders and dozers where available
4	If feasible, use synthetic liners to provide an impervious barrier at the spill site.
5	Locate the low point of the spill area and clear channels in the snow, directed away from waterways, to allow non-absorbed material to flow into the low point.
6	Once collected in the low area, options include shoveling spilled material into containers, picking up with mobile heavy-equipment, pumping liquid into tanker trucks or using vacuum truck to pick up material.
7	Where safe, disposal can be done through in-situ combustion with approval from government and safety consultants.
8	Transport contaminated material to approved disposal site. Equipment used will depend on the magnitude and location of the spill.

Spills on Ice

Table 7 presents the procedure to follow when a spill is detected on ice.

Table 7 Procedure for ice spills.

Step	Item
1	Contain material spill using methods described above for snow, if feasible and/or mechanical recovery with heavy equipment
2	Prevent fuel/petroleum products from penetrating ice and entering watercourses. Remove contaminated material, including snow/ice as soon as possible.
3	Containment of fuel/petroleum products under ice surface is difficult given the ice thickness and winter conditions. However, if the materials get under ice, determine area where the fuel/petroleum product is located
4	Drill holes through ice using ice-auger to locate fuel/petroleum product.
5	Once detected, cut slots in the ice using chain-saws and remove ice blocks. Fuel/petroleum products collected in ice slots or holes can be picked up via suction hoses connected to portable pump, vacuum truck or standby tanker. Care should be taken to prevent the end of the suction hose clogging up by snow, ice or debris.
6	Fuel/petroleum products that have collected in ice slots may be disposed of by in-situ burning if sufficient holes are drilled in ice. Once all the holes are drilled, the oil which collects in the holes may be ignited. Consult with fire/safety consultants and government authorities to obtain approval.

Spills on Water

Table 8 presents the procedure to follow when a spill is detected on ice.

Table 8 Procedure for ice spills.

Step	Item
1	Contain spills on open water immediately to restrict the size and extent of the spill
2	Fuel/petroleum products which float on water may be contained through the use of booms, absorbent materials, skimming and the erection of culverts
3	Deploy containment booms to minimize spill area, although effectiveness of booms may be limited by wind, waves and other factors.
4	Use sorbent booms to slowly encircle and absorb spilled material. These absorbents are hydrophobic (repel water).
5	Once booms are secured, use skimmers to draw in hydrocarbons and minimal amounts of water. Skimmed material can be pumped through hoses to empty fuel tanks/drums
6	Culverts permit water flow while capturing and collecting fuel along the surface with absorbent materials.
7	Chemical methods including dispersants, emulsion-treating agents and shoreline cleaning will be considered.

Safety Data Sheets (SDS) for all hazardous materials involved in this project are listed in Appendix III. The MSDS sheets are for diesel, propane, Jet A, Jet B, gasoline and engine oils. In-situ combustion is a disposal method available for fuels and petroleum products. In-situ burning can be initiated by using a large size portable propane torch (tiger torch) to ignite the fuel/petroleum products. Highly flammable products such as gasoline or alcohol, or combustible material such as wood, may be used to promote ignition of the spilled product. The objective is to raise the temperature for sustained combustion of the spilled product. Precautions need to be taken to ensure safety of personnel. Also, spilled product should be confined to control burning. These include area where the spilled material has pooled naturally or been contained via dikes, trenches, depressions or ice slots. Prior to any attempts at in-situ burning, consultation with experts and approval by government authorities are required.

Chemical response methods are also available and may include the use of dispersants, emulsion-treating agents, visco-elastic agents, herding agents, solidifiers, and shoreline-cleaning agents. Biological response methods include nutrient enrichment and natural microbe seeding. Any site remediation will be completed as per the advice of government authorities.

Resource Inventory

The following items will be made available on-site to ensure the action plans may be executed in the event of a spill: (1) Trenching/digging equipment in the form of picks and shovels, (2) Absorbent material (pads), (3) Booms, (4) Pumps, (5) Impervious sheeting (tarps), and (6) Plastic bags, buckets, empty drums for collection of contaminated material. Additional resources may be obtained from Northridge Contracting Ltd. (867-587-5020) or Kalo Due Limited Partnership (867-588-3745), including larger pumps, Bobcats, and excavators.

Training/Exercise

All contract personnel will be briefed and given a copy of the Fuel Spill Contingency Plan before field operations begin. Mock spill-response exercises will be conducted early in the program to ensure that response criteria, communication and reporting requirements are met and fully understood.

Appendix I – Reportable Spill Volumes

Reportable Spills in the Northwest Territories

NOTE: L = LITRE; KG = KILOGRAM; PCB = POLYCHLORINATED BIPHENYLS; PPM = PARTS PER MILLION

Substance	Reportable Quantity
Explosives Compressed gas (toxic/corrosive) Infectious substances Sewage and Wastewater (unless otherwise authorized) Radioactive materials Unknown substance	Any amount
Compressed gas (Flammable) Compressed gas (Non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100L
Flammable liquid	≥100 L
Flammable solid Substances liable to spontaneous combustion Water reactant substances	≥ 25 kg
Oxidizing substances	≥ 50 L or 50 kg
Organic peroxides Environmentally hazardous substances intended for disposal	≥1 L or 1 kg
Toxic substances	≥ 5 L or 5 kg
Corrosive substances Miscellaneous products, substances or organisms	≥ 5 L or 5 kg

Substance	Reportable Quantity
PCB mixtures of 5 or more ppm	≥ 0.5 L or 0.5 kg
Other contaminants--for example, crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, wastewater.	≥ 100 L or 100 kg
Sour natural gas (i.e., contains H_2S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more
Flammable liquid Vehicle fluid	≥ 20 L When released on a frozen water body that is being used as a working surface
Reported releases or potential releases of any size that: are near or in an open water body; are near or in a designated sensitive environment or habitat; Pose an imminent threat to human health or safety; or Pose an imminent threat to a listed species at risk or its critical habitat	Any amount

In addition, any releases, regardless of quantity, are to be reported if near or into a body of water, designated sensitive environment or sensitive habitat, poses imminent threat to human health or safety, poses imminent threat to listed species at risk or its critical habitat, or is uncontrollable.

Appendix II – Spill Report Form

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ 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	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS		

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC

SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN

FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

Appendix III – Safety Data Sheets

PETRO-CANADA

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	B-3, D-2B		

Section 1. Chemical Product and Company Identification

Product Name	**DIESEL FUEL**	**Code**	W104 SAP: 120, 121, 122, 287
		Validated on	**3/2/2001.**
Synonym	Diesel 50, Diesel 50 LS, #1 Diesel , #1 Diesel LS, Diesel LC, Seasonal Diesel, Seasonal Diesel LS, Diesel AA, Domestic Marine Diesel, International marine Diesel, Seasonal Diesel Locomotive, Domestic Marine diesel LS, diesel -20°C (LS), LSD, Low Sulphur Diesel, dyed diesel, marked diesel, coloured diesel, Naval Distillate.		
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	**In case of Emergency**	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type.		

Section 2. Composition and Information on Ingredients

			Exposure Limits (ACGIH)		
Name	**CAS #**	**% (V/V)**	**TLV-TWA(8 h)**	**STEL**	**CEILING**
1) Diesel oil. 2) Proprietary additives. 3) Aromatic content is 50% maximum (benzene: nil). 4) * Notice of Intended Change (2000): 100 mg/m³, skin, A3.	68334-30-5 Not available	>99.9 <0.1	Not established* Not established	Not established Not established	Not established Not established

Manufacturer Recommendation	Not applicable
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.

Section 3. Hazards Identification.

Potential Health Effects	Eye contact may cause mild eye irritation. Skin contact can cause moderate to severe irritation and produce drying, cracking, or defatting dermatitis. Inhalation of vapours can cause CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconciousness and possibly death. Inhalation can also cause irritation of nose and throat. Aspiration of liquid drops into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure. For more information, refer to Section 11.

Section 4. First Aid Measures

Eye Contact	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.
Skin Contact	Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Seek medical attention.
Inhalation	Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform artificial respiration. Allow the victim to rest in a well ventilated area. Seek medical attention.
Ingestion	DO NOT induce vomiting because of danger of aspirating liquid into lungs. Seek medical attention.
Note to Physician	Not available

Section 5. Fire-fighting Measures

Flammability	Class II - combustible liquid (NFPA).	**Flammable Limits**	LOWER: 0.7%, UPPER: 6%
Flash Points	Diesel Fuel: Closed Cup: >40ºC (>104ºF) Marine Diesel Fuel: Closed Cup: >60ºC (>140ºF)	**Auto-Ignition Temperature**	225ºC (437ºF)
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames, sparks, or 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. May accumulate in confined spaces.	**Explosion Hazards in Presence of Various Substances**	Containers may explode in heat of fire. Do not cut, weld, heat, drill or pressurize empty container. Vapour explosion hazard indoors, outdoors or in sewers. Runoff to sewer may create fire or explosion hazard.
Products of Combustion	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), sulphur compounds (H2S), water vapour (H2O), smoke and irritating vapours as products of incomplete combustion.		

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Available in French

Fire Fighting Media and Instructions	NAERG96, GUIDE 128, Flammable liquids (Non-polar/Water-immiscible). CAUTION: This product has a moderate flash point above 40ºC: Use of water spray when fighting fire may be inefficient. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. SMALL FIRES: Dry chemical, CO_2, water spray or regular foam. LARGE FIRES: Water spray, fog or regular foam. Do not use straight streams. Move containers from fire area if you can do it without risk. Fires Involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting devices or any discolouration of tank. ALWAYS stay away from the ends of tanks. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6. Accidental Release Measures

Material Release or Spill	NAERG96, GUIDE 128, Flammable Liquids (Non-polar/ Water-immiscible). ELIMINATE ALL IGNITION SOURCES. Avoid contact. Stop leak if without risk. Contain spill. Absorb with inert absorbents, dry clay, or diatomaceous earth. Avoid inhaling dust of diatomaceous earth for it may contain silica in very fine particle size, making this a potential respiratory hazard. Place used absorbent in closed metal containers for later disposal or burn absorbent in a suitable combustion chamber. DO NOT FLUSH TO SEWERS, STREAMS OR OTHER BODIES OF WATER. Check with applicable jurisdiction for specific disposal requirements of spilled material and empty containers. Notify the appropriate authorities immediately.

Section 7. Handling and Storage

Handling	Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk. DO NOT reuse empty containers without commercial cleaning or reconditioning. Ground/bond line and equipment during pumping or transfer to avoid accumulation of static charge. DO NOT ingest. Do not breathe gas/vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately. Avoid contact with skin and eyes. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods.
Storage	Store in tightly closed containers in cool, dry, isolated, well-ventilated area, and away from incompatibles. Ground all equipment containing material.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
Personal Protection -	***The selection of personal protective equipment varies, depending upon conditions of use.***
Eyes	Eye protection (i.e., safety glasses, safety goggles and/or face shield) should be determined based on conditions of use. If product is used in an application where splashing may occur, the use of safety goggles and/or a face shield should be considered.
Body	Wear appropriate clothing to prevent skin contact. As a minimum long sleeves and trousers should be worn.
Respiratory	Where concentrations in air may exceed the occupational exposure limits given in Section 2 (and those applicable to your area) and where engineering, work practices or other means of exposure reduction are not adequate, NIOSH approved respirators may be necessary to prevent overexposure by inhalation.
Hands	Wear appropriate chemically protective gloves. When handling hot product ensure gloves are heat resistant and insulated.
Feet	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Bright oily liquid.	**Viscosity**	1.3-4.1 cSt @ 40ºC (104ºF)
Colour	Clear to yellow / brown. Low sulphur diesel fuels (<0.05 wt % sulphur) are colourless to light yellow (and may be dyed red for taxation purposes). Regular sulphur diesel fuels (0.05-0.50 % sulphur) may be colourless to yellow / brown and are usually dyed red for taxation purposes.	**Pour Point**	Variable, 0ºC to -50ºC (32ºF to -58ºF)
Odour	Petroleum oil like.	**Softening Point**	Not applicable.
Odour Threshold	Not available	**Dropping Point**	Not applicable.
Boiling Point	150-371ºC (302-700ºF)	**Penetration**	Not applicable.
Density	0.85 kg/L @ 15ºC (Water = 1).	**Oil / Water Dist. Coefficient**	Not available
Vapour Density	4.5 (Air = 1)	**Ionicity (in water)**	Not applicable.

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Vapour Pressure	1.0 kPa @ 20ºC (7.5 mmHg @ 68ºF).	**Dispersion Properties**	Not available
Volatility	<0.1 (Butyl acetate = 1), less than gasoline.	**Solubility**	Insoluble in cold water, soluble in non-polar hydrocarbon solvents.

Section 10. Stability and Reactivity

Corrosivity	Not available		
Stability	The product is stable under normal handling and storage conditions.	**Hazardous Polymerization**	Will not occur under normal working conditions.
Incompatible Substances / Conditions to Avoid	Reactive with oxidizing agents and acids.	**Decomposition Products**	May release COx, NOx, SOx, H2S, H2O, smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation, and ingestion.
Acute Lethality	Acute oral toxicity (LD50): 7500 mg/kg (rat).
Chronic or Other Toxic Effects	
Dermal Route:	Skin contact may cause moderate to severe irritation. Repeated exposure would produce drying and cracking or defatting dermatitis.
Inhalation Route:	Inhalation of vapours can cause CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconciousness and possibly death. Inhalation can also cause irritation of nose and throat.
Oral Route:	Aspiration of liquid drops into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure.
Eye Irritation/Inflammation:	Eye contact may cause mild irritation, but no permanent damage.
Immunotoxicity:	Not available
Skin Sensitization:	This product is not expected to be a skin sensitizer, based on the available data and the known hazards of the components.
Respiratory Tract Sensitization:	This product is not expected to be a respiratory tract sensitizer, based on the available data and the known hazards of the components.
Mutagenic:	This product is not expected to be a mutagen, based on the available data and the known hazards of the components.
Reproductive Toxicity:	This product is not expected to be a reproductive hazard, based on the available data and the known hazards of the components.
Teratogenicity/Embryotoxicity:	This product is not expected to be a teratogen or an embryotoxin, based on the available data and the known hazards of the components.
Carcinogenicity (ACGIH):	ACGIH Notice of Intended Changed (2000): proposed A3: animal carcinogen. [Diesel oil]
Carcinogenicity (IARC):	This product is not known to contain any chemicals at reportable quantities that are listed as group 1, 2A or 2B carcinogens by IARC.
Carcinogenicity (NTP):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP.
Carcinogenicity (IRIS):	Not available
Carcinogenicity (OSHA):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA.
Other Considerations	No additional remark.

Section 12. Ecological Information

Environmental Fate	Not available	**Persistance/ Bioaccumulation Potential**	Not available
BOD5 and COD	Not available	**Products of Biodegradation**	Not available
Additional Remarks	No additional remark.		

Section 13. Disposal Considerations

Waste Disposal Preferred waste management priorities are: (1) recycle or reprocess; (2) incineration with energy recovery; (3) disposal at licensed waste disposal facility. Ensure that disposal or reprocessing is in compliance with government requirements and local disposal regulations. Consult your local or regional authorities.

Section 14. Transport Information

TDG Classification
Diesel Fuel
UN1202
3
III

Special Provisions for Transport Not applicable.

Section 15. Regulatory Information

Other Regulations

This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).

All components of this formulation are listed on the US EPA-TSCA Inventory.

All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).

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

Please contact Product Safety for more information.

DSD/DPD (Europe) Not evaluated.

HCS (U.S.A.)
CLASS: Irritating substance.
CLASS: Target organ effects.
CLASS: Combustible liquid having a flash point between 37.8°C (100°F) and 93.3°C (200°F).

ADR (Europe) (Pictograms)
NOT EVALUATED FOR EUROPEAN TRANSPORT

NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.

DOT (U.S.A) (Pictograms)

HMIS (U.S.A.)

Health Hazard	2*
Fire Hazard	2
Reactivity	0
Personal Protection	H

NFPA (U.S.A.)

Rating
0 Insignificant
1 Slight
2 Moderate
3 High
4 Extreme

Section 16. Other Information

References Available upon request.
* Marque de commerce de Petro-Canada - Trademark

Glossary

ACGIH - American Conference of Governmental Industrial Hygienists
ADR - Agreement on Dangerous goods by Road (Europe)
ASTM - American Society for Testing and Materials (
BOD5 - Biological Oxygen Demand in 5 days
CAN/CGA B149.2 Propane Installation Code
CAS - Chemical Abstract Services
CEPA - Canadian Environmental Protection Act
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
CFR - Code of Federal Regulations
CHIP - Chemicals Hazard Information and Packaging Approved Supply List
COD5 - Chemical Oxygen Demand in 5 days
CPR - Controlled Products Regulations
DOT - Department of Transport
DSCL - Dangerous Substances Classification and Labeling (Europe)
DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe)
DSL - Domestic Substance List
EEC/EU - European Economic Community/European Union
EINECS - European Inventory of Existing Commercial Chemical Substances
EPCRA - Emergency Planning and Community Right to Know Act
FDA - Food and Drug Administration
FIFRA - Federal Insecticide, Fungicide and Rodenticide Act
HCS - Hazardous Communication System
HMIS - Hazardous Material Information System
IARC - International Agency for Research on Cancer
IRIS - Integrated Risk Information System
LD50/LC50 - Lethal Dose/Concentration kill 50%
LDLo/LCLo - Lowest Published Lethal Dose/Concentration
NAERG'96 - North American Emergency Response Guide Book (1996)
NFPA - National Fire Prevention Association
NIOSH - National Institute for Occupational Safety & Health
NPRI - National Pollutant Release Inventory
NSNR - New Substances Notification Regulations (Canada)
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
SARA - Superfund Amendments and Reorganization Act
SD - Single Dose
STEL - Short Term Exposure Limit (15 minutes)
TDG - Transportation Dangerous Goods (Canada)
TDLo/TCLo - Lowest Published Toxic Dose/Concentration
TLm - Median Tolerance Limit
TLV-TWA - Threshold Limit Value-Time Weighted Average
TSCA - Toxic Substances Control Act
USEPA - United States Environmental Protection Agency
USP - United States Pharmacopoeia
WHMIS - Workplace Hazardous Material Information System

For Copy of MSDS
Fuels & Solvents:
Western Canada, telephone: 403-296-4158; fax: 403-296-6551
Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1228
Quebec & Eastern Canada, telephone: 514-640-8308; fax: 514-640-8385

For Product Safety Information: (905) 804-4752

Prepared by Product Safety - TAR on 3/2/2001.

Data entry by Product Safety - JDW.

