



SOUTH KITIKMEOT GOLD PROJECT

SPILL RESPONSE PLAN

NOVEMBER 2022

VIRIDIS MINING & MINERALS
Level 50, 108 St Georges Terrace
Perth, WA 6000

EMERGENCY CONTACT INFORMATION

Organization	Contact	Location	Telephone/Radio
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	<i>Operations Manager</i> TBD	Yellowknife/Onsite	TBD
	<i>Camp Manager</i> TBD	Onsite	Radio
	24 hr Expediting	Yellowknife	867-444-0794
NT-NU Spill Centre	24 hour Spill Report Line	Yellowknife	867-920-8130
Kitikmeot Inuit Association	<i>Inspector</i> Tannis Bolt	Kugluktuk	867-982-3310
Crown-Indigenous Relations and Northern Affairs Canada	<i>Inspector</i> Baba Pedersen	Kugluktuk	867-222-2839 867-982-4306
	<i>Lands Administration</i> Engineer	Iqaluit	867-975-4283
Nunavut Water Board		Gjoa Haven	867-360-6338
Fisheries and Oceans Canada	General	Yellowknife	867-669-4900
National Environmental Emergencies Centre (NEEC)			1-866-283-2333
Stanton Territorial Hospital		Yellowknife	867-767-9200
RCMP		Kugluktuk	867-982-0123 867-982-1111
WSCC	Mines Inspector	Yellowknife	1-800-661-0792
	General	Yellowknife	867-669-4418
KBL Environmental	Jeff Bembridge	Yellowknife	867-873-5263
	24 hr Emergency Response	Yellowknife	1-855-354-5263
Medivac	OCC	Yellowknife	867-669-4115
Air Tindi	OCC	Yellowknife	867-669-8218
Acasta Heliflight	OCC	Yellowknife	867-873-3306

SUMMARY

This Plan describes how people are trained and what needs to be done to respond safely to a spill of fuel or other hazardous material at Viridis Mining & Minerals South Kitikmeot Gold Project.

REVISION HISTORY

Revision #	Date	Section	Summary of Changes	Author	Approver
1	Oct 2022	All	New document	S. Hamm	A. Pervez

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GLOSSARY & ACRONYMS

Term	Meaning
Aurora	Aurora Geosciences Ltd., the exploration program manager acting on behalf of the proponent
PPE	Personal Protective Equipment
Project	South Kitikmeot Gold Project and all of its components
SDS	Safety Data System
Site	Work areas associated with South Kitikmeot Gold Project
Spill	A release of a substance that is likely to pose imminent harm to the environmental or human health, or meets or exceeds regulated volumes
WHMIS	Workplace Hazardous Materials Information System
Viridis	Viridis Mining & Minerals, the proponent

I INTRODUCTION

Viridis Mining & Minerals (Viridis) of Perth, Australia, is a junior exploration company with 100% ownership of the South Kitikmeot Gold Project (the Project) in the Kitikmeot Region of Nunavut. The Project is comprised of series of seven different claim blocks occurring over an area of approximately 11,000 ha, known as Hiqiniq, Ujaraq, Gold Bug, Esker, Bling, Uist, and Qannituq claim blocks, as illustrated in Figure 1.

The purpose of the Project is to conduct exploration-related activities to re-evaluate previously identified historic gold targets and locate new gold targets.

A spill is a release of a substance that is likely to pose imminent harm to the environmental or human health, or meets or exceeds the volumes listed in Appendix A. Spills may occur at a variety of worksites, including the main camp, fuel caches, satellite camp(s) and drill sites. Regardless of the type or quantity of material involved, all worksites must implement measures to reduce the potential for spills and have an action plan for responding to spills.

This *Spill Response Plan* (the Plan) describes methods for preventing and responding to spills at the Project site and considers the guidance provided in the documents listed in **Error! Reference source not found.**

Table 1. Related project documents and authorizations.

Document	Authority
<i>Mine Health and Safety Act (1994) and Regulations (1995)</i>	Government of Nunavut
<i>Canadian Environmental Protection Act (1999)</i>	Government of Canada
<i>Environmental Emergency Regulations (2003)</i>	Government of Canada
<i>Transportation of Dangerous Goods Act (1992)</i>	Government of Canada
<i>Transportation of Dangerous Goods Regulations (2012)</i>	Government of Canada
<i>Hazardous Products Act (1985)</i>	Government of Canada
<i>Canada Labour Code (1985)</i>	Government of Canada
<i>Canada Occupational Safety and Health Regulation (1986)</i>	Government of Canada
<i>Territorial Lands Act (1985) and Land Use Regulations (2016)</i>	Indigenous and Northern Affairs Canada
Screening Decision	Nunavut Impact Review Board
Water Licence	Nunavut Water Board
Land Use Licence	Kitikmeot Inuit Association
Land Use Permit	Crown-Indigenous Relations and Northern Affairs Canada

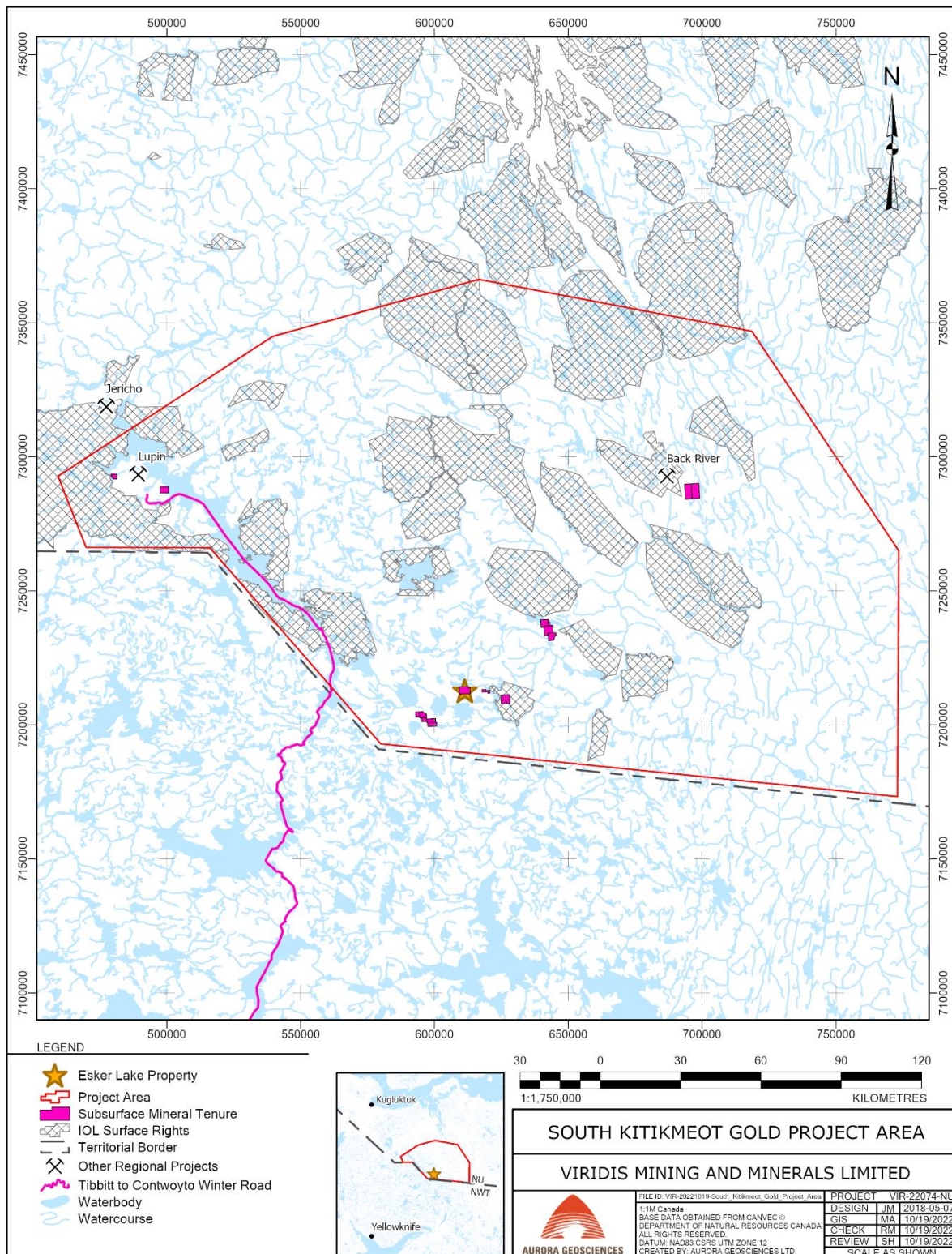


Figure 1. South Kitikmeot Gold Project area map

1.1 Scope

This Plan applies to all Project activities and stages, including camp operation, drilling and fuel caching.

1.2 Goals & Objectives

While plans and preventative measures are in place, Viridis recognizes that accidental spills and unplanned releases may occur. Accordingly, the objectives of this Plan are to:

- Ensure employees and contractors are trained to respond to spills in an effective manner;
- Identify materials that may routinely be stored or used on site;
- Outline appropriate spill response measures to ensure worker safety and environmental protection.

1.3 Site Description

The Project is located 424 km southeast of Kugluktuk, NU, 400 km northeast of Yellowknife, NT and 145 km east - southeast of the Lupin Mine on Contwoyto Lake (Figure 1). Yellowknife is the nearest major centre and main point of access and coordination.