Continued on Next Page *Available in French*

SAFETY DATA SHEET

DURON TM/MC UHP 10W-40

000003000320

Version 4.5 | Revision Date 2021/07/29 | Print Date 2021/07/29

SECTION 1. IDENTIFICATION

Product name : DURON TM/MC UHP 10W-40

Product code : DUHP14CBE, DUHP14C20, DUHP14BOX, DUHP14P5R, DUHP14DRR, DUHP14ICT, DUHP14C12, DUHP14C16, DUHP14P20, DUHP14IBC, DUHP14DCT, DUHP14DRM, DUHP14, DUHP14BLK

Manufacturer or supplier's details

Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga ON L5J 1K2
Canada

Telephone : 1-905-403-6785

Emergency telephone number

Emergency telephone number : CHEMTREC: 1-800-424-9300;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : DURON UHP 10W-40 is a superior quality heavy duty, low ash diesel engine oil specifically designed to meet or exceed API CK-4 performance requirements. It is capable of delivering extended drain performance (in combinations with an effective used oil analysis program). Applications include modern low emission diesel engines with cooled exhaust gas recirculation and exhaust after treatment technology.

Prepared by : Product Safety: +1 905-491-0565

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

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.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)

Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based; Baseoil — unspecified	72623-86-0	40 - 60
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based; Baseoil — unspecified	72623-87-1	30 - 50
Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil — unspecified	64742-54-7	20 - 40
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, high-viscosity; Baseoil — unspecified	72623-85-9	20 - 30
reaction mass of isomers of: C7-9-alkyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate	125643-61-0	1 - 5
bis(nonylphenyl)amine	36878-20-3	1 - 5
Zinc alkyldithiophosphate	113706-15-3	1 - 5
Distillates (petroleum), solvent-dewaxed heavy paraffinic; Baseoil — unspecified	64742-65-0	1 - 5

Actual concentration or concentration range is withheld as a trade secret

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.
Specific hazards during fire-fighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion products	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), phosphorus oxides (POx), sulphur compounds (H2S), zinc oxides (ZnOx), metal oxides, hydrocarbons, 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. Mark the contaminated area with signs and prevent access to unauthorized personnel. Only qualified personnel equipped with suitable protective equipment may intervene.
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 protection against fire and explosion	:	None known.
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

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil — unspecified	64742-54-7	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based; Baseoil — unspecified	72623-86-0	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based; Baseoil — unspecified	72623-87-1	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, high-viscosity; Baseoil — unspecified	72623-85-9	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL

		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Distillates (petroleum), solvent-dewaxed heavy paraffinic; Baseoil — unspecified	64742-65-0	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	0.2 mg/m3	CA BC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH

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®.

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	:	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	:	229 °C (444 °F) Method: Cleveland open cup
Fire Point	:	241 °C (466 °F)
Evaporation rate	:	No data available
Flammability	:	Remarks: Low fire hazard. This material must be heated before ignition will occur.
Auto-Ignition Temperature	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	0.8619 kg/l (15 °C)
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	107.5 cSt (40 °C / 104 °F)
		15.5 cSt (100 °C / 212 °F)

Explosive properties	:	Do not pressurize, 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 and reducing agents.
Hazardous decomposition products	:	May release COx, H2S, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

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	:	Assessment: The substance or mixture has no acute inhalation toxicity Remarks: No data available
Acute dermal toxicity	:	Assessment: The substance or mixture has no acute dermal toxicity Remarks: No data available

Components:

Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based; Baseoil — unspecified:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg,
Acute inhalation toxicity	:	LC50 (Rat): > 5.2 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg,

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based; Baseoil — unspecified:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg,
Acute inhalation toxicity	:	LC50 (Rat): > 5.2 mg/l

Exposure time: 4 h
Test atmosphere: dust/mist

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

Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil — unspecified:
Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg,

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

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, high-viscosity; Baseoil — unspecified:
Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg,

Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

Distillates (petroleum), solvent-dewaxed heavy paraffinic; Baseoil — unspecified:
Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg,

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg,

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

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/aquatic plants	:	Remarks: No data available
Toxicity to microorganisms	:	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 Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

National Regulations

TDG

Not regulated as a dangerous good

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.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
CA QC OEL	:	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
ACGIH / TWA	:	8-hour, time-weighted average
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA AB OEL / STEL	:	15-minute occupational exposure limit
CA BC OEL / TWA	:	8-hour time weighted average
CA QC OEL / TWAEV	:	Time-weighted average exposure value
CA QC OEL / STEV	:	Short-term exposure value

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

perature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

For Copy of SDS	:	Internet: lubricants.petro-canada.com/sds 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: 1 905-491-0565
Prepared by	:	Product Safety: +1 905-491-0565
Revision Date	:	2021/07/29
Date format	:	yyyy/mm/dd

The information is considered as correct, but not exhaustive, and will be used only as a guide, which is based in the current knowledge of the substance or mixture, and is applicable to proper safety precautions for the product.

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

CA / EN

SAFETY DATA SHEET

DURON TM/MC SAE 30

000003000460

Version 2.4 | Revision Date 2021/02/23 | Print Date 2021/02/23

SECTION 1. IDENTIFICATION

Product name : DURON TM/MC SAE 30

Product code : DUR3IBC, DUR3P5R, DUR3P20, DUR3DRR, DUR3DRM, DUR3DCT, DUR3C16, DUR3C12, DUR3, DUR3BLK

Manufacturer or supplier's details

Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga ON L5J 1K2
Canada

Telephone : 1-905-403-6785

Emergency telephone number

Emergency telephone number : CHEMTREC: 1-800-424-9300;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : DURON single grade oils are intended for use in diesel and spark ignition engines according to the specific viscosity grade and performance level for each grade of product. They may also be used for wet clutch and gear type transmissions and hydraulic systems in line with equipment builder specifications.

Prepared by : Product Safety: +1 905-491-0565

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

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.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, high-viscosity; Baseoil — unspecified	72623-85-9	50 - 70

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based; Baseoil — unspecified	72623-87-1	30 - 50
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based; Baseoil — unspecified	72623-86-0	10 - 20
Phosphorodithioic acid, mixed O,O-bis(sec-Bu and isooctyl) esters, zinc salts	113706-15-3	1 - 5

Actual concentration or concentration range is withheld as a trade secret

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.
Specific hazards during firefighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion products	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), phosphorus oxides (POx), sulphur compounds (H2S), zinc oxides (ZnOx), metal oxides, hydrocarbons, smoke and irritating vapours as products of incomplete com-

bustion.

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.
Mark the contaminated area with signs and prevent access to unauthorized personnel.
Only qualified personnel equipped with suitable protective equipment may intervene.

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 protection against fire and explosion : None known.

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

Components with workplace control parameters

Components	CAS-No.	Value type	Control parame-	Basis

		(Form of exposure)	ters / Permissible concentration	
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, high-viscosity; Baseoil — unspecified	72623-85-9	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based; Baseoil — unspecified	72623-87-1	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based; Baseoil — unspecified	72623-86-0	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, high-viscosity; Baseoil — unspecified	72623-85-9	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based; Baseoil — unspecified	72623-87-1	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL

		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based; Baseoil — unspecified	72623-87-1	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based; Baseoil — unspecified	72623-86-0	TWA (Mist)	5 mg/m3	CA AB OEL
		STEL (Mist)	10 mg/m3	CA AB OEL
		TWAEV (Mist)	5 mg/m3	CA QC OEL
		STEV (Mist)	10 mg/m3	CA QC OEL
		TWA (Mist)	1 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	5 mg/m3	ACGIH

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.
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	:	amber
Odour	:	Mild petroleum oil like.
Odour Threshold	:	No data available
pH	:	No data available
Pour point	:	-30 °C (-22 °F)
Boiling point/boiling range	:	No data available
Flash point	:	249 °C (480 °F) Method: Cleveland open cup
Fire Point	:	265 °C (509 °F)
Evaporation rate	:	No data available
Flammability	:	Remarks: Low fire hazard. This material must be heated before ignition will occur.
Auto-Ignition Temperature	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	No data available

Density	:	0.8754 kg/l (15 °C)
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	91.6 cSt (40 °C / 104 °F) 11.2 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.
Hazardous decomposition products	:	May release COx, H2S, methacrylate monomers, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

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	:	Assessment: The substance or mixture has no acute inhalation toxicity Remarks: No data available
Acute dermal toxicity	:	Assessment: The substance or mixture has no acute dermal toxicity Remarks: No data available

Components:

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based, high-viscosity; Baseoil — unspecified:

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

Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based; Baseoil — unspecified:

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

Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based; Baseoil — unspecified:

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

Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

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

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/aquatic plants	:	Remarks: No data available
Toxicity to microorganisms	:	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 Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

National Regulations

TDG
Not regulated as a dangerous good

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.
IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
CA QC OEL	:	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
ACGIH / TWA	:	8-hour, time-weighted average
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA AB OEL / STEL	:	15-minute occupational exposure limit
CA BC OEL / TWA	:	8-hour time weighted average
CA QC OEL / TWAEV	:	Time-weighted average exposure value
CA QC OEL / STEV	:	Short-term exposure value

AICS - Australian Inventory of Chemical Substances; AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); Ecx - Concentration associated with x% response; Elx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Eco-

nomic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

For Copy of SDS	:	Internet: lubricants.petro-canada.com/sds 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: 1 905-491-0565
Prepared by	:	Product Safety: +1 905-491-0565
Revision Date	:	2021/02/23
Date format	:	yyyy/mm/dd

The information is considered as correct, but not exhaustive, and will be used only as a guide, which is based in the current knowledge of the substance or mixture, and is applicable to proper safety precautions for the product.

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

CA / EN

SAFETY DATA SHEET

GASOLINE, UNLEADED

000003000644

Version 2.0 | Revision Date 2017/04/20 | Print Date 2017/04/20

SECTION 1. 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	:	100127, 100126, 101823, 100507, 101811, 101814, 100141, 101813, 101810, 101812, 100063, 101822, 100138, 101821, 100064, 101820, 101819, 100506, 101818, 101816, 101817, 100488
Manufacturer or supplier's details		Petro-Canada P.O. Box 2844, 150 - 6th Avenue South-West Calgary Alberta T2P 3E3 Canada
Emergency telephone number		Suncor Energy: +1 403-296-3000; Canutec Transportation: 1-888- 226-8832 (toll-free) or 613-996-6666; Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the 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
Carcinogenicity	:	Category 1A
Reproductive toxicity	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)
Specific target organ toxicity - repeated exposure	:	Category 1
Aspiration hazard	:	Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness or dizziness.
May cause genetic defects.
May cause cancer.
Suspected of damaging the unborn child.
Causes damage to organs () through prolonged or repeated exposure.

Precautionary statements : **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable

for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.
Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Primary Routes of Entry	:	Eye contact Ingestion Inhalation Skin contact
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	:	Causes skin irritation.
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.

Other hazards

None known.

IARC	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
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

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.
Seek medical advice.

Most important symptoms and effects, both acute and delayed : None known.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Water fog. Foam
Unsuitable extinguishing media	:	Do NOT use water jet.
Specific hazards during fire-fighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion products	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), 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
gasoline, natural	8006-61-9	TWA	300 ppm 900 mg/m3	OSHA P0
		STEL	500 ppm 1,500 mg/m3	OSHA P0
		TWA	500 ppm 2,000 mg/m3	OSHA Z-1
		STEL	500 ppm 1,500 mg/m3	CAL PEL
		PEL	300 ppm 900 mg/m3	CAL PEL
toluene	108-88-3	TWA	20 ppm	ACGIH
		TWA	100 ppm 375 mg/m3	NIOSH REL
		ST	150 ppm 560 mg/m3	NIOSH REL
		TWA	200 ppm	OSHA Z-2
		CEIL	300 ppm	OSHA Z-2
		Peak	500 ppm (10 minutes)	OSHA Z-2
		TWA	100 ppm 375 mg/m3	OSHA P0
		STEL	150 ppm 560 mg/m3	OSHA P0
		PEL	10 ppm 37 mg/m3	CAL PEL
		C	500 ppm	CAL PEL
		STEL	150 ppm 560 mg/m3	CAL PEL
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 (10 minutes)	OSHA Z-2
		PEL	1 ppm	OSHA CARC
		STEL	5 ppm	OSHA CARC

		PEL	1 ppm	CAL PEL
		STEL	5 ppm	CAL PEL
ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m3	NIOSH REL
		TWA	1,000 ppm 1,900 mg/m3	OSHA Z-1
		TWA	1,000 ppm 1,900 mg/m3	OSHA P0
		STEL	1,000 ppm	ACGIH
		PEL	1,000 ppm 1,900 mg/m3	CAL PEL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
Toluene	108-88-3	Toluene	In blood	Prior to last shift of work-week	0.02 mg/l	ACGIH BEI
		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 circum-stances where air-purifying respirators may not provide ade-quate 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.
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)		
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:

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

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

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 Regulations

IATA-DGR

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

IMDG-Code

UN number	:	UN 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

National Regulations

49 CFR

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

SECTION 15. REGULATORY INFORMATION

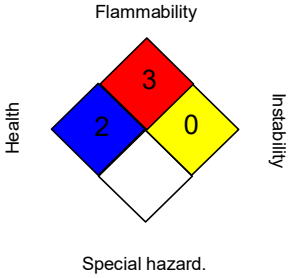
The components of this product are reported in the following inventories:

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

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	3
PHYSICAL HAZARD	0
PERSONAL PROTECTION	H

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

For Copy of SDS : Internet: www.petro-canada.ca/msds
Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228
For Product Safety Information: 1 905-804-4752

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

Revision Date : 2017/04/20

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.

SAFETY DATA SHEET

JET A/A-1 AVIATION TURBINE FUEL

000003001081

Version 3.0 | Revision Date 2021/02/19 | Print Date 2021/02/19

SECTION 1. IDENTIFICATION

Product name	:	JET A/A-1 AVIATION TURBINE FUEL
Synonyms	:	Jet A-1; Jet A-1-DI; Aviation Turbine Kerosene (ATK); Aviation Turbine Fuel, Kerosene Type (CAN/CGSB 3.23)
Product code	:	101851, 100123
Manufacturer or supplier's details		SUNCOR ENERGY INC. P.O. Box 2844, 150 - 6th Avenue South-West Calgary Alberta T2P 3E3 Canada, Telephone: 1-866-786-2671
Emergency telephone number		CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000

Recommended use of the chemical and restrictions on use

Recommended use	:	Used as aviation turbine fuel. May contain a fuel system icing inhibitor. In the arctic, Jet A-1 may also be used as diesel fuel (if it contains a lubricity additive) and heating oil.
Prepared by	:	Product Safety

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Clear liquid.
Colour	Clear and colourless
Odour	Kerosene-like.

GHS Classification

Flammable liquids	:	Category 3
Skin irritation	:	Category 2
Reproductive toxicity	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)
Aspiration hazard	:	Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness or dizziness.
Suspected of damaging fertility or the unborn child.

Precautionary statements : **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use non-sparking tools.
Take action to prevent static discharges.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.
Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash it before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Aggravated Medical Condition	:	None known.

Other hazards

None known.

ACGIH	Confirmed animal carcinogen with unknown relevance to humans	
	Kerosene	8008-20-6

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration
Kerosine (petroleum); Straight run kerosine	8008-20-6	90 - 100 %
2-(2-methoxyethoxy)ethanol	111-77-3	0 - 0.2 %

All above concentrations are in percent by weight.

SECTION 4. FIRST AID MEASURES

If inhaled	:	Move to fresh air. Artificial respiration and/or oxygen may be necessary. Seek medical advice.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Seek medical advice.
In case of eye contact	:	Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	:	Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a 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	:	Inhalation may cause central nervous system effects. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Causes skin irritation. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Notes to physician	:	Treat symptomatically. Contact poison treatment specialist immediately if large quan-

tities have been ingested or inhaled.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical 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 (NOx), sulphur oxides (SOx), smoke and irritating vapours as products of incomplete combustion.
Further information	:	Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin, eyes and clothing. Do not ingest. Keep away from heat and sources of ignition. Keep container closed when not in use.

Conditions for safe storage : Store in original container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
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); Straight run kerosine	8008-20-6	TWA	200 mg/m3 (total hydrocarbon vapor)	CA BC OEL
		TWA	200 mg/m3 (total hydrocarbon vapor)	CA AB OEL
		TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH

Engineering measures : Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.
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 : Concentration in air determines protection needed.
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.
Eye protection	:	Tightly fitting safety goggles 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 and colourless
Odour	:	Kerosene-like.
Odour Threshold	:	No data available
pH	:	No data available
Melting point	:	-51 °C (-60 °F)
Boiling point/boiling range	:	140 - 300 °C (284 - 572 °F)
Decomposition temperature		No data available
Flash point	:	> 38 °C (100 °F) Method: Tagliabue
Auto-Ignition Temperature	:	210 °C (410 °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. May accumulate in confined spaces.
Upper explosion limit	:	5 %(V)
Lower explosion limit	:	0.7 %(V)
Vapour pressure	:	5.25 mmHg (20 °C / 68 °F)
Relative vapour density	:	4.5

Relative density	:	0.775 - 0.84 (15 °C / 59 °F)
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	1.0 - 1.9 cSt (40 °C / 104 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Reactive with oxidising agents, acids and alkalis.
Hazardous decomposition products	:	May release COx, NOx, SOx, aldehydes, acids, 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: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute dermal toxicity	:	Remarks: Based on available data, the classification criteria are not met.

Components:

Kerosine (petroleum); Straight run kerosine:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg,
Acute inhalation toxicity	:	LC50 (Rat): > 5 mg/l Exposure time: 4 h

Test atmosphere: dust/mist

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

Skin corrosion/irritation

Product:

Remarks: Causes skin irritation.

Serious eye damage/eye irritation

Product:

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

Respiratory or skin sensitisation

Product:

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

Germ cell mutagenicity

Product:

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

Carcinogenicity

Product:

Carcinogenicity - Assessment	Based on available data, the classification criteria are not met.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment	Suspected of damaging fertility or the unborn child.

STOT - single exposure

Product:

Target Organs: Central nervous system
Remarks: May cause drowsiness or dizziness.

STOT - repeated exposure

Product:

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

No data available

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

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

Persistence and degradability

Product:

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.
Contaminated packaging	:	Do not re-use empty containers. Contact local or business unit authorities for guidance on disposal of product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 1863
Proper shipping name	:	Fuel, aviation, turbine engine
Class	:	3
Packing group	:	III
Labels	:	Class 3 - Flammable Liquid
Packing instruction (cargo aircraft)	:	366

IMDG-Code

UN number	:	UN 1863
Proper shipping name	:	FUEL, AVIATION, TURBINE ENGINE
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E
Marine pollutant	:	yes

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

National Regulations

TDG

UN number	:	UN 1863
Proper shipping name	:	FUEL, AVIATION, TURBINE ENGINE
Class	:	3
Packing group	:	III
Labels	:	3
ERG Code	:	128
Marine pollutant	:	yes

SECTION 15. REGULATORY INFORMATION

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

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

DSL	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

Prepared by	:	Product Safety
Revision Date	:	2021/02/19

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.

PETRO-CANADA

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	B-2, D-2A, D-2B		

Section 1. Chemical Product and Company Identification

Product Name	**JET B AVIATION TURBINE FUEL**	**Code**	W219 SAP: 150, 151, 152
Synonym	Jet B; Jet B DI; JP-4; Jet F-40; NATO F-40; Turbine Fuel, Aviation, Wide Cut Type (CAN/CGSB-3.22).	**Validated on**	**2/8/2005.**
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	**In case of Emergency**	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	Used as aviation turbine fuel. May contain a fuel system icing inhibitor.		

Section 2. Composition and Information on Ingredients

			Exposure Limits (ACGIH)		
Name	**CAS #**	**% (W/W)**	**TLV-TWA(8 h)**	**STEL**	**CEILING**
Complex mixture of petroleum hydrocarbons (C6-C14).	64741-41-9	>99	Not established	Not established	Not established
Benzene	71-43-2	<0.5	0.5 ppm	2.5 ppm	Not established
Fuel System Icing Inhibitor (FSII) (if added*): Diethylene Glycol Monomethyl Ether	111-77-3	≤0.15	Not established	Not established	Not established
Anti-static, antioxidant, corrosion inhibitor and metal deactivator additives. * Please note that Jet B DI, JP-4, Jet F-40 and NATO F-40 all contain Fuel System Icing Inhibitor (FSII).corrosion inhibitor	Not applicable	<0.1	Not applicable	Not applicable	Not applicable

Manufacturer Recommendation	Not applicable
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.

Section 3. Hazards Identification.

Potential Health Effects	Flammable liquid. Exercise caution when handling this material. Skin and eye contact can cause irritation. Inhalation of vapours can cause irritation of the respiratory tract and CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconciousness and possibly death. Aspiration into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure. May cause cancer. May cause teratogenicity/embryotoxicity. For more information refer to Section 11 of this MSDS.

Section 4. First Aid Measures

Eye Contact	Quickly and gently blot or brush away chemical. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the chemical is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately.
Skin Contact	Quickly and gently, blot or brush away excess chemical. Wash gently and thoroughly with warm water and non-abrasive soap for 5 minutes or until chemical is removed.
Inhalation	Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. DO NOT allow victim to move about unnecessarily. Immediately transport victim to an emergency care facility.

Continued on Next Page

Ingestion	NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 240 to 300 mL (8 to 10 oz) of water to dilute material in stomach. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Repeat administration of water.
Note to Physician	Not available

Section 5. Fire-fighting Measures

Flammability	Flammable liquid (NFPA).	**Flammable Limits**	LOWER: 1.3% UPPER: 8% (NFPA)
Flash Points	CLOSED CUP: -31ºC (-24°F) (NFPA)	**Auto-Ignition Temperature**	240°C (464°F) (NFPA)
Fire Hazards in Presence of Various Substances	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. May accumulate in confined spaces.	**Explosion Hazards in Presence of Various Substances**	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire.
Products of Combustion	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.		
Fire Fighting Media and Instructions	NAERG96, GUIDE 128, Flammable liquids (Non-polar/Water-immiscible). CAUTION: This product has a very low flash point: Use of water spray when fighting fire may be inefficient. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. SMALL FIRES: Dry chemical, CO2, water spray or regular foam. LARGE FIRES: Water spray, fog or regular foam. Do not use straight streams. Move containers from fire area if you can do it without risk. Fires Involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting devices or any discolouration of tank. ALWAYS stay away from the ends of tanks. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.		

Section 6. Accidental Release Measures

Material Release or Spill	IN THE EVENT OF A LARGE SPILL CONSIDER THE FOLLOWING CONTROL MEASURES: Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. Evacuate non-essential personnel. Extinguish all ignition sources. Ventilate area. Stop leak if safe to do so. Avoid contact with spilled material. Do not allow spilled material to enter sewer systems as vapours may accumulate and may cause an explosion/fire hazard. If spilled in a confined space, ensure appropriate confined space entry protocols are followed. Ensure clean-up personnel wear appropriate personal protective equipment. Use appropriate inert absorbent material to absorb spilled product. Do not use paper or other flammable materials to absorb product. Collect used absorbent for later disposal. Avoid breathing vapours or mists of material. Notify appropriate authorities immediately.

Section 7. Handling and Storage

Handling	FLAMMABLE MATERIAL. Handle with care. Avoid contact with any sources of ignition, flames, heat, and sparks. Wear proper personal protective equipment (See Section 8). Ensure all equipment is grounded/bonded. Avoid confined spaces and areas with poor ventilation. Avoid inhalation of product vapours or mists. Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product.
Storage	Store away from heat and sources of ignition. Store away from incompatible and reactive materials (See section 5 and 10). Ensure the storage containers are grounded/bonded. Keep container tightly closed. Store in dry, cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
Personal Protection	***- The selection of personal protective equipment varies, depending upon conditions of use.***
Eyes	As a minimum, safety glasses with side shields should be worn when handling this material.
Body	If this material may come into contact with the body during handling and use, we recommend wearing appropriate protective clothing to prevent contact with the skin. (Contact your PPE provider for more information).
Respiratory	A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister with a dust, fume of mist filter (R, or P series) 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.
Hands	If this material may come in contact with the hands during handling and use, we recommend wearing gloves of the following material(s): neoprene, polyvinyl alcohol (PVA), and fluoro-elastomer. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns.
Feet	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Clear liquid.	**Viscosity**	Not available (similar to gasoline)
Colour	Clear and colourless.	**Pour Point**	Freezing Point: <-51ºC (<-60ºF) for Jet B/Jet B DI; <-58ºC (<-72ºF) for Jet Fuel F-40.
Odour	Gasoline like.	**Softening Point**	Not applicable.
Odour Threshold	Not available	**Dropping Point**	Not applicable.
Boiling Point	50 to 270°C (122 to 518°F)	**Penetration**	Not applicable.
Density	0.75 to 0.80 kg/L @ 15ºC (59ºF).	**Oil / Water Dist. Coefficient**	Not available
Vapour Density	3.5 (Air = 1)	**Ionicity (in water)**	Not available
Vapour Pressure	21 kPa (158 mmHg) @ 37.8ºC (100ºF).	**Dispersion Properties**	Not available
Volatility	Volatile.	**Solubility**	Insoluble in water. Partially miscible in some alcohols. Miscible in other petroleum solvents.

Section 10. Stability and Reactivity

Corrosivity	Not available		
Stability	The product is stable under normal handling and storage conditions.	**Hazardous Polymerization**	Will not occur under normal working conditions.
Incompatible Substances / Conditions to Avoid	Can react with strong oxidizing agents, uranium hexafluoride, diborane. Incompatible with halogens and halogen compounds.	**Decomposition Products**	May release COx, NOx, SOx, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation and ingestion.
Acute Lethality	Acute toxicity information is not available for the product as a whole, therefore, data for some of the ingredients is provided below:

Based on toxicity of similar product.
Acute oral toxicity (LD50): >5000 mg/kg (rat).
Acute dermal toxicity (LD50): >5000 mg/kg (rabbit).
Acute inhalation toxicity (LC50): >5000 mg/m³/4h (rat).

	Benzene Acute oral toxicity (LD50): 930 mg/kg (rat). Acute dermal toxicity (LD50): >9400 mg/kg (rabbit). Acute inhalation toxicity (LC50): 13200 ppm/4h (rat). **Diethylene Glycol Monomethyl Ether** Acute oral toxicity (LD50): 4140-5180 mg/kg (rat). Acute dermal toxicity (LD50): >2000 mg/kg (rabbit). Acute inhalation toxicity (LC50): >50000 mg/m³/4h (rat).
Chronic or Other Toxic Effects	
Dermal Route:	Skin contact can cause irritation. Prolonged or repeated contact may defat and dry skin, and cause dermatitis.
Inhalation Route:	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.
Oral Route:	Ingestion of this product may lead to aspiration of the liquid, especially if vomiting occurs. This may result in chemical pneumonitis (inflammation of the lungs) and/or pulmonary edema (an accumulation of fluid in the lungs).
Eye Irritation/Inflammation:	Short-term exposure is expected to cause only slight irritation, if any.
Immunotoxicity:	Not available
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.
Mutagenic:	Benzene is tumorigenic by RTECS criteria.
Reproductive Toxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause reproductive toxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a reproductive toxin.
Teratogenicity/Embryotoxicity:	This product contains a component(s) at >= 0.1% that has been shown to cause teratogenicity and/or embryotoxicity in laboratory tests. Therefore, this product is considered to be a teratogen/embryotoxin [Diethylene Glycol Monomethyl Ether].
Carcinogenicity (ACGIH):	ACGIH A1: confirmed human carcinogen. [Benzene]
Carcinogenicity (IARC):	IARC Group 1: carcinogenic to Humans. [Benzene]
Carcinogenicity (NTP):	NTP Group 1: known to be a carcinogen. [Benzene]
Carcinogenicity (IRIS):	EPA/IRIS Class A: human carcinogen.
Carcinogenicity (OSHA):	Benzene is an OSHA known carcinogen.
Other Considerations	No additional remark.

Section 12. Ecological Information

Environmental Fate	Not available	**Persistance/ Bioaccumulation Potential**	Not available
BOD5 and COD	Not available	**Products of Biodegradation**	Not available
Additional Remarks	No additional remark.		

Section 13. Disposal Considerations

Waste Disposal	Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.

Section 14. Transport Information

TDG Classification	FUEL, AVIATION, TURBINE ENGINE, 3, UN1863, PGII (CL-TDG)	**Special Provisions for Transport**	See Transportation of Dangerous Goods Regulations.

Section 15. Regulatory Information

Other Regulations

This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).

All components of this formulation are listed on the US EPA-TSCA Inventory.

All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).

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

Please contact Product Safety for more information.

DSD/DPD (Europe) Not evaluated.

HCS (U.S.A.)

CLASS: Contains material which may cause cancer.
CLASS: Flammable liquid having a flash point lower than 37.8°C (100°F).
CLASS: Toxic.
CLASS: Irritating substance.
CLASS: Target organ effects.

ADR (Europe) (Pictograms)

NOT EVALUATED FOR EUROPEAN TRANSPORT

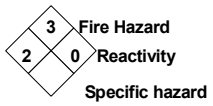
NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.

DOT (U.S.A) (Pictograms)

HMIS (U.S.A.)

Health Hazard	2*
Fire Hazard	3
Reactivity	0
Personal Protection	H

NFPA (U.S.A.)



Rating

0 Insignificant
1 Slight
2 Moderate
3 High
4 Extreme

Section 16. Other Information

References Available upon request.
* Marque de commerce de Petro-Canada - Trademark

Glossary

ACGIH - American Conference of Governmental Industrial Hygienists
ADR - Agreement on Dangerous goods by Road (Europe)
ASTM - American Society for Testing and Materials
BOD5 - Biological Oxygen Demand in 5 days
CAN/CGA B149.2 Propane Installation Code
CAS - Chemical Abstract Services
CEPA - Canadian Environmental Protection Act
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act
CFR - Code of Federal Regulations
CHIP - Chemicals Hazard Information and Packaging Approved Supply List
CNS - Central Nervous System
COD5 - Chemical Oxygen Demand in 5 days
CPR - Controlled Products Regulations
DOT - Department of Transport
DSCL - Dangerous Substances Classification and Labeling (Europe)
DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe)
DSL - Domestic Substance List
EEC/EU - European Economic Community/European Union
EINECS - European Inventory of Existing Commercial Chemical Substances
EPA - Environmental Protection Agency
EPCRA - Emergency Planning and Community Right to Know Act
FDA - Food and Drug Administration
FIFRA - Federal Insecticide, Fungicide and Rodenticide Act
HCS - Hazard Communication Standard
HMIS - Hazardous Material Information System
IARC - International Agency for Research on Cancer
IRIS - Integrated Risk Information System
LD50/LC50 - Lethal Dose/Concentration kill 50%
LDLo/LCLo - Lowest Published Lethal Dose/Concentration
NAERG'96 - North American Emergency Response Guide Book (1996)
NFPA - National Fire Prevention Association
NIOSH - National Institute for Occupational Safety & Health
NPRI - National Pollutant Release Inventory
NSNR - New Substances Notification Regulations (Canada)
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
RTECS - Registry of Toxic Effects of Chemical Substances
SARA - Superfund Amendments and Reorganization Act
SD - Single Dose
STEL - Short Term Exposure Limit (15 minutes)
TDG - Transportation Dangerous Goods (Canada)
TDLo/TCLo - Lowest Published Toxic Dose/Concentration
TLm - Median Tolerance Limit
TLV-TWA - Threshold Limit Value-Time Weighted Average
TSCA - Toxic Substances Control Act
USEPA - United States Environmental Protection Agency
USP - United States Pharmacopoeia
WHMIS - Workplace Hazardous Material Information System

For Copy of MSDS

Prepared by Product Safety - JDW on 2/8/2005.

Internet: www.petro-canada.ca/msds **Fuels & Solvents:** **Western Canada, Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1228** **Quebec & Eastern Canada, telephone: 514-640-8308; fax: 514-640-8385** **For Product Safety Information: (905) 804-4752**	**Data entry by Product Safety - JDW.**

SAFETY DATA SHEET

PROPANE

000003000646

Version 4.0 | Revision Date 2020/12/11 | Print Date 2020/12/11

SECTION 1. IDENTIFICATION

Product name	:	PROPANE
Synonyms	:	Propane HD-5, Propane commercial, Liquified Petroleum Gas (LPG), C3H8, CGSB Propane Grade 1, CGSB Propane Grade 2, odorized propane, stenched propane, automotive propane, ER62.
Product code	:	103176, 103174, 103172, 103153, 103151, 103150, 103149, 103159, 103156, 103147, 100589, 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		CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000

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., compressed liquefied gas
Colour	colourless
Odour	Propane is an odourless gas. Odourized propane will contain up to 30 g Ethyl Mercaptan per 1000 L of propane.

GHS Classification

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

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements : **Prevention:**
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response:
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
In case of leakage, eliminate all ignition sources.
Storage:
Protect from sunlight. Store in a well-ventilated place.

Potential Health Effects

Primary Routes of Entry : Eye contact
Inhalation
Skin contact

Aggravated Medical 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
propane	74-98-6	72 - 100 %
propene	115-07-1	0 - 23.8 %
butane	106-97-8	0 - 4.7 %
ethane	74-84-0	0 - 4.6 %

isobutane	75-28-5	0 - 3.6 %
isopentane	78-78-4	0 - 1 %
pentane	109-66-0	0 - 0.9 %
but-1-ene	106-98-9	0 - 0.5 %
methane	74-82-8	0 - 0.2 %

All above concentrations are percent by volume.

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	:	Inhalation may cause central nervous system effects. Inhalation of vapours may cause drowsiness, headache, dizziness and disorientation. May cause irritation of respiratory tract. Contact with rapidly expanding gas may cause burns or frostbite. Overexposure may lead to cardiac sensitization. High concentrations can remove oxygen and cause dizziness or suffocation.
Notes to physician	:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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 firefighting	:	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 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.
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	:	For personal protection see section 8. Ensure adequate ventilation. Evacuate personnel to safe areas. In case of inadequate ventilation wear respiratory protection. Remove all sources of ignition.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Prevent further leakage or spillage if safe to do so. Ensure adequate ventilation. Use explosion-proof ventilation equipment. Non-sparking tools should be used. Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of	Control parameters / Permissible	Basis

		exposure)	concentration	
propane	74-98-6	TWA	1,000 ppm	CA AB OEL
		TWAEV	1,000 ppm 1,800 mg/m3	CA QC OEL
propene	115-07-1	TWA	500 ppm 860 mg/m3	CA AB OEL
		TWA	500 ppm	CA BC OEL
		TWA	500 ppm	ACGIH
butane	106-97-8	TWA	1,000 ppm	CA AB OEL
		TWAEV	800 ppm 1,900 mg/m3	CA QC OEL
		TWA	1,000 ppm	CA BC OEL
		STEL	1,000 ppm	ACGIH
ethane	74-84-0	TWA	1,000 ppm	CA AB OEL
isobutane	75-28-5	TWA	1,000 ppm	CA AB OEL
		TWA	1,000 ppm	CA BC OEL
		STEL	1,000 ppm	ACGIH
isopentane	78-78-4	TWA	600 ppm 1,770 mg/m3	CA AB OEL
		TWA	1,000 ppm	CA BC OEL
		TWA	1,000 ppm	ACGIH
ethanethiol	75-08-1	TWA	0.5 ppm 1.3 mg/m3	CA AB OEL
		TWA	0.5 ppm	CA BC OEL
		TWAEV	0.5 ppm 1.3 mg/m3	CA QC OEL
		TWA	0.5 ppm	ACGIH

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

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. 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 the specific work-place.
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., compressed liquefied gas
Colour	:	colourless
Odour	:	Propane is an odourless gas. Odourized propane will contain up to 30 g Ethyl Mercaptan per 1000 L of propane.
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Boiling point/boiling range	:	-42 °C (-44 °F)
Decomposition temperature		No data available
Flash point	:	-104 °C (-155 °F) Method: closed cup
Auto-Ignition Temperature	:	450 °C (842 °F)
Evaporation rate	:	No data available
Flammability	:	Extremely flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel 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
Solubility(ies)		

Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available

SECTION 10. STABILITY AND REACTIVITY

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

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Eye contact
Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute dermal toxicity	:	Remarks: Based on available data, the classification criteria are not met.

Components:

butane:

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

isobutane:

Acute inhalation toxicity	:	LC50 (Rat): 658,000 mg/m3 Exposure time: 4 h Test atmosphere: gas

isopentane:

Acute inhalation toxicity	:	LC50 (Rat): 280 mg/l Exposure time: 4 h Test atmosphere: vapour

pentane:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg,
Acute inhalation toxicity	:	LC50 (Rat): 364 mg/l Exposure time: 4 h Test atmosphere: vapour

Skin corrosion/irritation

Product:

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

Serious eye damage/eye irritation

Product:

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

Respiratory or skin sensitisation

Product:

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

Germ cell mutagenicity

Product:

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

Carcinogenicity

Product:

Carcinogenicity - Assessment	Based on available data, the classification criteria are not met.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment	Based on available data, the classification criteria are not met.

STOT - single exposure

Product:

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

STOT - repeated exposure

Product:

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

No data available

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	:	Contact local or business unit authorities for guidance on disposal of product.