The Project is located within the Southern Arctic Ecozone and the Takijuk Lake Upland Ecoregion (ECCC 2022). The area is characterized by very cold winters, brief cool summers and short fall and spring seasons. Climate data from the nearest weather station at the Lupin Mine, 145 km NE of the property, indicate that mean daily temperatures in the area vary from -30°C in January to +12°C in July and that average annual rainfall is 16.0 cm. The topography is gently undulating with sparse bedrock exposures. Lakes and some swamps cover much of the low lying areas (AGL 2016).

The property is centred south of the informally named Esker Lake and includes a small lake in the eastern portion of the claim informally named Sheit Lake in past reports. Elevations on the property range from 390 m at Esker Lake to 430 m at the top of Brandon Hill (AGL 2016).

The Esker claim block located on Esker Lake is the approximate geographic centre of the Project at 65°01' N 108° 01' W (Zone 12N and NAD 83).

1.4 Plan Management

This Plan is intended to fulfill requirements associated with all authorizations.

The Plan is reviewed annually by the Project Manager and updated as needed and following issuance of new or amended authorizations to ensure alignment with relevant terms and conditions. When material changes occur, the updated document is provided to parties in accordance with the *Engagement Plan*.

This Plan is intended to fulfill requirements associated with the water licence(s) and land use permit(s) and licence(s) as well as existing legislation. The Plan is updated periodically to reflect current camp and fuel cache locations and capacities, and to maintain a current contact list, as needed.

The Plan is reviewed annually by the Project Manager and updated as needed, as well as following issuance of new or amended authorizations to ensure alignment with relevant terms and conditions. When material changes occur, the updated document is provided to parties in accordance with the *Engagement Plan*.

1.5 Plan Implementation

This Plan is effective upon approval and is valid throughout all phases of the Project.

The Project Manager or designate is responsible for Plan implementation.

A copy of this Plan is maintained on site in the office, in the local project office in Yellowknife, and in the head office in Perth.

2 ROLES AND RESPONSIBILITIES

Viridis is responsible for activities associated with its exploration program in the South Kitikmeot Project area, including implementation and management of this Plan. Viridis's contact information is:

Viridis Mining & Minerals
Level 50, 108 St Georges Terrace
Perth, WA 6000
Phone: 61 3 9071 1847
Contact: Agha Shahzad Pervez
Email: agha@viridismining.com.au

Aurora Geosciences Ltd. (Aurora) is Viridis's exploration program manager. In some instances, Viridis may delegate its authority for program components to Aurora. Aurora's contact information is:

Aurora Geosciences Ltd.
3506 McDonald Drive
Yellowknife, NT
X1A 2H1
Phone: 867-920-2729
Contact: Dave White or Gary Vivian
Email: dave.white@aurorageosciences.com, gary.vivian@aurorageosciences.com

2.1 Staff, Contractors, Suppliers and Visitors

All personnel conducting activities on site, including staff, contractors, suppliers and visitors, are required to implement this Plan as it pertains to their activities on site. Specifically, these responsibilities include:

- Taking all necessary steps to minimize the chance of spills when working with chemicals, hydrocarbons, or regulated materials;
- Cooperating fully with your supervisor and/or Viridis management to implement a spill prevention program in your work area;
- Only carrying out duties and tasks that you are experienced at and trained to perform;
- Where there is uncertainty, asking questions and bring concerns to the attention of your supervisor when working with products that pose potential environmental and health risks;
- Responding to spills for which you are responsible or discover, and for which you have the requisite training and equipment; and
- Reporting all spills, no matter how small or seemingly insignificant, to your supervisor or Viridis management in a timely manner.

2.2 Managers and Supervisors

Managers and supervisors have a responsibility to ensure that staff, contractors, consultants and visitors have been trained in Viridis spill response expectations and procedures. Additional supervisor and manager responsibilities include:

- Maintaining a no blame work environment in initiating a spill response and related follow-up actions;
- Ensuring site-specific and material-specific training is provided to all departments and staff;
- Ensuring there are appropriate and sufficient spill response supplies in work areas for the hazard characteristics and quantities of materials stored or handled;
- Providing assistance in response to spills including the coordination of additional response personnel or equipment;
- Maintaining records regarding inspections, personnel training, emergency equipment testing and spill kit maintenance; and
- Contacting appropriate government agencies and emergency services where appropriate.

3 SPILL PREVENTION

Successful spill prevention is largely based on safe storage and handling of materials and maintaining a known inventory of materials located within in suitable containment. Figure 2 illustrates the camp layout, include secondary containment and spill responses resources.

3.1 Product Inventory

Table 2 outlines a maximum inventory of products and volumes maintained on site during seasonal operations. Efforts are made to minimize the amount of materials stored on site during seasonal closure.

3.2 Material Storage and Inspection

The materials listed in Table 2 along with their associated dispensing pumps and hoses, are stored in suitable containment. Other considerations for proper material storage include the following:

- Store materials >100 m above the ordinary high water mark of any watercourse;
- Inspect material storage areas daily or in accordance with permit and licence requirements, for capacity, ventilation, stability, organization, cleanliness and leak detection;
- Document all inspections, results and corrective actions taken;
- Properly label storage containers and areas in accordance with the Workplace Hazardous Materials Information Management System (WHMIS);
- Identify material storage areas with appropriate signage;
- Maintain storage area capacity such a that it is safely accessible;
- Store gas cylinders securely in an upright position;
- Store drums for immediate use in an upright position, and cached drums on their sides with bungs visible and in the 9 o'clock and/or 3 o'clock positions;
- Maintain one additional empty drum for every twenty drums cached for fuel transfer in case a leak is detected.

3.3 Material Handling and Disposal

Fuel is transferred within secondary containment using a 12V electric or hand pump. Fuel caches are replenished throughout the season or annually as needed. Considerations for proper material handling include:

- Conducting refueling and equipment repair in a designated area, >100 m above the ordinary high water mark of any watercourse, within suitable containment or utilizing a drip tray;
- Using equipment or seek assistance when transporting heavy or awkward containers;
- Using funnels and spill containment trays when pouring or transferring chemicals from one container to another; and
- Utilizing proper Personal Protective Equipment (PPE) when handling hazardous materials.

Material disposal is limited to the disposal of spent spill response materials. Should a spill and related cleanup occur, spend response materials will be handled in accordance with the *Waste Management Plan*.

3.4 Grey Water and Sewage

An unplanned release of greywater or sewage from Project facilities to the environment may also be considered a spill. Reporting and response measures are generally the same as that for other materials, as presented in the following section, with specific attention paid to appropriate personal protective equipment to limit hazards arising from worker exposure to human wastes.

Placeholder: map to be inserted following camp establishment.

Map will include camp location, camp layout and identification of secondary containment areas as well as spill kits and other spill response materials

Figure 2. Camp Layout and related spill response supplies

Table 2. Petroleum and chemical products typically stored on site.

Material	Maximum Amount	Typical Container	Location	Storage
Diesel	Up to 46,125 L (225 drums)	205 L drums, or equivalent	Drills Camp Fuel cache	Secondary containment
Gasoline	Up to 5,125 L (25 drums)	205 L drums, or containers such as jerry cans	Drills Camp Fuel cache	Secondary containment
Aviation fuel	Up to 41,000 L (200 drums)	205 L drums	Camp Fuel cache	Secondary containment
Propane	Up to 2,000 lbs (20 cylinders)	100 lb cylinders	Camp Drills	Secured upright in designated area
	Up to 200 lbs (10 cylinders)	50 lb cylinders	Camp	
Various lubricants, greases and coolants	Up to 180 gal (36 pails)	5 gal pails	Drills Camp	Designated area
Waste oil and related products (filters, rags)	Various	205 L drums or lined mega bags	Staged at camp for backhaul	Designated area
Salt	Up to 25,000 lbs (500 bags)	50 lb bags	Drills Camp	Designated area
Cement	Up to 25,000 lbs (500 bags)	50 lb bags	Drills Camp	Designated area
Drill additives	Up to 180 gal (36 pails)	5 gal pails	Drills Camp	Designated area
Acetylene	Up to 400 lbs (4 cylinders)	100 lb cylinders	Camp	Designated area
Oxygen	Up to 600 lbs (6 cylinders)	100 lb cylinders	Camp	Designated area
Spent spill response materials	Various	205 L drums or lined mega bags	Staged at camp for backhaul	Designated area
Hazardous waste for backhaul and offsite disposal	Various	205 L drums, lined mega bags, or other TDG-approved container	Staged at camp for backhaul	Designated area

4 SPILL RESPONSE

A spill response will vary depending upon the situation, the material spilled and location of the spill. As materials on site that pose the highest spill risk due to their volume and handling frequency are all petroleum products, the response procedures outlined in this document are considered to apply under most spill scenarios.

As illustrated in Appendix B, in all spill responses, the following steps should be taken to ensure worker safety and environmental protection are maintained:

- 1) Ensure your own safety and the safety of your coworkers by:
 - a) Stopping what you are doing;
 - b) Staying clear of the spill;
 - c) Warning others nearby,
 - d) Shutting down nearby equipment;
- 2) If required, assist injured or contaminated persons;
- 3) Assess the situation. Notify and report, as needed:
 - a) Emergency: if the spill poses a significant risk to persons, property or the environment, call for help and contact your supervisor or the Project Manager immediately;
 - b) Non-emergency: proceed with appropriate spill response;
- 4) Consult the SDS for exposure risk;
- 5) Put on appropriate PPE (gloves, safety glasses, apron, footwear);
- 6) Contain the spill as outlined in the following sections;
- 7) Label and store containers of waste and spent spill response materials;
- 8) Conduct spill reporting;
- 9) Where required, participate in incident investigations and follow-up measures.

Off-site resources may also be deployed in response to a spill. Yellowknife is the closest major centre with adequate response capacity; it is accessible by air (90 min flight; rotary wing year-round, twin otter on floats in summer). Should off-site resources be needed to support a spill response, they can be coordinated by calling the Aurora Geosciences 24 hour logistics phone number (based in Yellowknife); KBL Environmental Ltd. also provides 24 hr emergency response support (based in Yellowknife); contact information for Aurora and KBL Environmental Ltd. can be found in the Emergency Contact Information in this Plan.

4.1 Spills to Land

In the event of a fluid spill to the ground surface or tundra:

- If flowing fluid:
 - trench or ditch to intercept or contain fluid where feasible; or
 - construct a berm or barrier downslope of the spill. Use soil, or synthetic, impervious sheeting;
- Recover free product through manual or mechanical means including shovels, heavy equipment and pumps;
- Absorb petroleum residue with synthetic sorbent socks, pillows, pads or granular materials;
- Mechanically recover contaminated rock, soil and vegetation using a shovel;
- Backfill any excavated areas with available soil, sand, gravel or bentonite.

If dry chemicals or other materials are spilled to the ground surface or tundra, the product is cleaned up immediately with a shovel, loader or otherwise manually, as needed, with any recovered materials reused to the greatest extent possible, an/or otherwise disposed of suitably.

Should any recoverable amounts of drill cuttings be deposited to the tundra in the vicinity of the drill, cuttings are collected and deposited in the drill sump, to the extent possible without disturbing the tundra, and/or to the satisfaction of the Inspector(s).

4.2 Spills to Snow

In the event of a spill to snow:

- If flowing fluid, construct an ice berm or barrier downslope of the spill by compacting snow and spraying with water (if conditions permit) or use synthetic, impervious sheeting;
- Compact snow around the perimeter of the spill area;
- Locate the low point of the spill area and clear channels in the snow towards this low point, to allow free product to collect in one area;
- Recover free product through manual or mechanical means including shovels, heavy equipment and pumps;
- Absorb petroleum residue with synthetic sorbent socks, pillows, pads or granular materials;
- Mechanically recover all contaminated snow and ice.

If dry chemicals or other materials are spilled, the product is cleaned up immediately with a shovel, loader or otherwise manually, as needed, with any recovered materials reused to the greatest extent possible, an/or otherwise disposed of suitably.

Should any recoverable amounts of drill cuttings be deposited to the snow in the vicinity of the drill, cuttings are collected and deposited in the drill sump, to the extent possible without disturbing the tundra, and/or to the satisfaction of the Inspector(s).

4.3 Spills to Ice

In the event of a fluid, dry materials or drill cuttings spill to ice:

- Follow procedures for a spill to snow.

In the event that materials penetrate and are under the ice:

- Drill holes through ice using ice auger to locate fuel/petroleum product;
- Once detected, cut slots in the ice using chain saws and remove ice blocks. Light non-aqueous phase liquids will collect in openings in the ice;
- Recover free product through manual or mechanical means including scoops or pumps, or, if approved, combust in situ;
- Absorb petroleum residue with synthetic sorbent socks, pillows or pads.

4.4 Spills to Water

In the event of a fluid spill to water:

- Monitor the movement of the spilled materials from a helicopter;
- Deploy and secure booms around the perimeter of the spilled material;
- Absorb petroleum residue with synthetic sorbent socks, pillows or pads;
- Recover free product by floating absorbent socks, pillows or pads on the water surface, deploying a skimmer, or, if approved, combust in situ or apply chemical dispersants.

4.5 Spill Kits

Spill kits on site may vary based on location and supplier. Contents of typical small and large kits are presented below. Large spill kits are located at each fuel cache, drill, helipad and refueling area and adjacent to aircraft landing areas, while small spill kits are deployed as needed.

A typical small (68 L) spill kit may contain the following:

- 50 oil sorbent pads;
- 4 small pillows;
- 2 large pillows;
- 4-4 inch socks;
- 1 plug patty (instant leak-stop);
- 1 pair of nitrile gloves;
- 1 pair of splash goggles; and
- 1 disposable respirator.

A typical large (220 L) spill kit may contain the following:

- 4 socks (3" x 10');
- 5 socks (3" x 4');
- 50 pads;
- 5 pillows;
- 1 roll;
- 1 drain cover;
- 1 caution tape;
- 2 pairs nitrile gloves;
- 2 pairs safety goggles;
- 2 protective coveralls;
- 10 disposable bags; and
- 1 instruction book.

Spill kits are inspected at the start of each field season and following each spill response to ensure contents are sufficient.

Additional spill response materials are stored on site in the camp and include a trash pump, several shovels, extra nitrile gloves, extra sorbent pads and extra granular sorbent material.

5 REPORTING AND DOCUMENTATION

5.1 Safety Data System

Safety Data System (SDS) sheets are maintained on site in the office and the medical tent. The SDS sheets are reviewed annually at the start of the field program to ensure that appropriate and current SDS sheets are available. SDS sheets for typical materials found on site are included in Appendix C.

5.2 Spill Reporting

Spill reporting is a key component of the spill response efforts. Once it is safe to do so, the first responder collects the following info:

- Date and time of spill;
- Location of spill;
- Direction the spill is moving;
- Name of contact person at location of spill, and phone number where applicable;
- Material and quantity spilled;
- Cause of spill;
- Whether spill is contained or stopped;
- Action taken to contain, recover, clean-up and dispose of spilled material

All spills and unplanned releases are reported to the Project Manager, and externally where required. In the event of a reportable spill, and once it is safe to do so, the Project Manager or designate will initiate notification of the following:

- Operations Manager;
- 24-hour spill report line (phone or email);
- Inspector(s).

Following initial notification, the Project Manager completes the Spill Reporting Form (Appendix D) and submits it to the Inspector(s) within seven calendar days of the incident.

A detailed follow-up report is submitted to the Inspector(s) within 30 days of the incident.

6 TRAINING

All attendees to site are trained in WHMIS procedures and participate in a site orientation upon arrival, which outlines onsite hazards and roles and responsibilities regarding material handling, storage and spill response. Spill kit contents and deployment are periodically reviewed at weekly site safety meetings. Additional training occurs following a reportable incident and upon renewal of any equipment. An emergency response drill is conducted annually; advance notice of a mock spill exercise is provided in accordance with the *Engagement Plan*.

7 REFERENCES

Canada Labour Code R.S.C., 1985, c. L-2
Canada Occupational Safety and Health Regulation. 1986. SOR/86-304
Canadian Environmental Protection Act. S.C. 1999, c.33
Environmental Emergency Regulations SOR/2003-307
Hazardous Products Act R.S.C., 1985, C. H-3
Mine Health and Safety Act, SNWT (Nu) 1994, c25
Mine Health and Safety Regulations, NWT Reg (Nu) 125-95
Spill Contingency Planning and Reporting Regulations R-068-93
Territorial Lands Act. R.S.C.. 1985, c. T-7
Territorial Land Use Regulations. SOR/2016 R-32, s.1.
Transportation of Dangerous Goods Act (TDGA). S.C. 1992, c.34
Transportation of Dangerous Goods Regulations. SOR/2012-245

Aurora Geosciences Ltd. (AGL). 2016. Technical Report, Geological mapping, Prospecting & Geophysical Surveys at the Esker Lake Property, Nunavut Mining District, Nunavut, Canada.

Environment and Climate Change Canada (ECCC). 2022. The Ecological Framework of Canada, Southern Arctic Ecozone, Takijug Lake Upland Ecoregion. Accessed October 2022. Available at: <http://www.ecozones.ca/english/region/41.html>

Government of Nunavut. Contingency Planning and Spill Reporting in Nunavut: A guide to the new regulations.

APPENDIX A: REPORTABLE SPILL VOLUMES

Unplanned releases of the materials listed below will immediately be reported to the 24 Hour Spill Report Line, Yellowknife, Tel: 867-920-8130 (Email: spills@gov.nt.ca; Fax: 867-873-6924) or using the Spill Report.