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
Marine pollutant	:	no

SECTION 15. REGULATORY INFORMATION

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

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

DSL	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

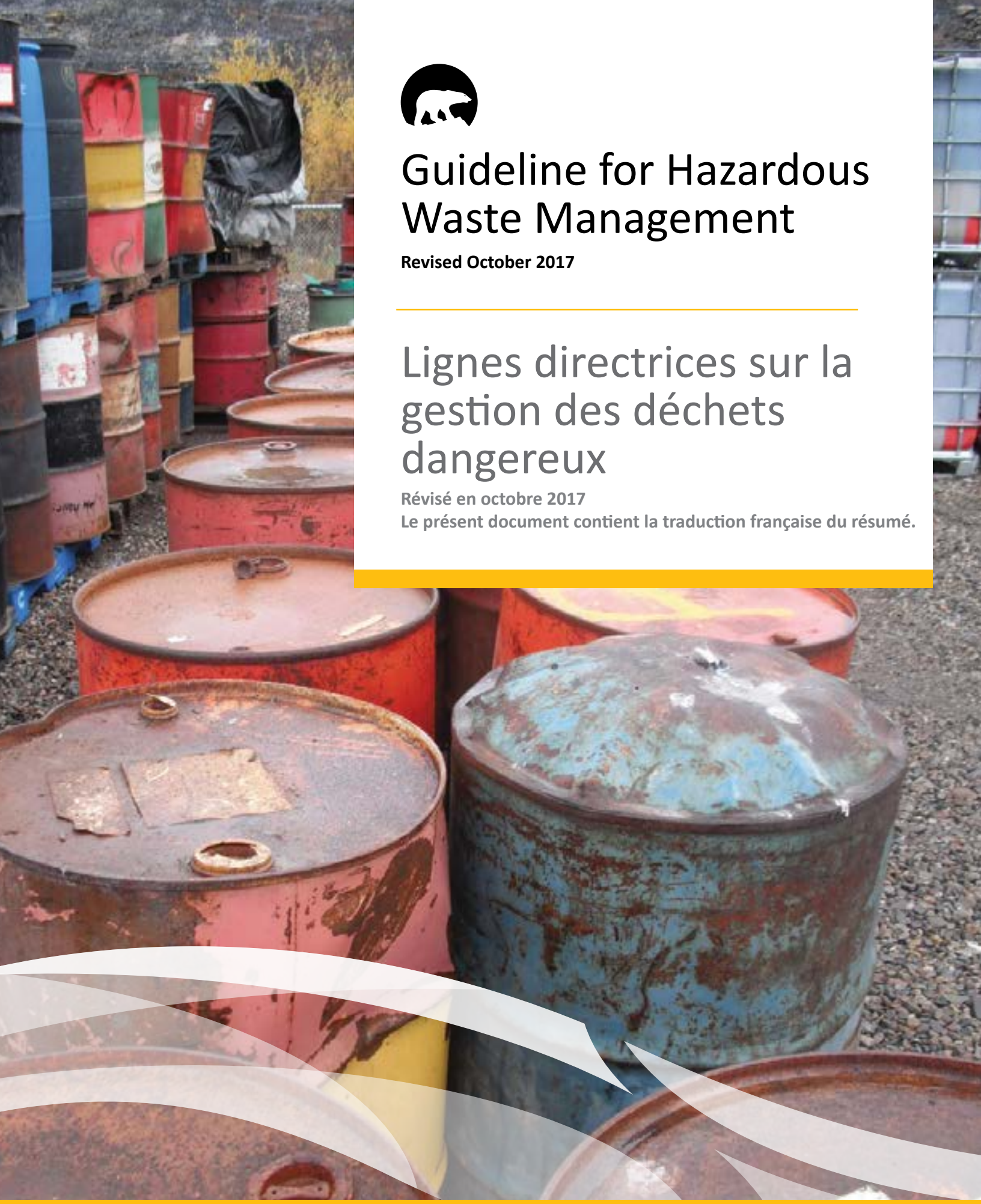
For Copy of SDS	:	Internet: www.petro-canada.ca/msds Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228 For Product Safety Information: 1 905-804-4752

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

Revision Date : 2020/12/11

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.

Appendix IV – Hazardous Waste



Guideline for Hazardous Waste Management

Revised October 2017

Lignes directrices sur la gestion des déchets dangereux

Révisé en octobre 2017

Le présent document contient la traduction française du résumé.

Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

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1 Introduction

Industrial, commercial, and institutional (ICI) sectors often produce residual materials during their operations that are considered waste. Some wastes are more hazardous than others, due to their chemical, physical or biological properties. Hazardous waste is the term used to describe waste materials that require special handling and disposal/treatment to prevent adverse impacts on human health and the environment.

This guideline has been developed by the Environment Division of the Department of Environment and Natural Resources for the ICI sector. The purpose of this document is to:

- provide guidance to industrial, commercial, and institutional operators in the Northwest Territories (NWT) on the proper management of hazardous waste;
- increase awareness of the different types of hazardous waste; and
- support the tracking of hazardous waste from generation to final treatment/disposal.

Section 2.2 of the *Environmental Protection Act* (EPA) gives the Minister of Environment and Natural Resources of the Government of the Northwest Territories (GNWT) the authority to develop, coordinate and administer guidelines (See Appendix 1). This guideline does not alleviate the need to comply with any other Act or regulation applicable to the management of hazardous waste. Section 2.6 of this Guideline provides additional information on the roles and responsibilities of other regulatory agencies that may be involved with the management of hazardous waste due to their legislative responsibilities.

This guideline is for the general management of hazardous waste and should be read in conjunction with hazardous waste guidelines for specific substances that are available on ENR's website.

For more information regarding hazardous waste please visit our website (http://www.enr.gov.nt.ca/en/services/hazardous-waste) or contact:

Environment Division
Department of Environment and Natural Resources
Government of the Northwest Territories
7th floor, Scotia Centre
5102 50 Avenue

Mailing Address:
PO Box 1320
Yellowknife NT X1A 2L9

Tel: (867) 767-9236 ext. 53176
Fax: (867) 873-0221

1 Introduction

Au cours de leurs activités, les secteurs industriel, commercial et institutionnel (ICI) produisent souvent des matières résiduelles qui sont considérées comme des déchets. Certains déchets sont plus dangereux que d'autres en raison de leurs propriétés chimiques, physiques ou biologiques. On parle de déchets dangereux pour décrire les déchets qui exigent une élimination ou un traitement spécial pour prévenir toute répercussion négative sur la santé ou l'environnement.

Ces lignes directrices ont été élaborées par la division de l'environnement du MERN du GTNO pour les secteurs ICI. Les lignes directrices sur la gestion des déchets dangereux visent à :

- orienter les exploitants des secteurs ICI des TNO sur la gestion appropriée des déchets dangereux;
- sensibiliser aux différents types de déchets dangereux;
- encourager le suivi des déchets dangereux, de leur production à leur élimination ou traitement final.

La section 2.2 de la LPE confère au ministre de l'Environnement et des Ressources naturelles l'autorité de mettre au point, de coordonner et d'administrer des lignes directrices (voir l'annexe 1). Ces lignes directrices ne suppléent à aucune autre loi ou réglementation applicable à la gestion des déchets dangereux. La section 2.6 de ces lignes directrices contient des renseignements complémentaires sur les rôles et responsabilités d'autres organismes de réglementation qui pourraient participer à la gestion des déchets dangereux dans le cadre de leurs responsabilités législatives.

Ces lignes directrices concernent la gestion globale des déchets dangereux et doivent être consultées parallèlement aux lignes directrices sur les déchets dangereux relatives aux substances spécifiques.

On peut consulter ces lignes directrices ainsi que celles sur les autres déchets dangereux sur le site Web du MERN ou en communiquant avec le MERN (http://www.enr.gov.nt.ca/en/services/hazardous-waste) aux coordonnées suivantes :

Division de l'environnement
Ministère de l'Environnement et des Ressources naturelles
Gouvernement des Territoires du Nord-Ouest
5102, 50e Avenue
Centre Scotia, 7e étage

Adresse postale :
C. P. 1320
Yellowknife NT X1A 2L9

Tél. : 867-767-9236, poste 53176
Téléc. : 867-873-0221

1.1 Definitions

Carrier	Any person engaged in the transport of hazardous waste.
Cement returns	Excess cement circulated to the surface after downhole cementing.
Consignor	A person who offers a consignment of hazardous waste for transport.
Contaminant	Any noise, heat, vibration or substance and includes such other substances as the Minister may prescribe that, where discharged into the environment, (a) endangers the health, safety or welfare of persons, (b) interferes or is likely to interfere with normal enjoyment of life or property, (c) endangers the health of animal life, or (d) causes or is likely to cause damage to plant life or to property.
Contaminated water	Waste water or snow that contains any of the contaminants listed in Schedule I in a concentration greater than the corresponding amount.
Contaminated site	Areas of land, water, groundwater, or sediments that have levels of contaminants exceeding the remediation criteria described in the GNWT's *Guideline for Contaminated Site Remediation*.
Dangerous goods	Any product, substance or organism referred to in the prescribed classes of dangerous goods or included by its nature in any of the prescribed classes of dangerous goods in the schedule provided by the applicable transport authority.
Dioxin TEQ	The dioxin toxicity equivalent (TEQ) value which is determined by adding the products of the measured concentrations of each dioxin and furan constituent listed in Column I of Schedule II multiplied by the toxicity equivalency factor (TEF) listed opposite in Column II.
Discharge	Includes, but not so as to limit the meaning, any pumping, pouring, throwing, dumping, emitting, burning, spraying, spreading, leaking, spilling or escaping.
Drilling cuttings	The solid materials, fragments of rock and other materials brought to the surface during the drilling process.
Drilling mud	A suspension, usually in water but sometimes in oil (diesel), used in rotary drilling, consisting of various substances in a finely divided state (commonly bentonitic clays and chemical additives), introduced continuously down the drill pipe under pressure and through openings in the drill bit and transported back up in the annular space between the pipe and the walls of the hole to a surface pit or tank where it is conditioned and reintroduced into the wellbore. It is used to lubricate and cool the bit, carry the cuttings up from the bottom, and to prevent blowouts and cave-ins.
Drilling fluids	Any liquid mixture of clay, water, sediment, drilling muds, chemical additives, or other wastes that are pumped downhole while drilling and are specifically related to drilling activity.

Drillng waste	Waste substances associated with drilling a well or directional drilling including: a) Drilling cuttings; b) Drilling fluids; c) Drilling mud; d) Flowback fluid; e) Fracturing fluid; or f) Cement returns.
Effluent	Liquid material, treated or untreated, discharged into the environment.
Empty container	A container from which all: a) Hazardous waste has been emptied, to the greatest extent possible, using regular handling procedures. Its contents shall not exceed 0.1% of the container's original capacity or 0.2 litres, whichever is less. This does not include toxic gas in Class 2.3 of the TDGR or containers which previously came in direct contact with: i. Substances in Class 6.1 Packing Group I materials of the TDGR; or ii. Severely Toxic Contaminants. b) Flammable vapours have been reduced to less than twenty percent (20%) of the lower explosive limit for the material by purging, venting, or by the introduction of an inert material.
Environment	Means the components of the Earth and includes a) air, land and water, b) all layers of the atmosphere, c) all organic and inorganic matter and living organisms, and d) the interacting natural systems that include components referred to in paragraphs (a) to (c).
Flowback fluid	The flow of fracturing fluid back to the wellbore after treatment is completed.
Fracturing fluid	The fluid used to perform a particular hydraulic fracturing treatment and includes the applicable base fluid and all additives.
Generator	The owner or person in charge, management or control of a hazardous waste or a facility or property that generates or contains hazardous waste.
Hazardous to the aquatic environment	Any product or substance classified as hazardous to the *aquatic* environment according to the classification system outlined in Chapter 4.1 Hazardous to the Aquatic Environment of Part 4 ENVIRONMENTAL HAZARDS provided in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Hazardous waste	A contaminant which is no longer used for its original purpose and is intended for recycling, treatment, disposal or storage and is: a) A dangerous good according to the TDGR; b) Leachable waste; c) Hazardous to the aquatic environment; d) Waste containing dioxins and furans; e) Contaminated soil/snow/water from a contaminated site; f) Drilling waste; g) Listed waste; or h) Any other waste deemed hazardous. Hazardous waste does not include a material that is: a) Authorized for on-site disposal by the applicable regulator for the specific activity in which the hazardous waste was generated; b) Household hazardous waste being transported to a municipal collection depot; c) Included in Class 1, Explosives or Class 7, Radioactive materials of TDGR; d) Exempted as a small quantity; e) An empty container; or f) Goods that are defective, surplus, or otherwise not usable for their intended purpose and that are in the process of being returned directly to a manufacturer or supplier.
Hazardous waste management facility	A facility which is used for the collection, storage, treatment, recycling or disposal of hazardous waste.
Incompatible waste	Hazardous wastes which, when in contact with one another or other substances under normal conditions of storage or transportation, could react to produce heat, gas, fire, explosion, corrosive substances or toxic substances.
Landfill	A designated area of land where residual waste is placed, compacted, and covered.
Leachable waste	A substance that may contain any of the contaminants listed in Schedule I in a concentration greater than the corresponding amount when subjected to the leachate extraction procedure.
Leachate extraction procedure	A test method designed to determine both the organic and inorganic parameters present in solid and multi-phased waste. It is designed to simulate the characteristics a material may exhibit if placed in a landfill. Test determined by Method 1311 Toxicity Characteristic Leaching Procedure (TCLP) Test, US EPA or Leachate Extraction Procedure 164-GP-1-MP Canadian General Standards Board.
Listed waste	Wastes listed in Schedule III.
Long term storage	The storage of hazardous waste for a period of 180 days or more but does not include materials in transit.
Manage	To handle, transport, store, recycle, treat, destroy or dispose of hazardous waste.

Movement document	Means the form set out in Schedule VII.
Process residuals	Solid, semi-solid or sludge waste resulting from industrial operations.
Receiver	A person or company registered with the Environment Division, or by the applicable province or territory, authorized to receive and manage specified types of hazardous waste.
Record of disposal	A physical copy of the information outlined in Schedule VIII.
Severely toxic contaminants	Contaminants listed in Schedule IV.
Small quantity	Hazardous waste that is generated in any month is not greater than the amount in column II of Schedule V corresponding to the type of hazardous waste, or the aggregate quantity accumulated at any one time is not greater than the amount in column II of Schedule V corresponding to the type of hazardous waste.
Transport authority	The regulations controlling the management of dangerous goods under that mode of transport. These include: • Road and rail – *Transportation of Dangerous Goods Act* (TDGA) *and Regulations* (TDGR); • Air – *International Civil Aviation Organization Technical Instructions* (ICAO); and • Marine – *International Maritime Dangerous Goods Code* (IMDG).
Treatment or Treat	The handling or processing of a hazardous waste in such a manner as to change the physical, chemical or biological character or composition of the hazardous waste to eliminate or reduce: (a) one or more hazards of the waste; and/or (b) the volume.
Used oil	Means any oil, including lubrication oil, hydraulic fluid, metal working fluid and insulating fluid, that is unsuitable for its intended purpose due to the presence of impurities or the loss of original properties, but does not include waste oil derived from animal or vegetable fat, a petroleum product spilled on land or water or waste from a petroleum refining operation.
Waste containing dioxins and furans	A waste containing Dioxin TEQ in a concentration greater than 0.001 mg/kg.

List of Acronyms used in this Document

AER	Alberta Energy Regulator
CALA	Canadian Association for Laboratory Accreditation Inc.
CAPP	Canadian Association of Petroleum Producers
CCME	Canadian Council of Ministers of the Environment
ED	Environment Division
ENR	Environment and Natural Resources
EPA	*Environmental Protection Act*
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GNWT	Government of the Northwest Territories
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICI[1]	Industrial, Commercial, Institutional
IMDG	International Maritime Dangerous Goods Code
OROGO	NWT Office of the Regulator of Oil and Gas Operations
SCC	Standards Council of Canada (Environmental Laboratories)
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxicity equivalent value
TDGA/TDGR	The *Transportation of Dangerous Goods Act* and Regulations (Canada)
WHMIS	Work Site Hazardous Material Information System

[1] Industrial — Resource development activities, construction, fabrication, light and heavy manufacturing.
Commercial — Retail stores, mechanical shops, property managers, service and repair businesses, etc.
Institutional — Federal, Territorial, Municipal government departments and agencies, non-profit agencies.

2 Roles and Responsibilities

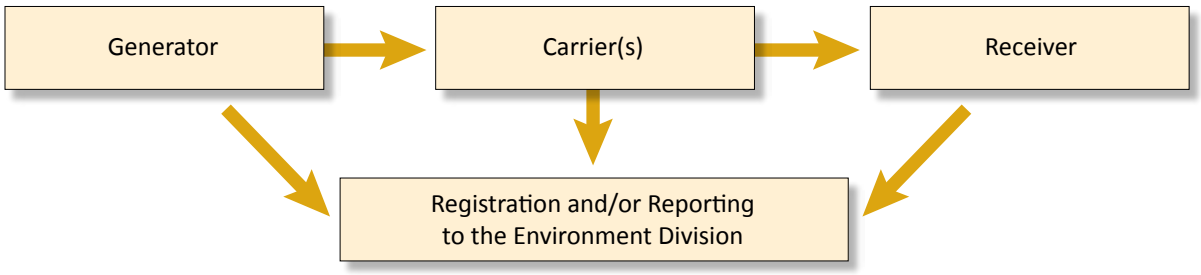
2.1 Environment and Natural Resources

The Department of Environment and Natural Resources (ENR) is the GNWT agency responsible for initiatives which control and prevent the discharge of contaminants, including hazardous wastes, and their impact on the natural environment. ENR is responsible for ensuring that environmentally acceptable management procedures, emission levels and disposal methods are maintained. Legislative authority is provided by the *Environmental Protection Act* (EPA) (See Appendix 1) and the *Pesticide Act*.

The Environment Division (ED) of ENR monitors the movement of hazardous waste from the generator to final disposal at the receiving facility through the use of a specified 6 part form called a hazardous waste movement document. A movement document form, or an equivalent record of disposal, must accompany all hazardous waste in transit regardless of the means of transport. Hazardous waste movement documents are provided by the Environment Division.

If hazardous waste is to be transported off the originating site, the generator must be registered with ED. Once registered, an identification number will be assigned which is required to complete the movement document. A carrier or receiver may either be registered in the NWT or in the province or territory in which the company is based. The basic framework for the off-site movement of hazardous waste and reporting is outlined in Figure 1.

Figure 1: Movement of Hazardous Waste and Record Keeping



The definitions of hazardous waste vary across Canada, although most provinces and territories register generators, carriers, receivers and utilize the hazardous waste movement document. The definition of hazardous waste in the NWT is unique because it includes waste types such as, contaminated soil and drilling waste which are frequently managed under different regulatory frameworks in other jurisdictions. It is important to confirm their ultimate disposal on a hazardous waste movement document or an equivalent record of disposal.

The environmental risks associated with these waste types may be mitigated through various forms of on-site management and their disposal may be specifically authorized by the applicable regulator. It is important to review all the sections of this Guideline as it pertains to the proposed activities.

2.2 Generators of Hazardous Waste

The responsibility for proper waste management rests with the generator and should be considered part of the cost of doing business.

The generator is ultimately responsible for ensuring hazardous waste will be properly managed from the time it is generated to final disposal. Hazardous waste must be properly packaged, stored, transported, treated and disposed of. Contractors frequently manage waste on behalf of the generator; however, the generator is responsible for ensuring, in advance, that the waste management method is acceptable.

In general, the generator is responsible for the following:

- Packaging, classifying, quantifying, labelling, and storing hazardous waste properly (See Sections 4.2 and 4.3).
- Registering their hazardous waste management facility if applicable (see Section 2.5).
- Ensuring analysis (if required) is performed by a laboratory accredited by CALA or SCC (See Associations in Appendix 4).
- Ensuring the proper disposal of hazardous waste by an acceptable method. Appendix 2 of this Guideline describes how to determine if a receiver is authorized to receive the type of hazardous waste.
- Ensuring workers are trained in the management of hazardous waste including emergency/spill response in the event of a discharge.
- Complying with all other regulatory requirements for hazardous waste management including transportation, occupational health, and public health and safety.

When hazardous waste is to be transported off-site, the generator is required to:

- register as a generator of hazardous waste;
- ensure the waste is transported by a registered hazardous waste carrier to a receiver authorized to receive the type of hazardous waste; and
- ensure a movement document, or an equivalent record of disposal, is properly completed and accompanies the shipment (see Sections 4.5 and 4.6).

Hazardous waste management flowcharts for generators are shown in Figures 3 and 4 of Section 4.

2.3 Carriers of Hazardous Waste

Carriers must be registered with ED prior to transporting hazardous waste. Hazardous waste must be transported in accordance with the appropriate transport authority as defined below.

Air	International Civil Aviation Organization (ICAO)
Marine	International Maritime Dangerous Goods Code (IMDG)
Road, Rail	Transportation of Dangerous Goods Regulations (TDGR)

In general the carrier is responsible for the following:

- Completing Part B of the hazardous waste movement document (or alternate record of disposal) and retaining it during transit to authorized receiving facilities.
- Maintaining the appropriate placards on the transport vehicle.
- Ensuring staff are trained in the applicable mode of transport, and qualified to safely transport hazardous waste.
- Reporting spills that occur during transit to the NWT/Nunavut Spill Report Line at (867) 920-8130.

2.4 Receivers of Hazardous Waste

Hazardous waste management facilities that manage hazardous waste from other generators are registered as receivers. The operator of a hazardous waste management facility in the NWT is required to register the facility with ED to manage specified hazardous waste types. See Section 2.5 for information about registering a hazardous waste receiving facility. In the NWT, some current examples of receiving facilities may include municipal disposal sites for asbestos, authorized used oil burners for used oil and waste fuel, or hazardous waste transfer facilities.

Receiving facilities outside the NWT need to be authorized by the province or territory of destination to receive the specific type of hazardous waste. There is a wide range of facilities to manage various types of hazardous waste. A comprehensive listing is beyond the scope of this Guideline. See Section 4.6 for more information.

2.5 How to Register as a Hazardous Waste Generator, Carrier, Storage Facility, or Receiver

First, determine what type of hazardous waste you have. Figure 3 on page 26 may be referenced for assistance. Then, determine your hazardous waste management options or what type of registration you may need by referencing Figure 4 on page 27. Registration forms are provided on pages 28 and 30 for generators and carriers respectively. Section 4 outlines basic hazardous waste management practices.

ED requires the following information when applying for a hazardous waste generator or carrier registration number:

Registering as a Generator

- Company name, address, phone number and contact person, including position;
- Location and description of the activity taking place that results in the generation of the hazardous waste; and
- Expected type, quantity and method of storage of hazardous waste.

Registering as a Carrier

- Company name, address, phone number and contact person, including position;
- Proof of transport liability insurance; and
- Confirmation that the company meets the training requirements of the transport authority (certificate of training).

Registering a Storage Facility

A generator may also be required to register their storage facility. If the hazardous waste is not stored on the generator's property, the property owner will need to register their facility as a receiver. A storage facility can be a building, locker, compound or area used to store hazardous waste.

A storage facility must be registered with ED if:

- The facility is used or is intended for the storage of hazardous waste for a period of 180 days or more; and
- Quantities to be stored exceed the quantities set out in Schedule VI for individual waste classes or if the aggregate quantity for all classes of waste stored exceed 5,000 kg or L (except for contaminated soil and drilling waste where quantities exceed 50,000 kg or L).

Under the EPA, the Spill Contingency Planning and Reporting Regulations set the standards for reporting spills of contaminants and preparing spill contingency plans.

ED requires the following information when registering a hazardous waste storage facility:

- Company name, address, phone number and contact person, including position;
- Location and description of the facility;
- Expected types, quantities and method of storage of the hazardous waste;
- Approvals required to operate and occupy the land for that purpose; and
- Confirmation that the proponent has provided building plans to the Office of the Fire Marshal to ensure compliance with adopted codes and standards.

Registering as a Receiver

Facilities which store, treat, reprocess, consolidate, destroy or recycle hazardous waste(s) are classified as hazardous waste management facilities, and must register with ED prior to beginning operation. In addition to the information required for a storage facility ED requires a description of the waste management activities to be conducted.

Note: Facilities that burn used oil must be registered as receivers in accordance with Section 15 of the Used Oil and Waste Fuel Management Regulations. Separate application forms are available at ENR's website (http://www.enr.gov.nt.ca/en/services/hazardous-waste/used-oil-and-waste-fuel-burners) or by contacting ED.

A complete list of requirements for all potential hazardous waste management facilities is beyond the scope of this guideline. ED may request further information on a proposal, following an initial review of information provided.

A hazardous waste management facility may also require permits and licences from the applicable Land and/or Water Board or the Department of Lands depending on the activity, or for the deposit of any waste (see Section 2.6). Under these circumstances the review of proposed hazardous waste management activities that overlap with other agencies, occur in parallel without a duplicate review process.

2.6 Other Regulatory Agencies

Other agencies may be involved with the management of hazardous waste. Some of the other agencies that may be involved are identified below.

2.6.1 Department of Infrastructure, GNWT

The Road Licensing and Safety Division is responsible for administering the *Transportation of Dangerous Goods Act* and Regulations (NWT). The Department is also responsible for driver, vehicle and road safety under additional transport legislation.

The transportation of dangerous goods by rail (TDGR), marine (IMDG) or by air (ICAO) is regulated by Transport Canada.

2.6.2 Department of Lands, GNWT

The Department of Lands issues and manages various authorizations for use of public land. Where public land is leased to operators by the GNWT, the lease terms and conditions require proper management of hazardous waste, which is verified by regular inspections by the Department of Lands.

2.6.3 Workers' Safety and Compensation Commission (WSCC)

The WSCC is responsible for administering the NWT *Safety Act* and the Occupational Health and Safety (OHS) Regulations, which address the safety of workers and the work place. The Act states that the employer shall maintain their establishment and take all reasonable precautions to ensure the safety and health of every person in the establishment. The regulations also prescribe standards for protective clothing and equipment to be used by workers. The Work Site Hazardous Materials Information System Regulations were adopted to ensure employee training and safe storage and handling of controlled products at the employer's work site.

2.6.4 Office of the Fire Marshal, GNWT

The Office of the Fire Marshal has authority over the storage of flammable, combustible and hazardous materials under the *National Fire Code*. The National Fire Code is adopted by the GNWT through the Fire Prevention Regulations. Consult with the GNWT Department of Municipal and Community Affairs' regional Assistant Fire Marshal or your community Fire Chief if your activities may require the Office of the Fire Marshal's review.

2.6.5 Chief Public Health Officer, GNWT

The Chief Public Health Officer, GNWT should be consulted regarding requirements under the *Public Health Act* when waste management activities may affect public health.

2.6.6 Office of the Regulator of Oil and Gas Operations (OROGO)

OROGO regulates oil and gas activities on-shore in the NWT for the primary purposes of ensuring safety, environmental protection and conservation of oil and gas resources. OROGO does not regulate oil and gas activities in federal areas, the off-shore, the on-shore in the Inuvialuit Settlement Region, the Norman Wells proven area, or the inter-provincial/territorial transmission of oil and gas (pipelines).

2.6.7 Environment and Climate Change Canada (ECCC)

ECCC is responsible for regulating the management of hazardous waste from federal facilities and lands under the *Canadian Environmental Protection Act* (CEPA). CEPA regulates polychlorinated biphenyls (PCBs) under the PCB Regulations. International and Interprovincial shipments of hazardous waste are controlled under the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations and the Interprovincial Movement of Hazardous Waste Regulations.

2.6.8 National Energy Board (NEB)

NEB regulates oil and gas activities in federal areas, the off-shore, the on-shore in the Inuvialuit Settlement Region, the Norman Wells proven area, and the inter-provincial/territorial transmission of oil and gas (pipelines).

2.6.9 Natural Resources Canada (NRCAN)

The Explosives Safety and Security Branch of NRCAN is responsible for administering the *Explosives Act* and regulations and pursuing the advancement of explosives safety and security of the public and all the workers involved in the explosives industry in Canada.

2.6.10 Canadian Nuclear Safety Commission (CNSC)

The CNSC regulates and licenses radioactive waste management facilities. The responsibility for ensuring safe transport of radioactive waste is jointly shared between the CNSC and Transport Canada. The TDGR deals with the transport of all classes of dangerous goods, while the CNSC's Packaging and Transport of Nuclear Substances Regulations are primarily concerned with health, safety and security of the public, and protection of the environment related to the special characteristics of radioactive material.

2.6.11 Indigenous and Northern Affairs Canada (INAC)

INAC is the federal agency that has the mandate to manage land and water on designated federal lands, as well as off-shore oil and gas. They also make appointments and provide policy direction to the land and water boards.

2.6.12 Land and/or Water Boards

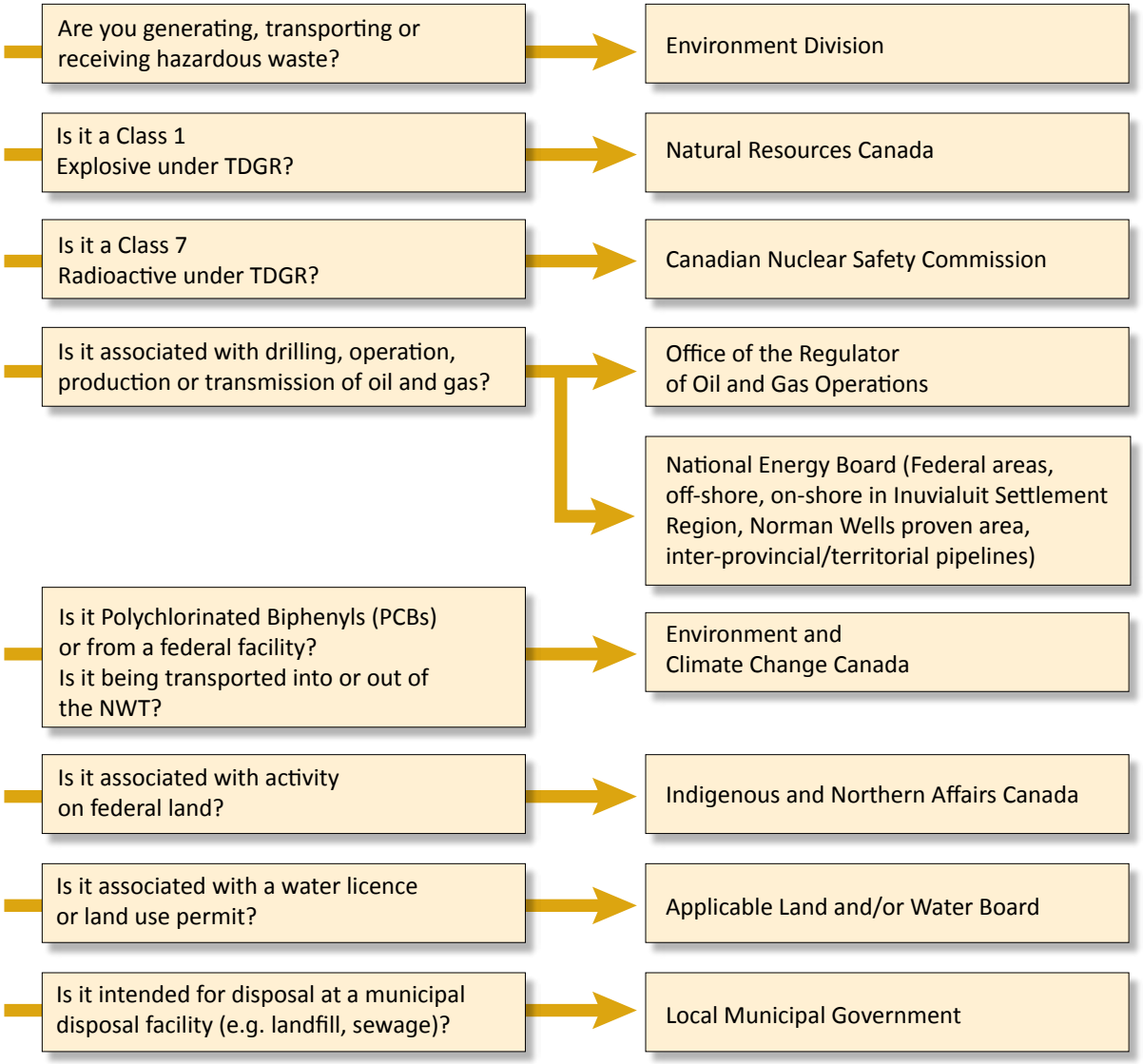
The Land and Water Boards of the NWT were established under the *Mackenzie Valley Resource Management Act* and the *Waters Act*. They have broad authority to regulate the use of land, water, and the deposit of waste. The Land and Water Boards set terms and conditions in permits and licences that pertain to waste disposal. Information about the boards of the Mackenzie Valley can be found at the following website, https://mvlwb.com. Information about the Inuvialuit Water Board can be found at the following link, https://www.inuvwb.ca. Further information about the Land and Water Boards of the NWT can be found at http://www.nwtboardforum.com.

2.6.13 Local Governments

Local municipal governments are incorporated in a number of ways, under a variety of legislation and they assume full authority for decisions about community public infrastructure including disposal facilities such as landfills and sewage lagoons. A complete list of municipal governments can be found at the following website (http://www.maca.gov.nt.ca/en/communitylist).

The contact information for all of the above agencies can be found in Appendix 4.

Figure 2: Regulatory Contacts for Hazardous Waste Management



3 Hazardous Waste Properties and Lists

3.1 General

Hazardous wastes are generated in a wide variety of workplace settings in the NWT and may be gases, liquids, solids or semi-solids. The definition of hazardous waste incorporates several terms that describe the different types of hazardous waste generated. Waste types a) through e) are classified based on their physical properties of being corrosive, flammable, reactive, persistent, bioaccumulative or toxic. Waste types f) and g) are named as hazardous wastes because of the known environmental liability associated with these waste types.

a) A dangerous good according to the TDGR;
b) Leachable waste;
c) Hazardous to the aquatic environment;
d) Waste containing dioxins and furans;
e) Contaminated soil/snow/water from a contaminated site;
f) Drilling waste;
g) Listed waste; or
h) Any other waste deemed hazardous.

In addition hazardous waste does not include a material that is:

a) Authorized for on-site disposal by the applicable regulator for the specific activity in which the hazardous waste was generated;
b) Household hazardous waste being transported to a municipal collection depot;
c) Included in Class 1, Explosives or Class 7, Radioactive materials of TDGR;
d) Exempted as a small quantity;
e) An empty container; or
f) Goods that are defective, surplus, or otherwise not usable for their intended purpose and that are in the process of being returned directly to a manufacturer or supplier.

It is important to check the definition of small quantity and empty container as they relate to the other definitions and schedules in this guideline.

Hazardous waste must not be mixed or diluted with any substance or divided into smaller quantities to avoid meeting the definition of a hazardous waste.

3.2 Hazardous Waste Types

a) Dangerous Goods

The definition of hazardous waste in this guideline incorporates the term "dangerous goods" as defined in the *Transportation of Dangerous Goods Act*. The Transportation of Dangerous Goods Regulations (TDGR) outlines a system for classifying dangerous goods. Therefore, the classification system used in the TDGR should be referred to for the most current criteria when it is applied to hazardous waste classification. There are nine classes of dangerous goods described in the TDGR, however the definition of hazardous waste only includes the criteria for Classes 2, 3, 4, 5, 6, 8, and 9. Class 1 explosives and Class 7 radioactive materials are exempt from the definition of hazardous waste. These materials are regulated by federal legislation. Appendix 3 outlines the properties of the seven dangerous goods chemical classes referenced in the definition of hazardous waste.

b) Leachable Waste

The leachability of solid waste is determined by analysing a representative sample according to the Toxicity Characteristic Leaching Procedure (TCLP), Test Method 1311 (as amended) developed by the U.S. Environmental Protection Agency. The purpose of the TCLP is to determine the mobility of organic and inorganic analytes present in liquid, solid, and multi-phase wastes. The TCLP analysis simulates landfill conditions where, over time, water and other liquids percolate through landfills. The percolating liquid often reacts with solid waste in the landfill, and may pose public and environmental health risks because of the contaminants it absorbs. The test is intended to determine if a waste is suitable for disposal in a landfill or disposal facility. The generator must use process knowledge to select the applicable parameters in Schedule I and ensure the waste types meets the numerical criteria assigned to the parameter.

c) Hazardous to the Aquatic Environment

This classification is intended for packaged products or bulk goods that are bought, sold, or used in a workplace setting. The classification may be found as a label on the product or on the safety data sheets of the product. This hazard classification system is not intended to be referenced as effluent criteria that require authorization from the applicable regulator.

Part 4 Environmental Hazards of the United Nations GHS outlines criteria for substances that are hazardous to the aquatic environment based on the following basic elements:

(a) Acute aquatic toxicity;
(b) Chronic aquatic toxicity;
(c) Potential for or actual bioaccumulation; and
(d) Degradation (biotic or abiotic) for organic chemicals.

d) Waste Containing Dioxins and Furans

Dioxins and furans are polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans. Due to their extraordinary environmental persistence and capacity to accumulate in biological tissues, the release of dioxins and furans from human activity are slated for virtual elimination under the Canadian Council of Ministers of the Environment (CCME) Policy for Management of Toxic Substances and the federal Toxic Substances Management Policy.

In the NWT, dioxins and furans from human activities are most frequently formed as a result of incineration or open burning of garbage, and are also found as solid waste in the ash. They are also found in wood preservatives that used pentachlorophenol.

Waste containing dioxins and furans is classified as a hazardous waste if it contains Dioxin TEQ in a concentration greater than 0.001 mg/kg.

e) Contaminated Soil/Snow/Water

Contaminated soil/snow/water that is being removed from a contaminated site is managed as a hazardous waste in the NWT to ensure the material removed is transported to a registered receiving facility authorized to receive that waste.

Contaminated soil is soil, sand, gravel, rock or similar naturally occurring material that contains levels of contaminants exceeding the remediation criteria found in the Guideline for Contaminated Site Remediation. The hazardous waste management framework is not meant to be applied to activities that follow the tiered process or risk assessment or in-situ remediation according to the Guideline for Contaminated Site Remediation.

Contaminated soil may be exempt from the definition of hazardous waste where circumstances allow for:

- on-site remediation;
- re-use of petroleum hydrocarbon contaminated soil in an asphalt paving plant;
- re-use of soil that meets industrial criteria for landfill cover; or
- re-use of soil as industrial fill once a prior informed consent form has been completed.

Under these circumstances ED needs to be contacted to confirm an alternative record of disposal is completed that provides an equivalent level of accountability to confirm the disposal does not contribute to the likely discharge of a contaminant.