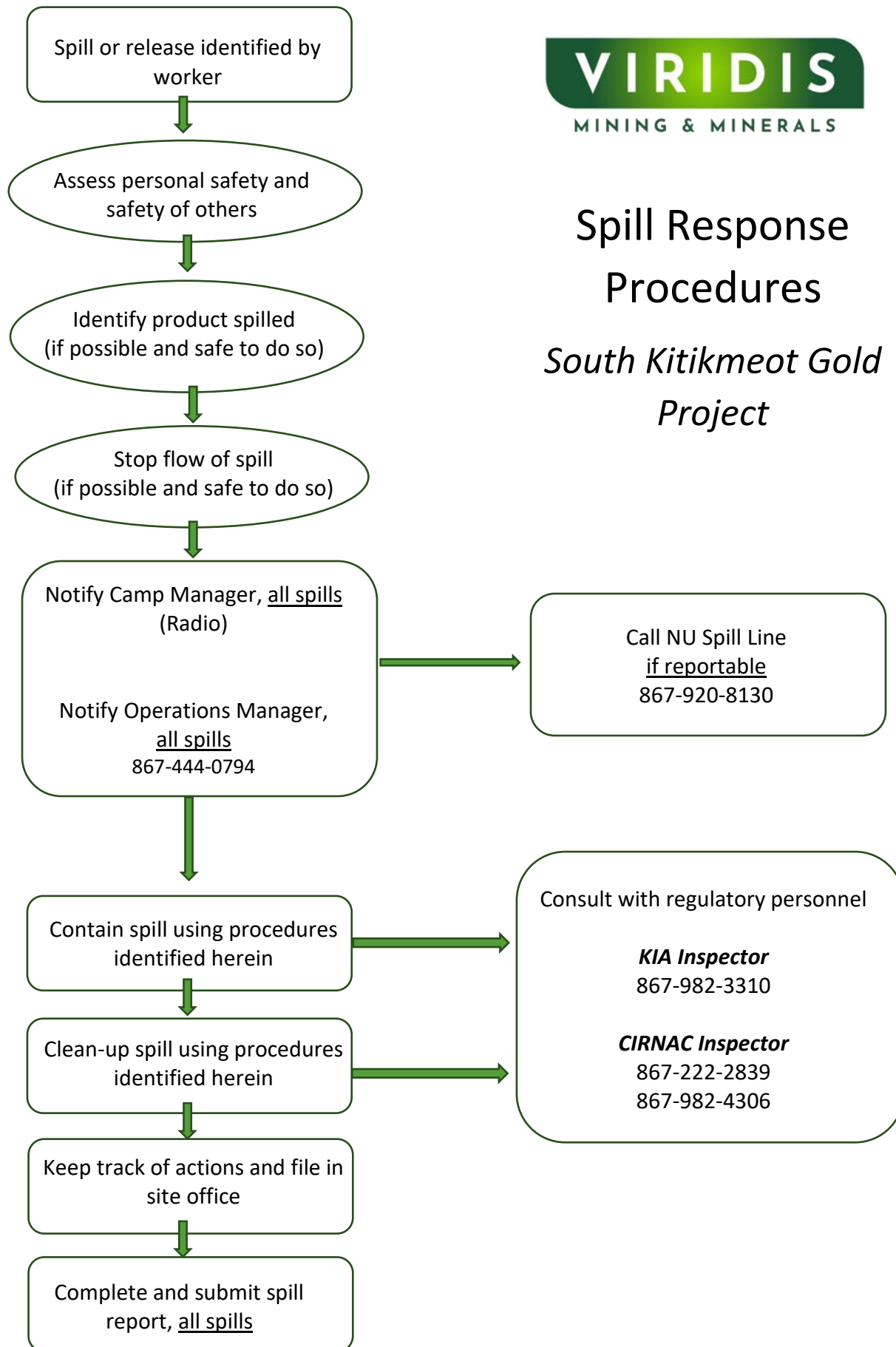
Description of Contaminant	Amount Spilled	TDG Class
Explosives	Any amount	1.0
Compressed gas (toxic/corrosive)	Any amount	2.3/2.4
Infectious substances	Any amount	6.2
Sewage and wastewater (unless otherwise authorized)	Any amount	6.2
Radioactive materials	Any amount	7.0
Unknown substance	Any amount	None
Compressed gas (Flammable)	Any amount of gas from containers with a capacity greater than 100 L	2.1
Compressed gas (Non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100 L	2.2
Flammable liquid	≥ 100 L	3.1/3.2/3.3
Flammable solid	≥ 25 kg	4.1 4.2
Substances liable to spontaneous combustion	≥ 25 kg	4.1 4.2
Water reactant substances	≥ 25 kg	4.3
Oxidizing substances	≥ 50 L or 50 kg	5.1
Organic peroxides	≥ 1 L or 1 kg	5.2
Environmentally hazardous substances intended for disposal	≥ 1 L or 1 kg	9.0
Toxic substances	≥ 5 L or 5 kg	6.1 8.0
Corrosive substances	≥ 5 L or 5 kg	9.0
Miscellaneous products, substances or organisms	≥ 5 L or 5 kg	
PCB mixtures of 5 or more parts per million	≥ 0.5 L or 0.5 kg	9.0
Other contaminants, e.g. crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, wastewater, etc.	≥ 100 L or 100 kg	None
Sour natural gas (i.e., contains H ₂ S)	Uncontrolled release or sustained flow of 10 minutes or more	None
Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more	None
Flammable liquid	≥ 20 L	3.1/3.2/3.3
Vehicle fluids	When released on a frozen water body that is being used as a working surface	None
Reported releases or potential releases of any size that: <ul style="list-style-type: none"> Are near or in an open water body; Are near or in a designated sensitive environment or habitat; Pose an imminent threat to human health or safety; or Pose an imminent threat to a listed species at risk or its critical habitat 	Any amount	None

APPENDIX B: SPILL RESPONSE PROCEDURE



Spill Response Procedures

South Kitikmeot Gold Project



APPENDIX C: SAFETY DATA SHEETS



Shell Canada Limited

Material Safety Data Sheet

Effective Date: 2002-08-14

Supersedes: 2001-01-08

Class B2 Flammable
LiquidClass D2B Other Toxic
Effects - Skin IrritantClass D2A Other Toxic
Effects - Carcinogen

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **SHELL JET B**
SYNONYMS: WIDE BOILING RANGE AVIATION TURBINE FUEL
PRODUCT USE: Fuel
MSDS Number: 141-012

MANUFACTURER

Shell Canada Limited
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS**Shell Emergency Number**

1-800-661-7378

CANUTEC 24 HOUR EMERGENCY NUMBER

613-996-6666

For general information:

1-800-661-1600

For MSDS information:

403-691-3982

(From 7:30 to 4:30 Mountain Time)

403-691-2220

This MSDS was prepared by the Toxicology and Material Safety Section of Shell Canada Limited.

*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled	CBI Claim No. CBI Date
Naphtha (Petroleum), Full-range Reformed	68919-37-9	>95	Yes	
Benzene	71-43-2	0.5 - 1.5	Yes	

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Bright Clear Typical Gasoline Odour

Routes of Exposure:	Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.
Hazards:	Flammable Liquid. Irritating to skin. Contains Benzene. May cause cancer. Vapours are moderately irritating to the eyes. Vapours are moderately irritating to the respiratory passages. The liquid when accidentally aspirated into the lungs can cause a severe inflammation of the lung. Excessive exposure to benzene may cause leukemia in man.
Handling:	Eliminate all ignition sources. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Avoid prolonged exposure to vapours. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes	Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.
Skin	Wash contaminated skin with mild soap and water for 15 minutes. If irritation occurs and persists, obtain medical attention.
Ingestion	DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs.
Inhalation	Remove victim from further exposure and restore breathing, if required. Obtain medical attention.
Notes to Physician	The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media	Dry Chemical Carbon Dioxide Foam Water Fog
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Firefighting Instructions	Extremely flammable. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Do not use water except as a fog. Use water to cool fire exposed containers. Product will float and can be reignited on surface of water. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Always stay away from ends of containers due to explosive potential. Fight fire from maximum distance. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.
Hazardous Combustion Products	A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Eliminate all ignition sources. Handling equipment must be grounded. Isolate hazard area and restrict access. Try to work upwind of spill. Avoid direct contact with material. Saturated clothing should be immediately removed to avoid flammability hazard. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. For large spills remove by mechanical means and place in containers. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

7. HANDLING AND STORAGE

Handling:	Extremely flammable. Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. Never siphon by mouth. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.
Storage:	Use explosion-proof ventilation to prevent vapour accumulation. Keep container tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON

THE CONDITIONS OF USE.

Occupational Exposure Limits (2000) :	North American exposure limits have not been established for the product. Consult local authorities for acceptable provincial values. Gasoline: 300 ppm (STEL: 500 ppm) Benzene (skin) : 0.5 ppm (STEL: 2.5 ppm)
Mechanical Ventilation:	Make up air should always be supplied to balance air exhausted (either generally or locally). Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere. Use explosion-proof ventilation as required to control vapour concentrations.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection:	Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.
Skin Protection:	Impervious gloves (viton, nitrile) should be worn at all times when handling this material. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.
Respiratory Protection:	If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Bright Clear
Odour:	Typical Gasoline Odour
Odour Threshold:	Not available
Freezing/Pour Point:	<-51 degrees C
Boiling Point:	60 - 270 degrees C
Density:	750 - 801 kg/m3 @ 15 degrees C
Vapour Density (Air = 1):	Not available
Vapour Pressure:	>42 mm Hg @ 38 degrees C
Specific Gravity (Water = 1):	0.000
pH:	Not applicable
Flash Point:	Method Tag Closed Cup = -23 - 1 degrees C
Lower Explosion Limit:	1.4 % (vol.)
Upper Explosion Limit:	7.6 % (vol.)
Autoignition Temperature:	Not available
Viscosity:	Not available
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{OW}):	Not available
Water Solubility:	Insoluble
Other Solvents:	Hydrocarbon Solvents

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Hazardous Decomposition Products:	Thermal decomposition products are highly dependent on combustion conditions.
Incompatible Materials:	Avoid contact with strong oxidizing agents and acids.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Naphtha (Petroleum), Full-range Reformed	LD50 Oral Rat >28 mL/kg
Benzene	LD50 Oral Rat = 930 - 5600 mg/kg LC50 Inhalation Rat = 13700 ppm for 4 hours
Routes of Exposure:	Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.
Irritancy:	This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.
Chronic Effects:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression. Prolonged and repeated exposure may cause serious injury to blood forming organs, resulting in anemia and similar conditions.
Pre-existing Conditions:	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.
Carcinogenicity and Mutagenicity:	This product contains benzene. Epidemiological studies indicate that long term inhalation of benzene vapour can cause leukaemia in man. Benzene has also produced chromosomal aberrations in peripheral blood lymphocytes. Carcinogenic hazard.