Contaminated snow or water may contain mixtures or emulsions of waste fuel, used oil, solvents, antifreeze, or other types of hazardous waste. Contaminated snow or water is a hazardous waste if it contains any of the contaminants listed in Schedule I in a concentration greater than the corresponding amount.

If the contaminated water is suitable for disposal in a municipal sewage lagoon then it is not considered hazardous waste. It is important to check the municipal sewer by-law or with the municipality about their water licence prior to disposing of contaminated water in a municipal sewage lagoon.

f) Drilling Waste

Drilling wastes are generated from sub-surface drilling activities and are usually made up of two components: drilling fluids and solids (i.e. cuttings). In the NWT, drilling wastes are typically generated from the following activities:

- oil and gas exploration/production;
- mineral exploration; or
- horizontal directional drilling for infrastructure installation.

The management of drilling waste requires careful consideration of the various authorizations that may be required from the applicable regulator. Drilling wastes vary in volume and chemical composition, therefore management methods vary depending on the specific type or method of drilling activity. For drilling that requires the use of fluids, these fluids can be water-based, oil-based and may include a wide variety of added substances.

The following are potential components of drilling wastes:

a) Drilling cuttings;
b) Drilling mud;
c) Drilling fluids;
d) Fracturing fluid;
e) Flowback fluid; and
f) Cement returns.

Regulatory Oversight

This guideline makes a distinction between the on-site, and the off-site, management and disposal of drilling waste. Individual projects may choose to manage their drilling waste on-site or off-site, or some combination of both.

On-Site Drilling Waste Management and Disposal

The regional Land and/or Water Board authorize the disposal of drilling waste onto land or into water, through terms and conditions in either a Land Use Permit (LUP) or a Water Licence (WL) (See Section 2.6.12). The deposit of drill waste by injection into an underground formation or reservoir is authorized by the applicable energy regulator (see section 2.6.6 and 2.6.8). Prior to receiving authorization the operator is required to submit a project proposal which includes details pertaining to waste management and disposal. Approved drilling waste management plans in the NWT may reference suitable drilling waste management guidance developed in other jurisdictions, but may also require additional methods suitable for the NWT.

Off-Site Transportation and Disposal

The off-site transportation and disposal of drilling waste in the NWT requires proper tracking and record keeping. The framework for managing hazardous waste, such as generator, carrier, receiver registration and the use of hazardous waste movement documents (or alternative record of disposal), are used to account for the ultimate disposal of all drilling wastes when they are transported to other receiving facilities. In addition, the generator must also determine if the properties of the drilling wastes require it to be classified as a dangerous good.

The off-site management and disposal of drilling waste in the NWT requires authorization from the applicable regulator. This may be done through the review of, but not limited to the:

a) Receiving site design, operation and capacity;
b) Receiving site approvals and any associated operational requirements;
c) Analytical testing of the drilling wastes or the receiving environment;
d) Information that indicates no hazardous drilling additives or chemicals were used; or
e) Waste management plans that reference suitable drilling waste management practices prior to disposal (i.e. storage, transport, handling, disposal method, etc.).

g) Listed Waste

ED has included a specific list of wastes in Schedule III that are known to have hazardous properties. The waste types listed are common to several types of industrial, commercial and institutional activities. Further testing or application of process knowledge, of these wastes is required to determine if they can be managed as non-hazardous waste. The generator must also use their knowledge of the specific characteristics of these waste types to help determine if they are also classified as dangerous goods.

The small quantity thresholds for various listed wastes are specified in Schedule V.

1. Saturated absorbent materials contaminated with leachable amounts of hazardous waste:
   - Granular sorbent;
   - Sorbent pads/booms;
   - Shop towels (rags);
   - Used activated carbon; or
   - Any material used to contain leaks and spills of hazardous waste.

2. Household hazardous waste is generated from common activities such as home, yard, and vehicle maintenance. Household hazardous waste from a single residence is exempt from the requirements of this guideline, but a collection of consolidated household hazardous waste from numerous residences is managed as hazardous waste. Collections of household hazardous waste are those that are collected and segregated at collection events or have accumulated at municipal facilities over time.

3. Incinerator ash is a process residual generated in incinerators used in various industrial activities. Incinerator ash might contain high levels of metals, dioxins and/or furans. This waste stream must undergo analytical testing for leachable metals as well as dioxins and furans to confirm the absence of contaminants (Schedule I and II) prior to disposal in solid waste facilities in the NWT.

4. Used oil and used oil filters are regulated in accordance with the Used Oil and Waste Fuel Management Regulations that contain criteria for the use of used oil for the purpose of heat recovery, as well as how used oil filters are to be managed. Section 20 of these regulations state the following.
   20. *No person shall dispose of a filter used to filter oil unless, 24 hours before disposing of the filter,*
   (a) the inner chamber of the filter is punctured and the contents are drained; or
   (b) the filter is mechanically crushed or shredded and the contents have been collected.

The management of the following waste types are defined and discussed further in separate guidelines listed below:

5. Waste asbestos, defined in the Guideline for the Management of Waste Asbestos;
6. Biomedical waste, defined in the Guideline for the Management of Biomedical Waste;
7. Lead paint that produces a leachate greater than 5 mg/L, Guideline for the Management of Waste Lead and Lead Paint;
8. Glycol (Antifreeze) solutions, defined in the Guideline for the Management of Waste Antifreeze;
9. Halocarbons, defined in the Guideline for the Management of Ozone Depleting Substances and Halocarbon Alternatives;
10. Waste paint, defined in the Guideline for the Management of Waste Paint;
11. Mercury-containing lamps, defined in the Guide to Recycling Mercury-Containing Lamps.

h) Any Other Waste Deemed Hazardous

A waste might need to be managed as a hazardous waste under circumstances not defined in this guideline. ENR could receive new information that a waste type or chemical is hazardous, but not captured by any of the classifications in this guideline. Additionally, ENR may contact the responsible party directly in writing, or verbally, with specific waste management requirements.

4 Storage and Management of Hazardous Waste

Waste management is intended to reduce or eliminate the effects of waste on the environment, to provide for public and worker safety and to maximize the efficient use of resources. Once hazardous waste has been created, the proper treatment and disposal can be expensive. While it is the responsibility of the waste generator to pay for all disposal costs, various waste management options are available to reduce the cost and volume of waste requiring treatment.

4.1 Pollution Prevention

A more effective and proactive management practice is to eliminate or reduce the generation of the waste. This is referred to as pollution prevention.

> **Minimizing or avoiding the creation of pollutants and waste can be more effective in protecting the environment than treating them, or cleaning them up after they have been created.**
> – *Canadian Council of Ministers of the Environment*

Pollution control options treat waste after it has been created, whereas pollution prevention measures avoid the creation of waste.

Waste generators in the NWT can reduce costs and prevent pollution by implementing reduction, reuse and recycling programs through changes in operational procedures, maintenance practices and raw material usage. An overall waste management plan should incorporate these ideas.

1. Reduce

The aim of reduction is to eliminate the production of a hazardous waste by using raw materials more efficiently. Methods of reduction include substitution or reduction of a raw material, production redesign, process changes, and improved maintenance activities. Methods which are technically and economically practical in any given situation should be used to reduce or eliminate waste streams.

2. Reuse and Recycle

Reusing or recycling hazardous waste in operating processes within the generating facility is another means of pollution prevention. Alternatively, other users may be found to reuse the material that would otherwise require treatment or disposal. ENR encourages the reuse and recycling of hazardous waste in the following ways:

(a) Waste exchanges and associations offer some opportunity for the reuse or recycling of waste. Waste exchanges put potential users of waste materials in contact with waste generators. Appendix 4 lists a number of waste material exchanges and management associations; and

(b) Recycling programs are in place for some hazardous wastes such as used oil, waste fuels, solvents and batteries. For information on recycling programs, contact the waste management associations listed in Appendix 4 or ED.

4.2 General Requirements for Storage Containers

Hazardous waste should be stored in containers as follows:

- In the original containers, where possible, or in containers manufactured for the purpose of storing hazardous waste. The containers must be sound, sealable and not damaged or leaking. The Transport Authority regulates container specifications.
- Clearly labelled according to the Work Site Hazardous Materials Information System (WHMIS) and/or the relevant Transport Authority, if transportation is planned.
- Bulked into specified means of containment that is outlined in the TDGR. If the hazardous waste is not a dangerous good, the means of containment must be suitable to ensure that the contents will remain secure during storage and transportation.
- The containers should be sealed or closed at all times, unless in use.

4.3 General Requirements for Storage Facilities

Hazardous waste must be stored in a safe and secure manner. In general, hazardous waste should be stored according to the following points:

- Drainage is controlled to prevent spills or leaks from leaving the site and to prevent run-off from entering the site.
- Wastes are segregated by chemical compatibility to ensure safety of the public, workers and facility. The National Fire Code as well as TDGR can be referenced for segregation criteria.
- Hazardous wastes are stored in a secure area with controlled access. Only persons authorized to enter and trained in waste handling procedures should have access to the storage site.
- Regular inspections of stored hazardous wastes are performed and recorded. Containers are placed so that each container can be inspected for signs of leaks or deterioration. Leaking or deteriorated containers must be immediately removed and their contents transferred to a sound container.
- A record of the type and amount of waste in storage should be maintained.
- Hazardous waste containers must not be allowed to fill up with water when stored outdoors. Drums frequently accumulate water from rainfall and snowmelt, if stored upright, outside, without proper sealing.
- Empty containers need to be stored on their side to prevent water from entering.
- Storage sites must have emergency response equipment and material appropriate for the hazardous waste stored on site.
- Where the hazardous waste storage site is to be used for long term storage and the amount of waste in storage exceeds the quantity requirements set out in Schedule VI, the site needs to be registered in accordance with Section 2.5 of this guideline.
- Hazardous waste storage sites must meet all local by-law and zoning requirements. It is recommended that the local Fire Chief be advised of the storage facility and its contents for emergency planning and response purposes.

4.4 Hazardous Waste Treatment or Disposal

It is not acceptable for hazardous waste to be abandoned, poured down sewers, dumped on land or discarded at a landfill.

Treating hazardous waste to reduce or eliminate hazards is the final option after implementing appropriate pollution prevention options. It is the responsibility of the generator to treat or dispose of hazardous waste properly. Although a discussion of treatment and disposal methods is beyond the scope of this guideline, the following are general points for consideration:

- The generator is required to determine and follow the proper management method for the hazardous waste generated. Information on proper management methods for hazardous waste types can be found at the following sources:
  - the manufacturer's Safety Data Sheet (SDS) provided with the raw materials;
  - the manufacturer;
  - this guideline and other relevant legislation; and
  - waste management consultants and associations.
- Open burning of hazardous waste is prohibited.
- Mixing different types of hazardous waste in the same container may cause dangerous chemical reactions. It is also important to control the quality of any waste to ensure it can be recycled or disposed of properly. Contaminating wastes with other wastes may prevent reuse/recycling options and increase disposal costs.
- Hazardous waste containers should be emptied, to the greatest extent possible, using regular handling procedures, or by triple rinsing with an appropriate cleaning agent. Rinsings must be managed according to their waste characteristics. Containers must be rendered unusable by puncturing or crushing prior to disposal. This is especially of concern for containers which could otherwise be used for water or food storage.

4.5 Record of Disposal Requirements

A completed six-part hazardous waste movement document (waste manifest) is a record of disposal that accompanies the transportation of hazardous waste from registered generators to carriers to receivers. The completed movement document form provides:

- Detailed information on the types and amounts of hazardous waste shipped;
- A record of who is in charge, management or control of the hazardous waste; and
- Information on the storage, treatment or disposal of the waste and confirmation that the hazardous waste arrived at an authorized receiver.

The generator (consignor), carrier and receiver (consignee) must each complete their portion of the movement document. The information provided on the movement document, as well as other TDGR requirements (i.e. labelling and placarding) are also intended to assist first responders (police, ambulance, fire fighters) with hazard information should a transportation accident occur. Movement documents are available from ED.

Copies of the completed movement document are required to be forwarded according to the instructions on the back of each copy, as follows:

- Copy 1 Sent to ED upon consignment to a carrier by the generator.
- Copy 2 Retained by the generator.
- Copy 3 Sent to ED upon receiving the consignment by the receiver.
- Copy 4 Returned to the carrier by the receiver.
- Copy 5 Retained by the receiver.
- Copy 6 Sent to the generator by the receiver.

A hazardous waste movement document must be used under the following circumstances:

1) The inter-provincial/territorial movement of hazardous waste according to the Interprovincial Movement of Hazardous Waste Regulations.
2) The normal movement of all types of hazardous waste within the NWT (except used oil).
3) The requirement of the use of a movement document in a province or territory of destination.

An alternate record of disposal that contains all the information outlined in Schedule VIII may be utilized under the following circumstances:

1) Used oil transported to a registered used oil burner in the NWT in accordance with the Used Oil and Waste Fuel Management Regulations.
2) The movement document is not required for the particular waste type in the province or territory of destination.

4.6 Disposal of Hazardous Waste Outside of the NWT

Hazardous waste can be sent to a hazardous waste management facility outside of the NWT if the receiving facility is registered in the receiving province or territory and is authorized to manage that waste. Waste types such as contaminated soil or drilling waste may not be considered hazardous waste in other provinces or territories but must still be transported to authorized disposal facilities. Hazardous waste generated in the NWT is commonly transported to Alberta or British Columbia (BC) for treatment or disposal. A list of hazardous waste management facilities in these provinces is available by visiting Alberta Environment and Parks website http://aep.alberta.ca/waste/waste-facilities/hazardous-facilities.aspx or the BC Environmental Industries Associations website (http://www.hazwastebc.com). The list of organizations in Appendix 4 can help to determine the best hazardous waste management option.

It is important for generators to know the differences in hazardous waste regulations between provincial/territorial jurisdictions and ensure that the hazardous waste is disposed of in a manner that satisfies all jurisdictions where the hazardous waste will be generated, transported and disposed.

It is important for generators to use shipping names of hazardous waste that align with the province or territory of destination. If the waste receiving facility is not familiar with the movement document for a particular type of waste it is important to ensure a complete record of disposal is utilized and that the receiving site provides a signed copy that confirms the ultimate disposal. Under these circumstances the generator in the NWT is required to provide the signed copy to ED.

International and interprovincial/territorial shipments of hazardous waste are also controlled under the federal Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations and the Interprovincial Movement of Hazardous Waste Regulations.

4.7 Alternative Management Methods

ED will give consideration to proposals for alternate management methods that provide an equivalent level of environmental protection to those identified in this guideline. Staff in the Environment Division are available to discuss and review proposed hazardous waste treatment and disposal options.

5 Conclusion

This guideline outlines the basics of hazardous waste management in the NWT. It is intended to provide direction when making hazardous waste management decisions to prevent the discharge of contaminants, or situations that contribute to the likely discharge of contaminants. It does not replace the existing legislation which is referenced in the guideline. Please contact the appropriate agency before proceeding. For more information regarding hazardous waste please visit our website (http://www.enr.gov.nt.ca/en/services/hazardous-waste) or contact:

Environment Division
Department of Environment and Natural Resources
Government of the Northwest Territories
7th floor, Scotia Centre
5102 50th Avenue

Mailing Address:
PO Box 1320
Yellowknife NT X1A 2L9

Tel: (867) 767-9236 ext. 53176
Fax: (867) 873-0221

Figure 3: Decision Flow Chart for Determining if a Waste is a Hazardous Waste

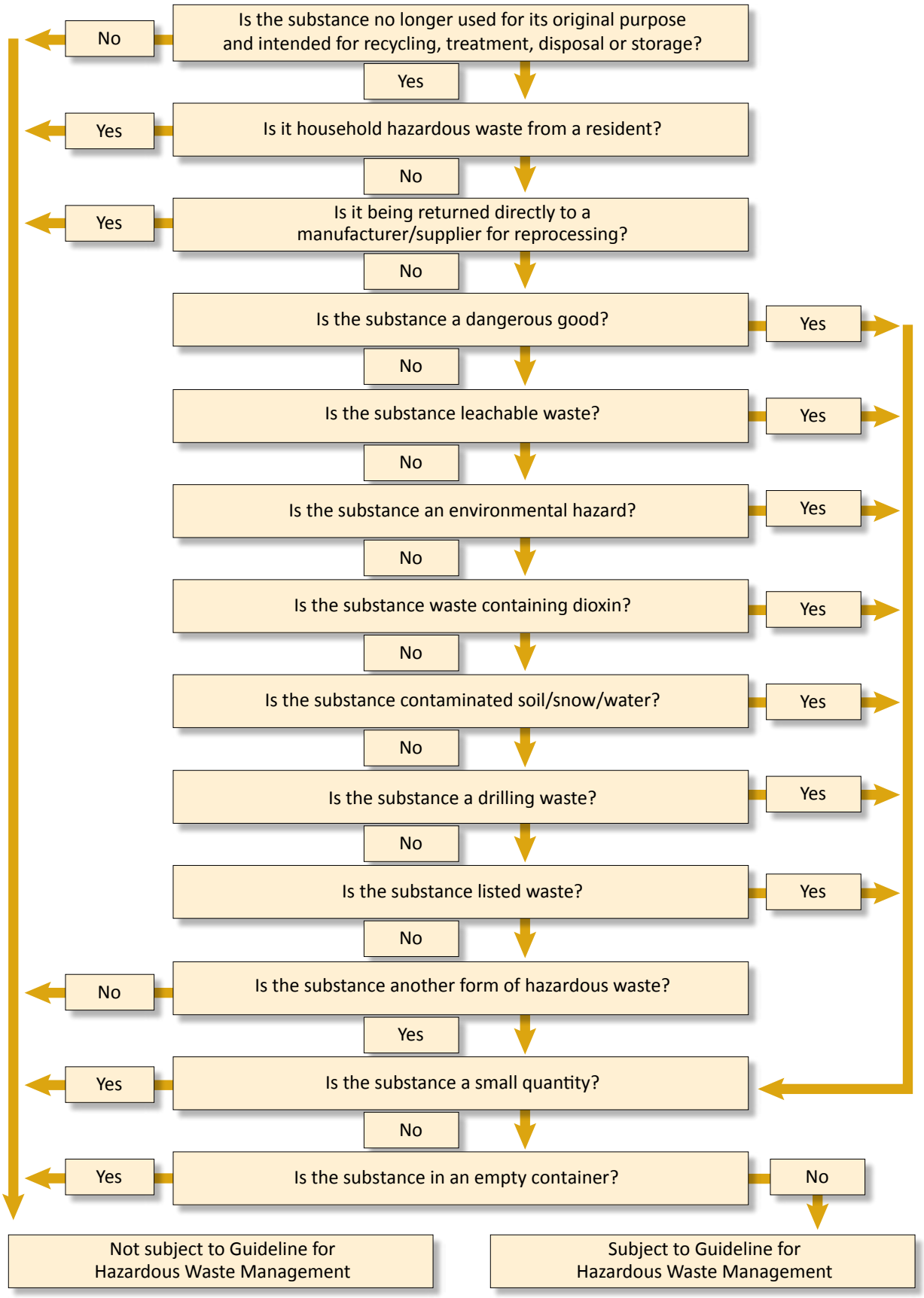
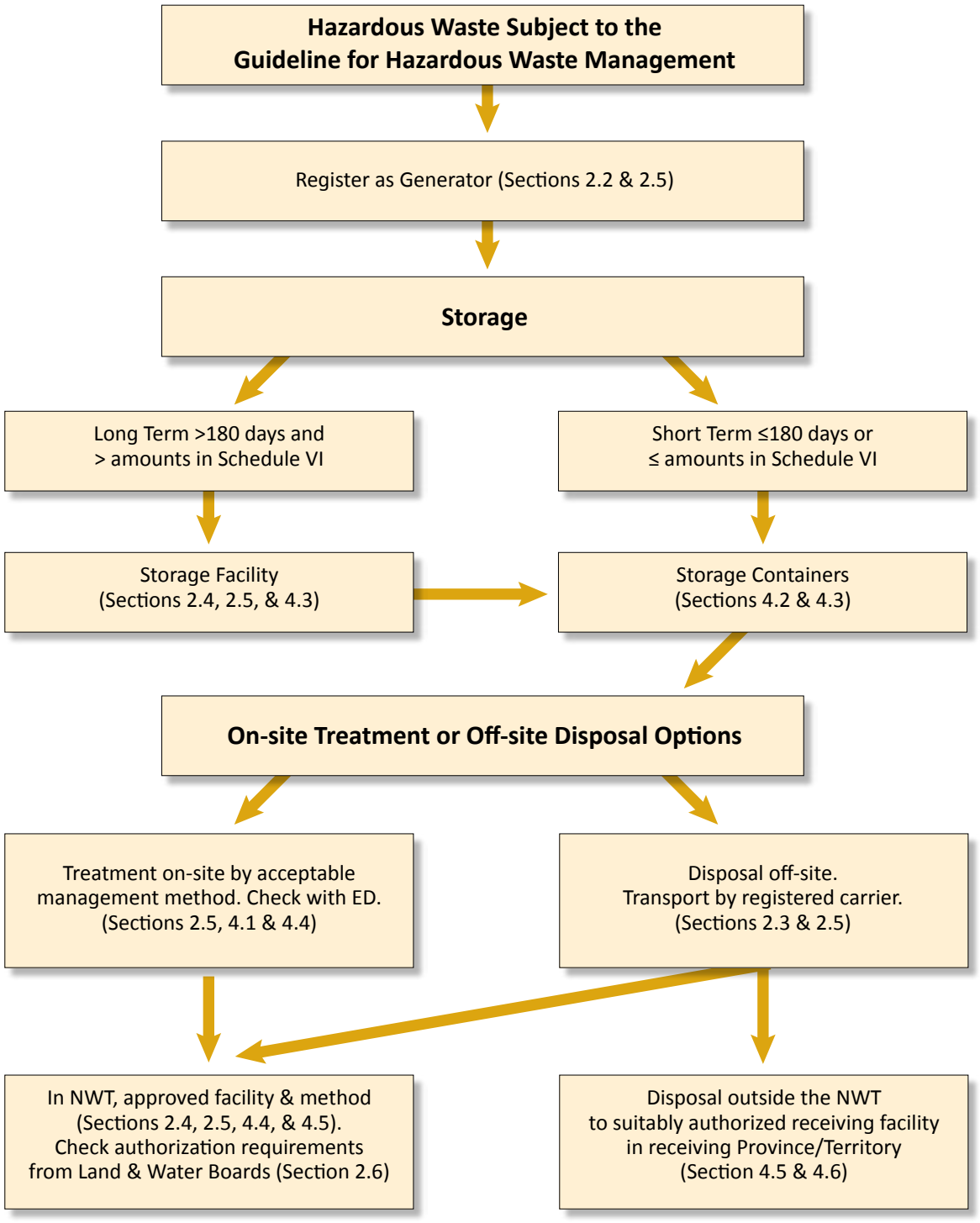


Figure 4: Hazardous Waste Management Process for Generators



Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

FORM 1: HAZARDOUS WASTE GENERATOR REGISTRATION FORM

Instructions

1. The following information must be provided in order to register and obtain a generator number in the NWT. Incomplete applications will be returned to the applicant.
2. Completed registration forms are to be forwarded to EnvironmentalProtection@gov.nt.ca, or mailed to:
   Environment Division
   Department of Environment and Natural Resources
   Government of the Northwest Territories
   P.O. Box 1320, Yellowknife NT X1A 2L9
3. Use additional pages to provide information as required.

FORMULAIRE 1 : INSCRIPTION À TITRE DE PRODUCTEUR DE DÉCHETS DANGEREUX

Instructions

1. Veuillez fournir les renseignements suivants pour vous inscrire et pour obtenir un numéro de producteur aux TNO. Les formulaires incomplets seront retournés aux demandeurs.
2. Veuillez expédier les formulaires remplis par courriel (Environmental Protection@gov.nt.ca), ou par la poste :
   Division de l'environnement
   Ministère de l'Environnement et des Ressources naturelles
   Gouvernement des Territoires du Nord-Ouest
   C. P. 1320, Yellowknife NT X1A 2L9
3. Au besoin, utilisez des feuilles supplémentaires pour fournir l'information nécessaire.

Section 1: Contact Information / Coordonnées

Generator Company (Legal) Name: Nom de l'entreprise productrice (nom légal) :		
Mailing Address: Adresse postale :		
Contact Person: Personne-ressource :		Title: Titre de poste :
Phone: N° de téléphone :	Email: Courriel :	
Alternate Contact Person: Personne-ressource supplémentaire :		Title: Titre de poste :
Phone: N° de téléphone :	Email: Courriel :	

Section 2: Description of Waste Types Generated / Description des déchets produits

(Provide a separate table or reference waste management plan. / Utilisez un tableau séparé ou faites référence à votre plan de gestion des déchets.)

Location where waste is generated (coordinates or physical address):
Lieu où les déchets sont produits (coordonnées ou adresse physique) :

Describe types of hazardous waste (if not Dangerous Goods, indicate in description)
Décrivez le type de déchets dangereux (s'il ne s'agit pas de déchets dangereux, veuillez décrire le produit)

Shipping Name (description) Désignation officielle (description)	UN No. N° ONU	TDGR Class Catégorie du RTMD	Quantity generated (kg or L) Quantité transportée (en kg ou en L)	Monthly/Annually Mensuellement ou annuellement

Section 3: I certify that the information provided on this form is correct and accurate. Je certifie que les renseignements fournis dans le présent formulaire sont exacts, fiables, et complets.	
Signature of Contact Person / Signature de la personne-ressource	Date (MM-DD-YYYY) / Date (MM-JJ-AAAA)
Name of Contact Person (Print): Nom de la personne-ressource (caractères d'imprimerie) :	
Title: Titre de poste :	
Phone: N° de téléphone :	Email: Courriel :

Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

FORM 2: HAZARDOUS WASTE CARRIER REGISTRATION FORM

Instructions

1. The following information must be provided in order to register and obtain a carrier number in the NWT. Incomplete applications will be returned to the applicant.
2. Completed registration forms are to be forwarded to environmental_protection@gov.nt.ca, or mailed to:
   Environment Division
   Department of Environment and Natural Resources
   Government of the Northwest Territories
   P.O. Box 1320, Yellowknife NT X1A 2L9
3. Use additional pages to provide information as required.

FORMULAIRE 2 : INSCRIPTION DES TRANSPORTEURS DE DÉCHETS DANGEREUX

Instructions

1. Veuillez fournir les renseignements suivants pour vous inscrire et pour obtenir un numéro de transporteur aux TNO. Les formulaires incomplets seront retournés aux demandeurs
2. Veuillez expédier les formulaires remplis par courriel (environmental_protection@gov.nt.ca), ou par la poste :
   Division de l'environnement
   Ministère de l'Environnement et des Ressources naturelles
   Gouvernement des Territoires du Nord-Ouest
   C. P. 1320, Yellowknife NT X1A 2L9
3. Au besoin, utilisez des feuilles supplémentaires pour fournir l'information nécessaire.

Section 1: Contact Information / Coordonnées

Carrier Company (Legal) Name: Nom de l'entreprise productrice (nom légal) :	
Mailing Address: Adresse postale :	
Contact Person: Personne-ressource :	Title: Titre de poste :
Phone: N° de téléphone :	Email: Courriel :
Contact Person: Personne-ressource :	Title: Titre de poste :
Phone: N° de téléphone :	Email: Courriel :

Section 2: Description of Carrier's Activities / Description des activités du transporteur

(Provide a separate table or reference waste management plan. / Veuillez fournir un tableau distinct ou faire référence au plan de gestion des déchets.)

Mode of Transport (check all that apply): Mode de transport (cochez tous ceux qui s'appliquent)	☐ Road / Routier ☐ Rail / Ferroviaire ☐ Ship / Maritime ☐ Air / Aérien
Proof of transport liability insurance is attached (certificate of insurance): Vous avez joint une preuve d'assurance responsabilité civile de transport (certificat d'assurance)	☐ Yes / Oui ☐ No / Non
Proof of training from the applicable Transport Authority is attached: Vous avez joint une preuve de formation de l'agence de transport concernée :	☐ Yes / Oui ☐ No / Non
A spill contingency plan is attached: Vous avez joint un plan d'urgence en cas de déversement :	☐ Yes / Oui ☐ No / Non

Describe types of hazardous waste (if not Dangerous Goods, indicate in description) Décrivez le type de déchets dangereux (s'il ne s'agit pas de déchets dangereux, veuillez décrire le produit)				
Shipping Name (description) **Désignation officielle (description)**	**UN No.** **N° ONU**	**TDGR Class** **Catégorie du RTMD**	**Quantity generated (kg or L)** **Quantité transportée (en kg ou en L)**	**Monthly/Annually** **Mensuellement ou annuellement**

Section 3: I certify that the information provided on this form is correct, accurate and complete.
Je certifie que les renseignements fournis sont exacts, fiables, et complets.

Signature of Contact Person / Signature de la personne-ressource	Date (MM-DD-YYYY) / Date (MM-JJ-AAAA)
Name of Contact Person (Print): Nom de la personne-ressource (caractères d'imprimerie) :	
Title: Titre de poste :	
Phone: N° de téléphone :	Email: Courriel :

Schedule I: Leachate Disposal Standards for Solid Waste / Process Residuals

Item	Parameter	Concentration (mg/L)
1.	Antimony	0.6
2.	Arsenic	2.5
3.	Barium	100
4.	Benzene	0.5
5.	Beryllium	5.0
6.	Boron	500
7.	Cadmium	0.5
8.	Carbon tetrachloride (Tetrachloromethane)	0.5
9.	Chloramines	300
10.	Chlorobenzene (Monochlorobenzene)	8.0
11.	Chloroform	6.0
12.	Chromium	5.0
13.	Cobalt	100
14.	Copper	100
15.	Cresol (Mixture – total of all isomers, when isomers cannot be differentiated)	200
16.	Cyanide	20
17.	2,4-DCP / (2,4-Dichlorophenol)	90
18.	1,2-Dichlorobenzene (o-Dichlorobenzene)	20
19.	1,4-Dichlorobenzene (p-Dichlorobenzene)	0.5
20.	1,2-Dichloroethane (Ethylene dichloride)	0.5
21.	1,1-Dichloroethylene (Vinylidene chloride)	1.4
22.	Dichloromethane (also see – methylene chloride)	5.0
23.	2,4-Dinitrotoluene	0.13
24.	Polychlorinated dibenzo dioxins and furans (TEQ)	0.0000015

Item	Parameter	Concentration (mg/L)
25.	Ethyl benzene	0.24
26.	Fluoride	150
27.	Hexachlorobenzene	0.13
28.	Hexachlorobutadiene	0.5
29.	Hexachloroethane	3.0
30.	Lead	5.0
31.	Mercury	0.1
32.	Methyl ethyl ketone / Ethyl methyl ketone	200
33.	Naphthalene	0.5
34.	Nitrate + Nitrite	1000
35.	Nitrilotriacetic acid (NTA)	40
36.	Nitrite	320
37.	Nitrobenzene	2
38.	Pentachlorophenol	6.0
39.	Pyridine	5.0
40.	Selenium	1.0
41.	Silver	5.0
42.	Tetrachloroethylene	3.0
43.	2,3,4,6-Tetrachlorophenol / (2,3,4,6-TeCP)	10
44.	Toluene	2.4
45.	Trichloroethylene	0.5
46.	Trihalomethanes – Total (also see – Chloroform)	10
47.	Uranium	2.0
48.	Xylene	0.5
49.	Zinc	500

Schedule II: Dioxin Toxicity Equivalency Factors

Column I – Congeners	Column II – TEF*
2,3,7,8-tetrachlorodibenzo-p-dioxin	1.0
1,2,3,7,8-pentachlorodibenzo-p-dioxin	0.5
1,2,3,4,7,8-hexachlorodibenzo-p-dioxin	0.1
1,2,3,6,7,8-hexachlorodibenzo-p-dioxin	0.1
1,2,3,7,8,9-hexachlorodibenzo-p-dioxin	0.1
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	0.01
octachlorodibenzo-p-dioxin	0.001
2,3,7,8-tetrachlorodibenzofuran	0.1
1,2,3,7,8-pentachlorodibenzofuran	0.05
2,3,4,7,8-pentachlorodibenzofuran	0.5
1,2,3,4,7,8-hexachlorodibenzofuran	0.1
1,2,3,6,7,8-hexachlorodibenzofuran	0.1
1,2,3,7,8,9-hexachlorodibenzofuran	0.1
2,3,4,6,7,8-hexachlorodibenzofuran	0.1
1,2,3,4,6,7,8-heptachlorodibenzofuran	0.01
1,2,3,4,7,8,9-heptachlorodibenzofuran	0.01
octachlorodibenzofuran	0.001

* Toxicity Equivalency Factor

Schedule III: Listed Waste

1.	Absorbent material
2.	Household hazardous waste consolidated at a municipal collection depot
3.	Incinerator ash (bottom/fly ash)
4.	Used oil and used oil filters*
5.	Waste asbestos (defined in the Guideline for the Management of Waste Asbestos)
6.	Biomedical waste (defined in Guideline for the Management of Biomedical Waste)
7.	Lead paint that produces a leachate greater than 5 mg/L (defined in the Guideline for the Management of Waste Lead and Lead Paint)
8.	Glycol (Antifreeze) solutions (defined in the Guideline for the Management of Waste Antifreeze)
9.	Halocarbons (defined in the Guideline for the Management of Ozone Depleting Substances and Halocarbon Alternatives)
10.	Waste paint (defined in the Guideline for the Management of Waste Paint)
11.	Mercury-containing lamps (defined in the Guide to Recycling Mercury-Containing Lamps)

* No person shall dispose of a filter used to filter oil unless, 24 hours before disposing of the filter,
(a) the inner chamber of the filter is punctured and the contents are drained; or
(b) the filter is mechanically crushed or shredded and the contents have been collected.

Schedule IV: Severely Toxic Contaminants

Item	Substances
1.	(4-Chlorophenyl)cyclopropylmethanone, O-[(4-nitrophenyl)methyl]oxime
2.	Benzenamine, N-phenyl-, Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)
3.	Chlorobiphenyls
4.	Chlorinated Alkanes
5.	Dibenzofuran
6.	Dibenzo-para-dioxin
7.	Dichloromethane
8.	Hexabromocyclododecane (HBCD)
9.	Hexachlorobutadiene, which has the molecular formula C4Cl6
10.	Hexavalent chromium compounds
11.	Long-Chain (C9-C20) Perfluorocarboxylic Acids (PFCAs), their Salts and their Precursors
12.	Mercury
13.	Perfluorooctane Sulfonate (PFOS), Its Salts and Its Precursors
14.	Polychlorinated dibenzodioxins
15.	Polychlorinated Dibenzofurans
16.	Polychlorinated Naphthalenes (PCNs)
17.	Polychlorinated Terphenyls
18.	Tetrabutyltin
19.	Tetrachlorobenzenes (TeCBs)
20.	Tetrachloroethylene
21.	Tributyltins

Schedule V: Small Quantity Threshold for Types of Hazardous Waste

	Column I: Hazardous Waste Type	Column II: Amount
1.	All hazardous waste unless otherwise specified	5 kg or L
2.	Dangerous Goods Class 6.1, Packing Group I	1 kg or L
3.	Waste batteries	50 kg
4.	Contaminated snow/water	20 kg or L
5.	Contaminated soil	500 kg
6.	Waste Glycol	20 L
7.	Incinerator ash	20 kg
8.	Waste paint	20 kg or L
9.	Used Oil	20 L
10.	Leachable waste containing Severely Toxic Contaminants	1 kg or L
11.	Severely Toxic Contaminants in pure form	n/a hazardous waste in any quantity

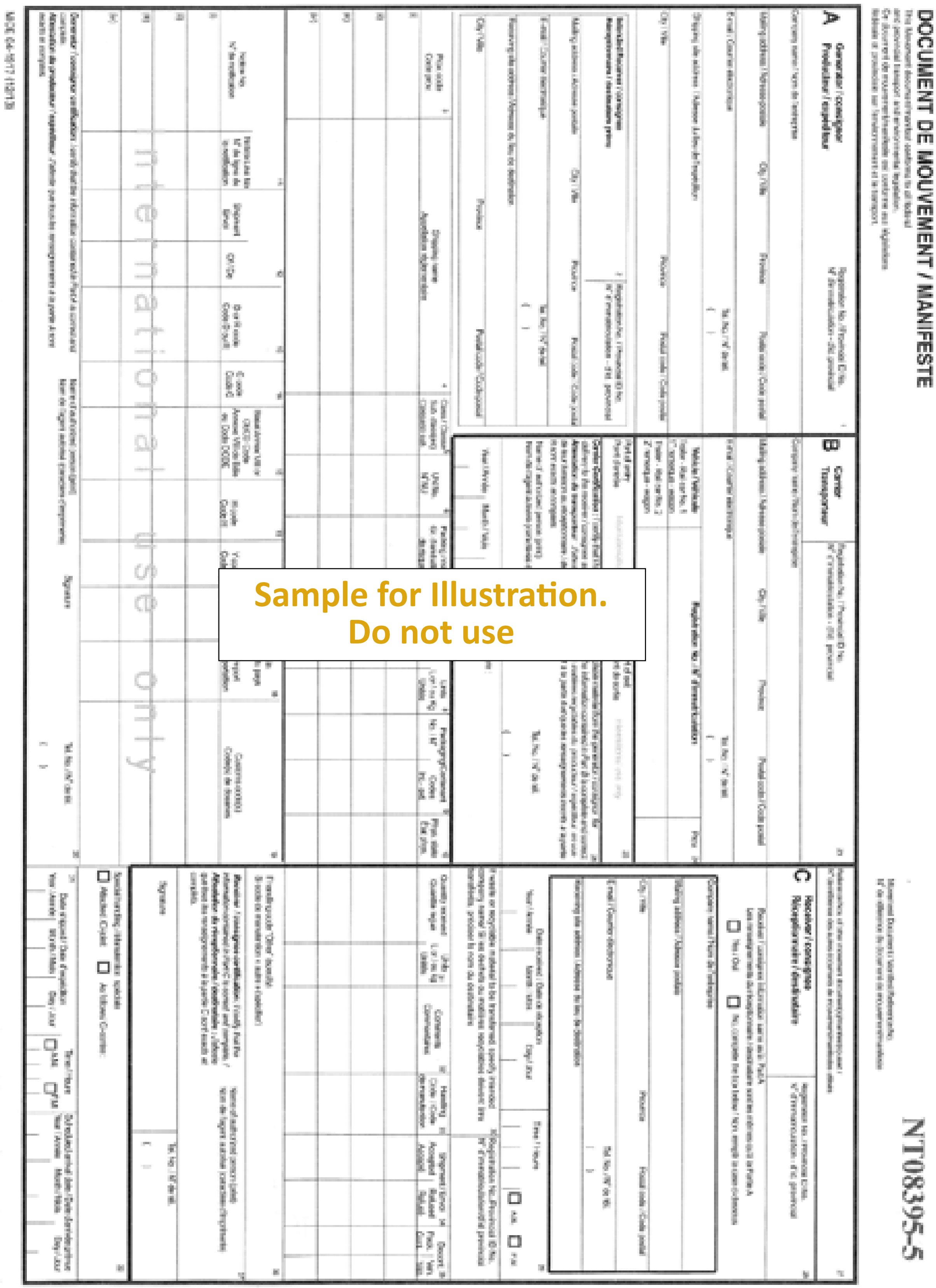
Schedule VI: Registration Volumes

Minimum quantity of hazardous waste[1] necessary for registration as a Hazardous Waste Storage Facility.