12. ECOLOGICAL INFORMATION

Environmental Effects	Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life. May cause physical fouling of aquatic organisms.
Biodegradability	Not readily biodegradable. Potential for bioaccumulation.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION

Canadian Road and Rail Shipping Classification:

UN/NA Number	UN1863
Proper Shipping Name	FUEL, AVIATION, TURBINE ENGINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG II
Shipping Description	FUEL, AVIATION, TURBINE ENGINE Class 3 UN1863 PG II

15. REGULATORY INFORMATION

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

WHMIS Class:	Class B2 Flammable Liquid Class D2B Other Toxic Effects - Skin Irritant Class D2A Other Toxic Effects - Carcinogen
DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
Other Regulatory Status:	No Canadian federal standards.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

Hazard Statement :	Flammable Liquid. Irritating to skin. Contains Benzene. May cause cancer.
Handling Statement:	Eliminate all ignition sources. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Avoid prolonged exposure to vapours. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

First Aid Statement : Wash contaminated skin with soap and water.
Flush eyes with water.
If overcome by vapours remove to fresh air.
Do not induce vomiting.
Obtain medical attention.

Revisions: This revision reflects the change of name from Shell Canada Products Limited to Shell Canada Products.
This MSDS has been reviewed and updated.
Changes have been made to:
Section 14

SAFETY DATA SHEET

DIESEL FUEL

000003000395



Version 2.0

Revision Date 2016/08/23

Print Date 2016/08/23

SECTION 1. IDENTIFICATION

Product name : DIESEL FUEL

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

Product code : 102762, 102763, 102755, 102302, 102744, 101801, 100678, 100677, 101802, 100107, 100668, 100658, 100911, 100663, 100652, 100460, 100065, 101796, 101793, 101795, 101792, 101794, 101791, 100768, 100643, 100642, 100103, 101798, 101800, 101797, 101788, 101789, 101787, 102531, 100734, 100733, 100640, 100997, 100995, 100732, 100731, 100994

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

Emergency telephone number
Suncor Energy: +1 403-296-3000;
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 : Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining diesels, marine diesels, MDO and naval distillates may have a higher flash point requirement.

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

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Bright oily liquid.
Colour	Clear to yellow (This product may be dyed red for taxation purposes)
Odour	Mild petroleum oil like.
Hazard Summary	Combustible liquid. May cause cancer. Irritating to eyes and skin.

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Potential Health Effects

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

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

Confirmed animal carcinogen with unknown relevance to humans

Fuel Oil No. 1

8008-20-6

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration
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kerosine (petroleum), hydrodesulfurized	64742-81-0	70 - 100 %
kerosine (petroleum)	8008-20-6	
fuels, diesel	68334-30-5	
fuel oil no. 2	68476-30-2	
Alkanes, C10-20-branched and linear	928771-01-1	0 - 25 %
Soybean oil, Methyl ester	67784-80-9	0 - 5 %
Rape oil, Methyl ester	73891-99-3	
Fatty acids, tallow, Methyl esters	61788-61-2	

SECTION 4. FIRST AID MEASURES

- If inhaled : Move to fresh air.
Artificial respiration and/or oxygen may be necessary.
Seek medical advice.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Wash skin thoroughly with soap and water or use recognized skin cleanser.
Wash clothing before reuse.
Seek medical advice.
- In case of eye contact : Remove contact lenses.
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Obtain medical attention.
- If swallowed : Rinse mouth with water.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.
Never give anything by mouth to an unconscious person.
Seek medical advice.
- Most important symptoms and effects, both acute and delayed : First aider needs to protect himself.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Dry chemical
Carbon dioxide (CO₂)
Water fog.
Foam
- Unsuitable extinguishing media : Do NOT use water jet.
- Specific hazards during fire-fighting : Cool closed containers exposed to fire with water spray.
- Hazardous combustion products : Carbon oxides (CO, CO₂), nitrogen oxides (NO_x), sulphur oxides (SO_x), sulphur compounds (H₂S), smoke and irritating

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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 | : | 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

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Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
kerosine (petroleum), hydrodesulfurized	64742-81-0	TWA	200 mg/m ³ (As total hydrocarbon vapour)	ACGIH
		TWA	200 mg/m ³ (As total hydrocarbon vapour)	ACGIH
kerosine (petroleum)	8008-20-6	TWA	200 mg/m ³ (total hydrocarbon vapor)	CA BC OEL
		TWA	200 mg/m ³ (total hydrocarbon vapor)	CA AB OEL
		TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH

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

Personal protective equipment

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

Filter type : organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection
Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R). Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

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

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Bright oily liquid.
Colour	: Clear to yellow (This product may be dyed red for taxation purposes)
Odour	: Mild petroleum oil like.
Odour Threshold	: No data available
pH	: No data available
Pour point	: No data available
Boiling point/boiling range	: 150 - 371 °C (302 - 700 °F)
Flash point	: > 40 °C (104 °F) Method: closed cup
Auto-Ignition Temperature	: 225 °C (437 °F)
Evaporation rate	: No data available
Flammability	: Flammable in presence of open flames, sparks and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite.
Upper explosion limit	: 6 %(V)
Lower explosion limit	: 0.7 %(V)
Vapour pressure	: 7.5 mmHg (20 °C / 68 °F)
Relative vapour density	: 4.5
Relative density	: 0.8 - 0.88

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Solubility(ies)

Water solubility : insoluble

Partition coefficient: n-octanol/water : No data available

Viscosity

Viscosity, kinematic : 1.3 - 4.1 cSt (40 °C / 104 °F)

Explosive properties

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

SECTION 10. STABILITY AND REACTIVITY

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

Conditions to avoid : Extremes of temperature and direct sunlight.

Incompatible materials : Reactive with oxidising agents and acids.

Hazardous decomposition products : May release COx, NOx, SOx, H2S, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact

Ingestion

Inhalation

Skin contact

Skin Absorption

Acute toxicity

Product:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Components:

kerosine (petroleum), hydrodesulfurized:

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

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

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

kerosine (petroleum):

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

Acute inhalation toxicity : LC50 (Rat): > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

fuels, diesel:

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

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

fuel oil no. 2:

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

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

Skin corrosion/irritation

Product:

Remarks: No data available

Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Remarks: No data available

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

Toxicity to algae : Remarks: No data available

Toxicity to bacteria : Remarks: No data available

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

Contaminated packaging : Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

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DIESEL FUEL

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IATA-DGR

UN/ID No. : UN 1202
Proper shipping name : Diesel fuel
Class : 3
Packing group : III
Labels : Class 3 - Flammable Liquid
Packing instruction (cargo aircraft) : 366

IMDG-Code

UN number : UN 1202
Proper shipping name : DIESEL FUEL

Class : 3
Packing group : III
Labels : 3
EmS Code : F-E, S-E
Marine pollutant : no

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

National Regulations

TDG

UN number : UN 1202
Proper shipping name : DIESEL FUEL

Class : 3
Packing group : III
Labels : 3
ERG Code : 128
Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

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

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

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

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

SECTION 16. OTHER INFORMATION

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DIESEL FUEL

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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 : 2016/08/23

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

GASOLINE, UNLEADED



000003000644

Version 1.0

Revision Date 2015/05/14

Print Date 2015/05/14

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : GASOLINE, UNLEADED

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

Product code : 100126, 101823, 100507, 101811, 101814, 100141, 101813, 101810, 101812, 100063, 101822, 100138, 101821, 100064, 101820, 101819, 100506, 101818, 101816, 101817, 100488

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

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

Recommended use of the chemical and restrictions on use

Recommended use : Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat engines, small engines such as chain saws and lawn mowers, and recreational vehicles.

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

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

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

GHS Classification

Flammable liquids : Category 1

Skin irritation : Category 2

Germ cell mutagenicity : Category 1B

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

GHS Label element

Hazard pictograms	:	
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Signal word	: Danger
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Hazard statements	: H224 Extremely flammable liquid and vapour. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H336 May cause drowsiness or dizziness. H340 May cause genetic defects. H350 May cause cancer. H361 Suspected of damaging fertility or the unborn child. H372 Causes damage to organs through prolonged or repeated exposure.
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Precautionary statements	: Prevention: P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ eye protection/ face protection. P281 Use personal protective equipment as required. Response: P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a
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POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

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

Disposal:

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

Potential Health Effects

Primary Routes of Entry	: Eye contact Ingestion Inhalation Skin contact
Target Organs	: Blood Immune system
Inhalation	: Inhalation may cause central nervous system effects. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.
Skin	: May irritate skin.
Eyes	: May irritate eyes.
Ingestion	: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Aspiration hazard if swallowed - can enter lungs and cause damage.
Chronic Exposure	: Chronic exposure to benzene may result in increased risk of leukemia and other blood disorders.
Aggravated Medical Condition	: None known.

Carcinogenicity:

IARC

Group 1: Carcinogenic to humans

Benzene

71-43-2

ACGIH

Confirmed human carcinogen

Benzene

71-43-2

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Hazardous components

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

SECTION 4. FIRST AID MEASURES

If inhaled	: Artificial respiration and/or oxygen may be necessary. Move to fresh air. Seek medical advice.
In case of skin contact	: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Seek medical advice.
In case of eye contact	: Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	: Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person.

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Seek medical advice.

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

SECTION 5. FIREFIGHTING MEASURES

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

Unsuitable extinguishing media : Do NOT use water jet.

Specific hazards during firefighting : Cool closed containers exposed to fire with water spray.

Hazardous combustion products : Carbon oxides (CO, CO₂), nitrogen oxides (NO_x), polynuclear aromatic hydrocarbons, phenols, aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.

Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
Material can create slippery conditions.

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.

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

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Use only with adequate ventilation.
In case of insufficient ventilation, wear suitable respiratory equipment.
Avoid spark promoters. Ground/bond container and

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equipment. These alone may be insufficient to remove static electricity.

Avoid contact with skin, eyes and clothing.

Do not ingest.

Keep away from heat and sources of ignition.

Keep container closed when not in use.

Conditions for safe storage : Store in original container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in a dry, cool and well-ventilated place.
Keep in properly labelled containers.
To maintain product quality, do not store in heat or direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
		TWA	300 ppm 900 mg/m3	OSHA P0
		STEL	500 ppm 1,500 mg/m3	OSHA P0
		TWA	500 ppm 2,000 mg/m3	OSHA Z-1
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	OSHA Z-2
		TWA	100 ppm 375 mg/m3	OSHA P0
		STEL	150 ppm 560 mg/m3	OSHA P0
benzene	71-43-2	TWA	0.5 ppm	ACGIH
		STEL	2.5 ppm	ACGIH
		TWA	0.1 ppm	NIOSH REL
		ST	1 ppm	NIOSH REL
		TWA	10 ppm	OSHA Z-2
		CEIL	25 ppm	OSHA Z-2
		Peak	50 ppm	OSHA Z-2
		PEL	1 ppm	OSHA CARC
		STEL	5 ppm	OSHA CARC
ethanol	64-17-5	TWA	1,000 ppm 1,900 mg/m3	NIOSH REL
		TWA	1,000 ppm 1,900 mg/m3	OSHA Z-1

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

Biological occupational exposure limits

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

Engineering measures

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

Personal protective equipment

Respiratory protection

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

Filter type

- : A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection
Material

- : polyvinyl alcohol (PVA), Viton(R). Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

Remarks

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

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Clear liquid.
Colour	: Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.
Odour	: Gasoline
Odour Threshold	: No data available
pH	: No data available
Pour point	: No data available
Boiling point/boiling range	: 25 - 225 °C (77 - 437 °F)
Flash point	: -50 - -38 °C (-58 - -36 °F) Method: Tagliabue.
Auto-Ignition Temperature	: 257 °C (495 °F)
Evaporation rate	: No data available
Flammability	: Extremely flammable in presence of open flames, sparks, shocks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition. May accumulate in confined spaces.
Upper explosion limit	: 7.6 %(V)
Lower explosion limit	: 1.3 %(V)
Vapour pressure	: < 802.5 mmHg (20 °C / 68 °F)
Relative vapour density	: 3
Relative density	: 0.685 - 0.8
Solubility(ies)	

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

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	: Hazardous polymerisation does not occur. Stable under normal conditions.
Conditions to avoid	: Extremes of temperature and direct sunlight.
Incompatible materials	: Reactive with oxidising agents, acids and interhalogens.
Hazardous decomposition products	: May release CO _x , NO _x , phenols, polycyclic aromatic hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Product:

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

Components:

toluene:

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

benzene:

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Acute oral toxicity	LD50 (Rat): 2,990 mg/kg
Acute inhalation toxicity	LC50 (Rat): 13700 ppm Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	LD50 (Rabbit): > 8,240 mg/kg

ethanol:

Acute oral toxicity	LD50 (Rat): 7,060 mg/kg
Acute inhalation toxicity	LC50 (Rat): > 32380 ppm Exposure time: 4 h Test atmosphere: vapour

Skin corrosion/irritation

Product:

Remarks: No data available

Components:

toluene:

Result: Moderate skin irritant

benzene:

Result: Moderate skin irritant

ethanol:

Result: Skin irritation

Serious eye damage/eye irritation

Product:

Remarks: No data available

Components:

toluene:

Result: Mild eye irritation

benzene:

Result: Moderate eye irritation

ethanol:

Result: Eye irritation

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

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Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Remarks: No data available

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

Toxicity to algae : Remarks: No data available

Toxicity to bacteria : Remarks: No data available

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

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Contaminated packaging : Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA-DGR

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

IMDG-Code

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

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

Not applicable for product as supplied.

49 CFR

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

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

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

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

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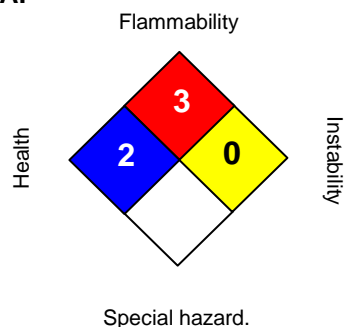
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SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	3
PHYSICAL HAZARD	0
PERSONAL PROTECTION	H

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

For Copy of (M)SDS

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

Prepared by

: Product Safety: +1 905-804-4752

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

**Jet A Aviation Fuel**

Version 2.2

Revision Date 2016-05-17

SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product information**

Product Name : Jet A Aviation Fuel
Material : 1102484, 1103429, 1102481, 1103418, 1102485, 1102483,
1102482, 1024254, 1024255, 1024256, 1024257, 1104981,
1104992

Use : Fuel

Company : Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Emergency telephone:**Health:**

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: +800 CHEMCALL (+800 2436 2255) China: +86-21-22157316

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group
E-mail address : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture**

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Emergency Overview**Danger**

Form: Liquid **Physical state:** Liquid **Color:** Clear light yellow

OSHA Hazards : Flammable Liquid, Carcinogen, Mild skin irritant, Aspiration hazard, Delayed target organ effects

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Classification

: Flammable liquids , Category 3
 Skin irritation , Category 2
 Carcinogenicity , Category 2
 Specific target organ systemic toxicity - single exposure ,
 Category 3 , Central nervous system
 Specific target organ systemic toxicity - repeated exposure ,
 Category 1 , Eyes, Blood
 Aspiration hazard , Category 1

Labeling

Symbol(s)

:



Signal Word

: Danger

Hazard Statements

: H226: Flammable liquid and vapor.
 H304: May be fatal if swallowed and enters airways.
 H315: Causes skin irritation.
 H336: May cause drowsiness or dizziness.
 H351: Suspected of causing cancer.
 H372: Causes damage to organs (Eyes, Blood) through
 prolonged or repeated exposure.

Precautionary Statements

: **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been
 read and understood.
 P210 Keep away from heat/sparks/open flames/hot surfaces.
 No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ ventilating/ lighting/
 equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P260 Do not breathe dust/fume/gas/mist/vapor/spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ protective clothing/ eye
 protection/ face protection.
Response:
 P301 + P310 IF SWALLOWED: Immediately call a POISON
 CENTER/doctor.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off
 immediately all contaminated clothing. Rinse skin with
 water/shower.
 P304 + P340 + P312 IF INHALED: Remove person to fresh
 air and keep comfortable for breathing. Call a POISON
 CENTER/doctor if you feel unwell.
 P308 + P313 IF exposed or concerned: Get medical advice/
 attention.
 P331 Do NOT induce vomiting.
 P332 + P313 If skin irritation occurs: Get medical advice/

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attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

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

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

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

Carcinogenicity:**IARC**

Group 2B: Possibly carcinogenic to humans

Naphthalene 91-20-3

NTP

Reasonably anticipated to be a human carcinogen

Naphthalene 91-20-3

ACGIH

Confirmed animal carcinogen with unknown relevance to humans

Kerosene C9-C16 8008-20-6

SECTION 3: Composition/information on ingredients

Synonyms : Aviation Turbine Fuel A
Kerosene Turbine Fuel
Kerosene
Jet A-1 Fuel
Jet A Fuel

Molecular formula : UVCB

Component	CAS-No.	Weight %
Kerosene C9-C16	8008-20-6	100
Naphthalene	91-20-3	0 - 3

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

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If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point : 37.8 °C (100.0 °F)

Autoignition temperature : 210 °C (410 °F)

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media : High volume water jet.

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

Fire and explosion protection : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

Hazardous decomposition products : Hydrocarbons. Carbon oxides.