Waste Classification TDG		Quantity[2] (Kg or L)
2.1	Compressed Gas (flammable)	500[3]
2.2	Compressed Gas (non-corrosive, non-flammable, non-toxic)	5,000[3]
2.3	Compressed Gas (toxic)	200[3]
3	Flammable Liquids Packing Group I	1,000
3	Flammable Liquids Packing Group II	2,000
3	Flammable Liquids Packing Group III	5,000
4.1	Flammable Solids	5,000
4.2	Substances Liable to Spontaneous Combustion	1 00
4.3	Water-reactive Substances	50
5.1	Oxidizing Substances	1,000
5.2	Organic Peroxides	50
6.1	Toxic Substances Packing Group I	1,000
6.1	Toxic Substances Packing Group II	2,000
6.1	Toxic Substances Packing Group III	5,000
6.2	Infectious Substances	500[3]
6.2	Infectious Substances Category A requiring an ERAP	any amount
8	Corrosive Substances Packing Group I	1,000
8	Corrosive Substances Packing Group II	2,000
8	Corrosive Substances Packing Group III	5,000
9	Miscellaneous	1,000[4]
Other Hazardous Waste Types		
	Polychlorinated Biphenyls	100
	Leachable waste	5,000
	Hazardous to the Aquatic Environment	5,000
	Waste containing dioxins and furans	5,000
	Contaminated soil	50,000
	Drilling waste	50,000
	Used Oil, Glycol, Contaminated Water	5,000
Total Aggregate Quantity of Hazardous Waste[5]		**5,000**

[1] This applies to hazardous waste and not dangerous goods.
[2] Quantity refers to liquids when the amount is expressed in litres (L) and solids when expressed in kilograms (Kg).
[3] Total liquid volume capacity of the container.
[4] PCB storage is regulated by Environment and Climate Change Canada under the *Canadian Environmental Protection Act*. Storage of products containing PCBs in a concentration of 50 mg/kg or more and in an amount of 100 litres or more, 100 kilograms or more, or in a lesser amount if it contains 1 kilogram or more of PCBs.
[5] Except for Contaminated soil and Drilling waste where total aggregate quantity must exceed 50,000 kg.

Schedule VII: Illustration of a Movement Document


DOCUMENT DE MOUVEMENT / MANIFESTE

NT08395-5

A Generator / consignor Producteur / expéditeur

B Carrier Transporteur

C Receiver / consignee Réceptionnaire / destinataire

Sample for Illustration. Do not use

international use only

Instructions for completion and distribution on reverse / Instructions pour compléter et distribuer au verso

Copy / Copie 1 (white / blanche)

Schedule VIII: Information Required in a Record of Disposal

1) Generator, carrier, and receiver (disposal, recycling facility) are registered and identified with the following:
   a) Registration numbers (where applicable);
   b) Name of generator, carrier and receiver, mailing address and contact information;
   c) Shipping and receiving site address is identified;
   d) Name of person(s) consigning the waste, transporting, and receiving;
   e) Telephone number; and
   f) Date of shipment and receiving.

2) Intended receiver is declared prior to transportation, and the receiver is authorized to receive that waste.

3) The hazardous waste is identified and the description identifies the:
   a) Common name of the waste (i.e. used oil, contaminated soil);
   b) Amount of waste being transported in metric units (kg or L);
   c) Number and means of containment (e.g., drum, bulk, tank, etc.); and
   d) Physical state, solid, liquid or gas (e.g. S, L, G).

4) Multiple copies are made and the generator, carrier, as well as the receiver all receive a copy of the record of disposal (like 6-part movement document) that confirms who is in control of the waste:
   a) Upon shipment;
   b) During transportation; and
   c) At the receiving facility.

5) ENR receives a completed and signed copy of the record of disposal upon:
   a) Shipment from the generator; and
   b) Receipt at the receiver.

Appendix 1:

Environmental Protection Act

The following is a subset of the *Environmental Protection Act,* R.S.N.W.T. 1988, c. E-3.[1]

1. In this Act,

"contaminant" means any noise, heat, vibration or substance and includes such other substance as the Minister may prescribe that, where discharged into the environment,
(a) endangers the health, safety or welfare of persons,
(b) interferes or is likely to interfere with normal enjoyment of life or property,
(c) endangers the health of animal life, or
(d) causes or is likely to cause damage to plant life or to property;

"discharge" includes, but not so as to limit the meaning, any pumping, pouring, throwing, dumping, emitting, burning, spraying, spreading, leaking, spilling, or escaping;

"environment" means the components of the Earth and includes
(a) air, land and water,
(b) all layers of the atmosphere,
(c) all organic and inorganic matter and living organisms, and
(d) the interacting natural systems that include components referred to in paragraphs (a) to (c).

"inspector" means a person appointed under subsection 3(2) and includes the Chief Environmental Protection Officer.

2.2 The Minister may
(a) establish, operate and maintain stations to monitor the quality of, and the discharge of contaminants into the environment in the Territories;
(b) conduct research studies, conferences and training programs relating to contaminants and to the preservation, protection or enhancement of the environment;
(c) develop, co-ordinate and administer policies, standards, guidelines and codes of practice relating to the preservation, protection or enhancement of the environment;

3. (2) The Chief Environmental Protection Officer may appoint inspectors and shall specify in the appointment that powers that may be exercised and the duties that may be performed by the inspector under this Act and regulations.

[1] The *Environmental Protection Act* (EPA) is updated from time to time. As this is a subset of the EPA, ENR recommends the reader review the official Act.

4. (1) Where the Chief Environmental Protection Officer is of the opinion, based on reasonable grounds, that it is necessary or advisable for the protection of the environment to do so, the Chief Environmental Protection Officer may, by order directed to any person, require that person
   (a) to install safeguards to prevent the discharge of contaminants into the environment;
   (b) to site, transport or store any contaminant in the manner set out in the order; or
   (c) to have on hand at all times the equipment and material necessary to alleviate the effect of any discharge of contaminants that may be specified in the order.

   (2) Where an inspector believes on reasonable grounds that a discharge of a contaminant in contravention of this Act, the regulations or a provision of a permit or licence is likely to occur, the inspector may issue an order requiring any person whose actions may increase the likelihood of a discharge or the owner or person in charge, management or control of the contaminant to take the preventive measures that the inspector considers necessary. R.S.N.W.T. 1988,c.117(Supp.),s.7.

5. (1) Subject to subsection (3), no person shall discharge or permit the discharge of a contaminant into the environment.

   (2) REPEALED, R.S.N.W.T. 1988,c.117(Supp.),s.8.

   (3) Subsection (1) does not apply where the person who discharged the contaminant or permitted the discharge of the contaminant establishes that
   (a) the discharge is authorized by this Act or the regulations or by an order issued under this Act or the regulations;
   (a.1) the discharge
      (i) is authorized by an Act of the Parliament of Canada or the Northwest Territories or by regulations made under any of those Acts, and
      (ii) is not addressed in this Act or the regulations or by an order issued under this Act or the regulations;
   (b) the contaminant has been used solely for domestic purposes and was discharged from within a dwelling house;
   (c) the contaminant was discharged from the exhaust system of a vehicle;
   (d) the discharge of the contaminant resulted from the burning of leaves, foliage, wood, crops or stubble for domestic or agricultural purposes;
   (e) the discharge of the contaminant resulted from burning for land clearing or land grading;
   (f) the discharge of the contaminant resulted from a fire set by a public official for habitat management of silviculture purposes;
   (g) the contaminant was discharged for the purposes of combatting a forest fire;
   (h) the contaminant is a soil particle or grit discharged in the course of agriculture or horticulture; or
   (i) the contaminant is a pesticide classified and labelled as “domestic” under the Pest Control Products Regulations (Canada).

   (4) The exceptions set out in subsection (3) do not apply (a) where a person discharges a contaminant that the inspector has reasonable grounds to believe is not usually associated with a discharge from the excepted activity.

5.1. Where a discharge of a contaminant into the environment in contravention of this Act or the regulations or the provisions of a permit or licence issued under this Act or the regulations occurs or a reasonable likelihood of such a discharge exists, every person causing or contributing to the discharge or increasing the likelihood of such a discharge, and the owner or the person in charge, management or control of the contaminant before its discharge or likely discharge, shall immediately:

(a) subject to any regulations, report the discharge or likely discharge to the person or office designated by the regulations;

(b) take all reasonable measures consistent with public safety to stop the discharge, repair any damage caused by the discharge and prevent or eliminate any danger to life, health, property or the environment that results or may be reasonably expected to result from the discharge or likely discharge; and

(c) make a reasonable effort to notify every member of the public who may be adversely affected by the discharge or likely discharge.

6. (1) Where an inspector believes on reasonable grounds that a discharge of a contaminant in contravention of this Act or the regulations or a provision of a permit or licence issued under this Act or the regulations has occurred or is occurring, the inspector may issue an order requiring any person causing or contributing to the discharge or the owner or the person in charge, management or control of the contaminant to stop the discharge by the date named in the order.

Appendix 2:

Selecting a Hazardous Waste Receiver

The following information is provided as best practice and needs to be interpreted according to the type of hazardous waste being offered.

As a hazardous waste generator, it is important to carefully choose a hazardous waste receiver. Generators are responsible for their waste until it is legally and properly received at a suitably authorized facility.

Selection Factors

Below is a list of considerations when selecting a hazardous waste receiver:

- Ensure waste has been properly classified, either through characterization by a qualified consultant or environmental testing laboratory, or by reviewing the process generating the waste along with the original raw materials used in the process.
- Ensure the hazardous wastes are managed by companies that are capable of appropriately managing the wastes. This is important for hazardous waste disposal outside or inside of the NWT.
- Find out if the hazardous waste receiver has carried out any facility audits. Many waste receivers are required to submit audit reports to the provincial or territorial authority. Request a copy of the receivers most recent audit report. Most competent waste receivers arrange third party audits at their facilities and are willing to share and discuss the results with their potential clients.
- Get references from business colleagues who have used a specific hazardous waste receiver.
- Find out if the hazardous waste receiver has the appropriate authorization to manage your hazardous waste(s). Authorized receivers are required to have a facility registration number issued by the provincial or territorial authority.
- Check the Waste Receiver Assessment Program (http://www.wrapaudit.com/index.php) to see if a Waste Facility Environmental Review has been completed on behalf of other waste generators for the receiving facility.
- Ensure that the treatment/disposal methods proposed by companies are the appropriate and approved technology for your wastes. The receiver should be willing to provide a letter confirming how and when the hazardous waste was managed at the location named in the letter and that the management complied with all relevant regulatory requirements.
- Check the receiver's insurance coverage and review their environmental impairment liability, general liability and vehicle insurance coverage (if applicable).
- Check the Health and Safety record of the receiver and request a clearance letter from the applicable worker (Occupational) health and safety agency.

Note: If the receiver selected does not comply with the requirements of the applicable legislation and are charged with a violation while managing your wastes, the generator may also be held liable.

Appendix 3:

Dangerous Goods Classifications

Class 1: Explosives[1]

Class 2: Compressed Gases

Division 2.1: Flammable Gases
Division 2.2: Non-Flammable Gases
Division 2.3: Toxic Gases

Class 3: Flammable Liquids

Packing Group I: Boiling point ≤35°C and any Flash Point
Packing Group II: Boiling point: >35°C and Flash Point < 23°C
Packing Group III: If criteria for Packing Group I or II are not met

Class 4: Flammable Solids, Substances Liable To Spontaneous Combustion, Dangerous When Wet

Division 4.1: Flammable Solids
Division 4.2: Spontaneously Combustible
Division 4.3: Dangerous When Wet

Class 5: Oxidizers, Organic Peroxides

Division 5.1: Oxidizers
Division 5.2: Organic Peroxides

Class 6: Toxic Substances, Infectious Substances

Criteria for 6.1 Toxic Substances Packing Groups as per the TDGR					
Route of Exposure	**Oral**	**Dermal**	**Inhalation mist**	**Inhalation vapor**	
Unit of Measure	LD50 mg/kg	LD_{50} mg/kg	LC50 mg/L	V	LC50 mL/m^3
Packing Group I	≤ 5	≤ 50	≤ 0.2	≥ 10 X LC50	≤ 1000
Packing Group II	> 5 but ≤ 50	> 50 but ≤ 200	> 0.2 but ≤ 2	≥ LC50	≤ 3000
Packing Group III	> 50 but ≤ 300	> 200 but ≤ 1000	> 2 but ≤ 4	≥ 0.2 X LC50	≤ 5000

Division 6.2: Infectious Substances

Class 7: Radioactive Materials[1]

Class 8: Corrosives

Class 9: Miscellaneous Dangerous Goods

[1] Class 1 and 7 are regulated under federal legislation and not subject to this guideline.

Appendix 4:

Regulatory Agencies, Land and Water Boards, Waste Exchanges, and Associations

Regulatory Agencies

1. Environmental Health
   Department of Health and Social Services
   5015 49th St
   Box 1320
   Yellowknife, NT X1A 2L9
   Phone: (867) 767-9066 ext. 49262

2. Lands Administration
   Department of Lands
   PO Box 1320
   1st Floor Gallery Building (4923 - 52nd Street)
   Yellowknife, NT X1A 2L9
   Phone: (867) 765-6701 Fax: (867) 669-8908

3. Office of the Fire Marshal
   Department of Municipal and Community Affairs
   600, 5201-50th Avenue
   Yellowknife, NT X1A 2S9
   Phone: (867) 873-7469 Fax: (867) 873-0206

4. Office of the Regulator of Oil and Gas Operations
   4th floor, 5201-50th Avenue
   P.O. Box 1320
   Yellowknife, NT X1A 2L9
   Phone: (867) 767-9097 Fax: (867) 920-0798

5. Road Licensing and Safety Headquarters
   Department of Transportation
   5015 - 49th Street
   PO Box 1320
   Yellowknife, NT X1A 2L9
   Phone: (867) 767-9088 ext. 31169 Fax: (867) 873-0120

6. Workers' Safety and Compensation Commission
   Centre Square Tower, 5th Floor
   5022 49 Street
   Box 8888
   Yellowknife, NT X1A 2R3
   General Inquiries phone: (867) 920-3888 Fax: (867) 873-4596
   Toll Free: 1-800-661-0792

7. Indigenous and Northern Affairs Canada
   NWT Region
   4923-52nd Street
   P.O. Box 1500
   Yellowknife, NT X1A 3Z4
   Phone: (867) 669-2500 Fax: (867) 669-2715

8. Canadian Nuclear Safety Commission
   Western Regional Office
   220 4th Avenue S.E., Suite 670
   Calgary, AB T2G 4X3
   Phone: (403) 292-5181 Fax: (403) 292-6985
   Nuclear Emergency (24 Hour) (613) 995-0479
   General Inquiries: info@cnsc-ccsn.gc.ca
   Phone: 613-995-5894 or 1-800-668-5284 (in Canada)

9. Environmental Protection Branch
   Environment and Climate Change Canada
   5019 52nd St,
   P.O. Box 2310
   Yellowknife, NT X1A 2P7
   Phone: (867) 669-4730 Fax: (867) 873-8185

10. Environment Branch
    National Energy Board
    444 Seventh Ave. S.W.
    Calgary, AB T2P 0X8
    Phone: (403) 299-3676 Fax: (403) 292-5503

11. Explosives Regulatory Division, Western Region
    Natural Resources Canada
    Unit 214 755 Lake Bonavista Dr. S.E.
    Calgary, AB T2J 0N3
    Phone: (403) 292-4766 Fax: (403) 292-4689

12. Transport Canada
    Prairie and Northern Region
    4915 - 48th Street
    3rd Floor, YK Centre East
    P.O. Box 1439
    Yellowknife, NT X1A 2P1
    Phone: (888)-463-0521

Land and Water Boards

Gwich'in Land and Water Board	(867) 777-4954	http://glwb.com/
Mackenzie Valley Land and Water Board	(867) 669-0506	http://mvlwb.com/
Sahtu Land and Water Board	(867) 598-2413	http://slwb.com/
Wek'eezhii Land and Water Board	(867) 765-4592	http://wlwb.ca/
Inuvialuit Water Board	(867) 678-2942	www.inuvwb.ca
Environmental Impact Screening Committee	(867) 777-2828	http://www.screeningcommittee.ca/contact.html

Waste Exchanges

Canadianenvironmental.com		http://www.canadianenvironmental.com/
Stobec	(800) 561-6511	http://stobec.com/index.html
Waste Exchange Network		http://www.wastechange.com/canada.html

Associations

BC Environment Industry Association	(604) 683-2751	http://www.hazwastebc.com
Canadian Association for Laboratory Accreditation Inc. (CALA)	(613) 233-5300	http://www.cala.ca
Eco Canada	(800) 890-1924	http://www.eco.ca
Environmental Services Association of Alberta	(800) 661-9278	http://www.esaa.org
Manitoba Environmental Industries Association	(204) 783-7090	http://www.meia.mb.ca
Northern Territories Water and Waste Association	(867) 873-4325	http://ntwwa.com/
Saskatchewan Environmental Industry and Managers Association	(306) 250-4991	http://www.seima.sk.ca/
Standards Council of Canada (Environmental Laboratories)	(613) 569-7808	https://www.scc.ca/en/accreditation/laboratories
Waste Receiver Assessment Program	(403) 269-4351	http://www.wrapaudit.com

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