SECTION 6: Accidental release measures

Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

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Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage**Handling**

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection**Ingredients with workplace control parameters****US**

Ingredients	Basis	Value	Control parameters	Note
Kerosene C9-C16	ACGIH	TWA	200 mg/m3	CNS impair, URT irr, skin irr, P, A3, Skin, varies,
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	(b),
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
Naphthalene	ACGIH	TWA	10 ppm,	hematologic eff, URT irr, eye irr, eye dam, (), A4, Skin,
	ACGIH	STEL	15 ppm,	hematologic eff, URT irr, eye irr, eye dam, (), A4, Skin,
	OSHA Z-1	TWA	10 ppm, 50 mg/m3	(b),
	OSHA Z-1-A	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	STEL	15 ppm, 75 mg/m3	

- (i) Adopted values or notations enclosed are those for which changes are proposed in the NIC
 (b) The value in mg/m3 is approximate.
 A3 Confirmed animal carcinogen with unknown relevance to humans
 A4 Not classifiable as a human carcinogen
 CNS impair Central Nervous System impairment
 eye dam Eye damage
 eye irr Eye irritation
 hematologic eff Hematologic effects
 P Application restricted to conditions in which there are negligible aerosol exposures
 Skin Danger of cutaneous absorption
 skin irr Skin irritation
 URT irr Upper Respiratory Tract irritation

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varies varies

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Naphthalene	91-20-3	Immediately Dangerous to Life or Health Concentration Value 250 ppm	1995-03-01

Engineering measures

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

Personal protective equipment

- Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- 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. Wear as appropriate:. Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

- Form : Liquid
- Physical state : Liquid

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Color : Clear light yellow

Safety data

Flash point : 37.8 °C (100.0 °F)

Lower explosion limit : 0.6 %(V)

Upper explosion limit : 4.7 %(V)

Oxidizing properties : no

Autoignition temperature : 210 °C (410 °F)

Molecular formula : UVCB

Molecular weight : Not applicable

pH : Not applicable

Pour point : No data available

Boiling point/boiling range : 149 - 300 °C (300 - 572 °F)

Vapor pressure : 0.40 MMHG

Relative density : 0.775
at 20 °C (68 °F)

Density : 806.5 g/l

Water solubility : Negligible

Partition coefficient: n-
octanol/water : No data availableViscosity, kinematic : 1.5 cSt
at 20 °C (68 °F)Relative vapor density : 4.5
(Air = 1.0)

Evaporation rate : 1

Percent volatile : > 99 %

SECTION 10: Stability and reactivity

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

Possibility of hazardous reactions

Conditions to avoid : Heat, flames and sparks.

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Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous decomposition products : Hydrocarbons
Carbon oxides

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**Jet A Aviation Fuel**

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

Acute inhalation toxicity

Kerosene C9-C16 : LC50: > 5.2 mg/l
Exposure time: 4 h
Species: Rat

Acute dermal toxicity

Kerosene C9-C16 : LD50: >2000 milligram per kilogram
Species: Rabbit

Jet A Aviation Fuel

Skin irritation : May cause skin irritation in susceptible persons.

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Eye irritation : Vapors may cause irritation to the eyes, respiratory system and the skin.

Jet A Aviation Fuel

Sensitization : No adverse effects expected.

Repeated dose toxicity

Kerosene C9-C16 : Species: Rabbit
Application Route: Dermal
Dose: 0, 200, 1000, 2000 mg/kg
Exposure time: 28 day
Number of exposures: 3 times/wk
Lowest observable effect level: 1,000 mg/kg

Carcinogenicity

Kerosene C9-C16 : Species: Mouse
Dose: 0, 28.5, 50, 100%
Exposure time: 104 wks
Number of exposures: 2, 4, or 7 times/wk
Remarks: Weak dermal carcinogen

Naphthalene : Species: Mouse
Sex: male

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Dose: 10, 30 ppm
 Exposure time: 105 weeks
 Number of exposures: 6 hours/day, 5 days/week
 Test substance: yes
 Print Date: No information available.
 Remarks: No evidence of carcinogenicity

Species: Mouse
 Sex: female
 Dose: 10, 30 ppm
 Exposure time: 105 weeks
 Number of exposures: 6 hours/day, 5 days/week
 Test substance: yes
 Print Date: No information available.
 Remarks: increased incidence of alveolar/bronchiolar adenomas

Species: Rat
 Sex: male and female
 Dose: 10, 30, 60 ppm
 Exposure time: 105 weeks
 Number of exposures: 6 hours/day, 5 days/week
 Test substance: yes
 Print Date: No information available.
 Remarks: nose respiratory epithelial adenoma, increased incidence of olfactory neuroblastomas

Developmental Toxicity

Kerosene C9-C16

: Species: Rat
 Application Route: Inhalation
 Dose: 0, 106, 364 ppm
 Exposure time: 6 hrs/d
 Test period: GD 6-15
 NOAEL Teratogenicity: 364 ppm
 NOAEL Maternal: 364 ppm

Naphthalene

Species: Rabbit
 Application Route: oral gavage
 Dose: 40, 200, 400 mg/kg
 Test period: 29 d, GD 6-18
 NOAEL Teratogenicity: 400 mg/kg

**Jet A Aviation Fuel
Aspiration toxicity**

: May be fatal if swallowed and enters airways.
 Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

CMR effects

Naphthalene

: Carcinogenicity: Limited evidence of carcinogenicity in animal studies

**Jet A Aviation Fuel
Further information**

: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents

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may degrease the skin.

SECTION 12: Ecological information**Toxicity to fish**

Kerosene C9-C16 : LL50: 2 - 5 mg/l
 Exposure time: 96 h
 Species: *Oncorhynchus mykiss* (rainbow trout)
 Method: OECD Test Guideline 203

Naphthalene LC50: 3.2 mg/l
 Exposure time: 96 h
 Species: *Pimephales promelas* (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates

Kerosene C9-C16 : EL50: 1.4 mg/l
 Exposure time: 48 h
 Species: *Daphnia magna* (Water flea)
 Method: OECD Test Guideline 202

Naphthalene LC50: 2.16 mg/l
 Exposure time: 48 h
 Species: *Daphnia magna* (Water flea)

Toxicity to algae

Kerosene C9-C16 : EL50: 1 - 3 mg/l
 Exposure time: 72 h
 Species: *Raphidocellus subcapitata* (algae)
 Method: OECD Test Guideline 201

Naphthalene EC50: 2.96 mg/l
 Exposure time: 48 h
 Species: *Selenastrum capricornutum* (algae)

Elimination information (persistence and degradability)

Biodegradability : Expected to be ultimately biodegradable

Ecotoxicology Assessment

Acute aquatic toxicity
 Kerosene C9-C16 : Toxic to aquatic life.

Naphthalene : Very toxic to aquatic life.

Chronic aquatic toxicity
 Kerosene C9-C16 : Toxic to aquatic life with long lasting effects.

Naphthalene : Very toxic to aquatic life with long lasting effects.

Additional ecological : Toxic to aquatic life with long lasting effects.

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information

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, III, (37.8 °C), MARINE POLLUTANT, (KEROSENE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS, (KEROSENE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, III, ENVIRONMENTALLY HAZARDOUS,

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(KEROSENE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, III, ENVIRONMENTALLY HAZARDOUS, (KEROSENE)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**SECTION 15: Regulatory information****National legislation****SARA 311/312 Hazards** : Acute Health Hazard
Chronic Health Hazard**EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO - KNOW**CERCLA Reportable : 3333 lbs
Quantity
NaphthaleneSARA 302 Reportable : This material does not contain any components with a SARA
Quantity 302 RQ.SARA 302 Threshold : No chemicals in this material are subject to the reporting
Planning Quantity requirements of SARA Title III, Section 302.SARA 304 Reportable : This material does not contain any components with a section
Quantity 304 EHS RQ.SARA 313 Ingredients : The following components are subject to reporting levels
established by SARA Title III, Section 313:
: Naphthalene - 91-20-3**Clean Air Act**Ozone-Depletion : This product neither contains, nor was manufactured with a Class I or
Potential Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMII Intermediate or Final VOC's (40 CFR 60.489).

US State Regulations**Pennsylvania Right To Know**

: Kerosene C9-C16 - 8008-20-6
Naphthalene - 91-20-3

New Jersey Right To Know

: Kerosene C9-C16 - 8008-20-6
Naphthalene - 91-20-3

**California Prop. 65
Ingredients**

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

Notification status**Europe REACH**

: This mixture contains only ingredients which have been subject to a pre-registration according to Regulation (EU) No. 1907/2006 (REACH).

Switzerland CH INV

: On the inventory, or in compliance with the inventory

United States of America TSCA

: On TSCA Inventory

Canada DSL

: All components of this product are on the Canadian DSL

Australia AICS

: On the inventory, or in compliance with the inventory

New Zealand NZIoC

: On the inventory, or in compliance with the inventory

Japan ENCS

: On the inventory, or in compliance with the inventory

Korea KECI

: On the inventory, or in compliance with the inventory

Philippines PICCS

: On the inventory, or in compliance with the inventory

China IECSC

: On the inventory, or in compliance with the inventory

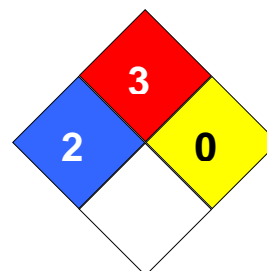
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SECTION 16: Other information

NFPA Classification : Health Hazard: 2
Fire Hazard: 3
Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 1975

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

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.

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical	TWA	Time Weighted Average

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	Substances in China		
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

SECTION 1 – PRODUCT INFORMATION

Product Name: Propane

Trade Name: LPG (Liquefied Petroleum Gas), LP-Gas

Chemical Formula: C₃H₈

WHMIS Classification: Class A – Compressed Gas
Class B, Division 1 – Flammable G

Supplier: Superior Propane
A Division of Superior Plus LP
1111 - 49th Avenue N.E.
Calgary, AB T2E 8V2
Business: (403) 730-7500

24-Hour
Emergency Contact: Canutec (613) 996-6666

Application and Use: Propane is commonly used as a fuel for heating, cooking, automobiles, forklift trucks, crop drying and welding and cutting operations. Propane is used in industry as a refrigerant, solvent and as a chemical feedstock.

SECTION 2 – HAZARDOUS INGREDIENTS

COMPONENTS	CAS No	% VOLUME (v/v)	LD 50 (RAT, ORAL)
Propane	74-98-6	90% -99%	Not Applicable
Propylene	115-07-1	0% - 5%	Not Applicable
Ethane	74-84-0	0% - 5%	Not Applicable
Butane and heavier hydro carbons	106-97-8	0% - 2.5%	Not Applicable

Occupational Exposure Limit:

Based upon animal test data, the acute toxicity of this product is expected to be inhalation: 4 hour LC50 = 280,000 ppm (Rat)

Note: Composition is typical for HD-5 Propane per The Canadian General Standard Board CGSB 3.14 National Standard of Canada. Exact composition will vary from shipment to shipment.

SECTION 3 – CHEMICAL AND PHYSICAL DATA

Form: Liquid and vapour while stored under pressure

Boiling Point: -42°C @ 1 atm

Freezing Point: -188°C

Evaporation Rate: Rapid (Gas at normal ambient conditions)

Vapour Pressure: 1435 kPa (maximum) @ 37.8°C

Vapour Density: 1.52 (Air = 1)

pH: Not available

Solubility in Water: Slight, 6.1% by volume @ 17.8°C

Specific Gravity: 0.51 (water = 1)

Appearance/Odour: Colourless liquid and vapour while stored under pressure. Colourless and odourless gas in natural state at any concentration. Commercial propane has an odourant added, ethyl mercaptan, which has an odour similar to boiling cabbage.

Coefficient of Water/Oil Distribution: Not available

Odour Threshold: 4800 ppm

With proper handling, transportation and storage, adding a chemical odourant such as ethyl mercaptan has proven to be a very effective warning device, but all odourants have certain limitations. The effectiveness of the odourant may be diminished by a person's sense of smell, by competing odours and by oxidation which may cause a potentially dangerous situation.

SECTION 4 – FIRE OR EXPLOSION HAZARD

Flash Point: -103.4°C

Method: Closed cup

Flammable Limits: Lower 2.4%, Upper 9.5%

Auto Ignition Temperature: 432 °C

Hazardous Combustion Products: Carbon monoxide can be produced when primary air and secondary air are deficient while combustion is taking place.

Fire and Explosive Hazards: Explosive air - vapour allowed to leak to atmosphere.

Sensitivity to Impact: No

Sensitivity to Static Discharge: Yes

Fire Extinguishing Precautions: Use water spray to cool exposed cylinders or tanks. Do not extinguish fire unless the source of the escaping gas that is fueling the fire can be turned off. Fire can be extinguished with carbon dioxide and/or dry chemical (BC). Container metal shells require cooling with water to prevent impingement and the weakening of metal. If sufficient water is not available to protect the container shell from weakening, the area will be required to be evacuated. If gas has not ignited, liquid or vapour may be dispersed by water spray or flooding.

Special Fire Fighting Equipment: Protective clothing, hose monitors, fog nozzles, self-contained breathing apparatus material, drains and openings to building

SECTION 5 – REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Keep separate from oxidizing agents. Gas explodes spontaneously when mixed with chloride dioxide. Incompatibility: Remove sources of ignition and observe distance requirements for storage tanks from combustible

Hazardous Decomposition Products: Deficient primary and secondary air can produce carbon monoxide.

Hazardous Polymerization: Will not occur.

SECTION 6 – TOXICOLOGICAL PROPERTIES OF MATERIAL

Routes of Entry: Skin Contact, Eye Contact, Inhalation

Inhalation: Simple asphyxiant. No effect at concentrations of 10,000 ppm (peak exposures). Higher concentrations may cause central nervous system disorder and/or damage. Lack of oxygen may cause dizziness, loss of coordination, weakness, fatigue, euphoria, mental confusion, blurred vision, convulsions, breathing failure, coma and death. Breathing high vapour concentrations (saturated vapours) for a few minutes may be fatal. Saturated vapours may be encountered in confined spaces and/or under conditions of poor ventilation. Avoid breathing vapours or mist.

Skin and Eye Contact: Exposure to vapourizing liquid may cause frostbite (cold burns) and permanent eye damage.

Ingestion: Not considered to be a hazard.

Acute Exposure: Contact with Liquefied Petroleum Gas may cause frostbite or cold burns. Propane acts as a simple asphyxiant as oxygen content in air is displaced by the propane. At increasing concentration levels, propane may cause dizziness, headaches, loss of coordination, fatigue, unconsciousness and death.

Chronic Exposure: No reported effects from long term low level exposure.

Sensitization to Product: Not known to be a sensitizer.

Occupational Exposure Limits: American Conference of Governmental Industrial Hygienists (ACGIH) lists as a simple asphyxiant.

ACGIH TLV: 1000 ppm

Carcinogenicity, Reproductive Toxicity, Teratogenicity, Mutagenicity: No effects reported.

Other Toxicological Effects: None

SECTION 7 – PREVENTATIVE MEASURES

Eyes: Safety glasses or chemical goggles are recommended when transferring product.

Skin: Insulated gloves required if contact with liquid or liquid cooled equipment is expected. Wear gloves and long sleeves when transferring product.

Inhalation: Where concentration in air would reduce the oxygen level below 18% air or exceed occupational exposure limits in section 6, self-contained breathing apparatus is required.

Ventilation: Use in well-ventilated areas. Use with explosion proof mechanical ventilation in confined spaces or poorly ventilated areas.

SECTION 8 – EMERGENCY AND FIRST AID PROCEDURES

Eyes: Should eye contact with liquid occur, flush eyes with lukewarm water for 15 minutes. Obtain immediate medical care.

Skin: In case of "Cold Burn" from contact with liquid, immediately place affected area in lukewarm water and keep at this temperature until circulation returns. If fingers or hands are frostbitten, have the victim hold his hand next to his body such as under the armpit. Obtain immediate medical care.

Ingestion: None considered necessary.

Inhalation: Remove person to fresh air. If breathing is difficult or has stopped, administer artificial respiration. Obtain immediate medical care.

Spill or Leak: Eliminate leak if possible. Eliminate source of ignition. Ensure cylinder is upright. Disperse vapours with hose streams using fog nozzles. Monitor low areas as propane is heavier than air and can settle into low areas. Remain upwind of leak. Keep people away. Prevent vapour and/or liquid from entering into sewers, basements or confined areas.

SECTION 9 – TRANSPORTATION, HANDLING AND STORAGE

- Transport and store cylinders and tanks secured in an upright position in a ventilated space away from ignition sources (so the pressure relief valve is in contact with the vapour space of the cylinder or tank).
- Cylinders that are not in use must have the valves in the closed position and be equipped with a protective cap or guard.

Transportation of Dangerous Goods (TDG)
TDG Classification: Flammable Gas 2.1

- Do not store with oxidizing agents, oxygen, or chlorine cylinders.
- Empty cylinders and tanks may contain product residue. Do not pressurize, cut, heat or weld empty containers.
- Transport, handle and store according to applicable federal and provincial codes and regulations.

TDG Shipping Name: Liquefied Petroleum Gas (Propane)
PIN Number: UN1075

SECTION 10 – PREPARATION INFORMATION

Prepared by: Superior Propane
Health Safety and Environment Team

Telephone: (403) 730-7500
Revision: January 17, 2014
Supersedes: January 17, 2011

The information contained herein is believed to be accurate. It is provided independently of any sale of the product. It is not intended to constitute performance information concerning the product. No express warranty, implied warranty of merchantability or fitness for a particular purpose is made with respect to the product information contained herein.

APPENDIX D: SPILL REPORT FORM

Form is also available online at:

http://www.gov.nu.ca/sites/default/files/NT%20NU%20Spill%20Report%20Form_0.pdf



NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

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

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____	
	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 <input type="checkbox"/> NWT <input type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN		
E	LATITUDE DEGREES MINUTES SECONDS			LONGITUDE DEGREES MINUTES SECONDS			
F	RESPONSIBLE PARTY OR VESSEL NAME		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION				
G	ANY CONTRACTOR INVOLVED		CONTRACTOR ADDRESS OR OFFICE LOCATION				
H	PRODUCT SPILLED		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 <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED		
AGENCY		CONTACT NAME		CONTACT TIME	REMARKS		
LEAD AGENCY							
FIRST SUPPORT AGENCY							
SECOND SUPPORT AGENCY							
THIRD SUPPORT AGENCY							

PAGE 1 OF _____