

- 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. Product will float and can be reignited on surface of water. Do not use water except as a fog. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.
- Hazardous Combustion Products:** Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Try to work upwind of spill. Avoid direct contact with material. 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. 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.

7. HANDLING AND STORAGE

- Handling:** Extremely flammable. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Avoid all direct contact with this material. Avoid prolonged or repeated inhalation of vapours. 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. Do not use as a cleaning solvent. Never siphon by mouth. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Launder contaminated clothing prior to reuse. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities.
- Storage:** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect against physical damage to containers.

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 (Current ACGIH TLV/TWA unless otherwise noted):

Gasoline: 300 ppm (STEL: 500 ppm)

Benzene (skin) : 0.5 ppm (STEL: 2.5 ppm)

Skin Notation: The occupational exposure limit is based on the fact that skin and/or eye is a major route of exposure through absorption.

Mechanical Ventilation: Use explosion-proof ventilation as required to control vapour concentrations. 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. Make up air should always be supplied to balance air exhausted (either generally or locally). 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.

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 should be worn at all times when handling this product. PVC or nitrile rubber gloves are recommended. 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. 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:	Clear
Odour:	Typical Gasoline Odour
Odour Threshold:	<0.25 ppm
Freezing/Pour Point:	Not available
Boiling Point:	35 - 220 degrees C
Density:	720 - 730 kg/m ³ @ 15 degrees C
Vapour Density (Air = 1):	3.5
Vapour Pressure (absolute):	Not available
pH:	Not applicable
Flash Point:	Method Tag Closed Cup -30 degrees C
Lower Explosion Limit:	1.4 % (vol.)
Upper Explosion Limit:	7.6 % (vol.)
Autoignition Temperature:	280 degrees C
Viscosity:	<1 cSt @ 38 degrees C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{OW}):	200
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
Incompatible Materials:	Avoid strong oxidizing agents.

Conditions of Reactivity:

Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Gasoline, Natural	LD50 Oral Rat = 18800 mg/kg LD50 Dermal Rabbit >8000 mg/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:	Based on testing with similar materials, this product is not expected to be a primary skin irritant after exposure of short duration, would not be a skin sensitizer and would not be irritating to the eye.
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.
Carcinogenicity and Mutagenicity:	According to the International Agency for Research on Cancer (IARC) this product is considered to be possibly carcinogenic to humans. 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.

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. Fish Toxicity: 5 to 40 ppm 96 hr TLm Rainbow Trout Freshwater
Biodegradability:	Not readily biodegradable. Potential for bioaccumulation. Rapid volatilization.

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 Number

UN1203

Proper Shipping Name	GASOLINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG II
Additional Information	Marine Pollutant
Shipping Description	GASOLINE Class 3 UN1203 PG II Marine Pollutant

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 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. 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 MSDS has been reviewed and updated. Changes have been made to: Section 1 Section 2 Section 14
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The information in this document is compiled from information maintained by the United States Department of Defense (DOD). Anyone using this information is solely responsible for the accuracy and applicability of this information to a particular use or situation.
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Section 1 - Product and Company Identification
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Product Identification: NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L
Date of MSDS: 10/01/1990 **Technical Review Date:** 11/27/1992
FSC: 9140 NIIN: 00-286-5294
Submitter: D DG
Status Code: C
MFN: 01
Article: N
Kit Part: N

Manufacturer's Information

Manufacturer's Name: CONOCO INC
Post Office Box: 2197
Manufacturer's Address1:
Manufacturer's Address2: HOUSTON, TX 77252
Manufacturer's Country: US
General Information Telephone: 713-293-5550
Emergency Telephone: 800-441-3637
Emergency Telephone: 800-441-3637
MSDS Preparer's Name: N/P
Proprietary: N
Reviewed: Y
Published: Y
CAGE: DO839
Special Project Code: N

Item Description

Item Name: DIESEL FUEL
Item Manager:
Specification Number: VV-F-800
Type/Grade/Class: GRADE DF-2
Unit of Issue: GL
Unit of Issue Quantity: X
Type of Container: BULK

Contractor Information

Contractor's Name: CONOCO INC
Post Office Box: 2197
Contractor's Address1:
Contractor's Address2: HOUSTON, TX 77252
Contractor's Telephone: 713-293-5550PRODUCT/ 800-4413637MED
Contractor's CAGE: 5R396

Contractor Information

Contractor's Name: CONOCO INC.
Post Office Box: 1267
Contractor's Address1: N/K
Contractor's Address2: PONCA CITY, OK 74603
Contractor's Telephone: 405767-6000
Contractor's CAGE: DO839

Section 2 - Composition/Information on Ingredients NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Ingredient Name: HYDROCARBONS (ALIPHATIC AND AROMATIC)

Ingredient CAS Number: **Ingredient CAS Code:** X

RTECS Number: **RTECS Code:** X

=WT: =WT Code:

=Volume: =Volume Code:

>WT: >WT Code:

>Volume: >Volume Code:

<WT: <WT Code:

<Volume: <Volume Code:

% Low WT: % Low WT Code:

% High WT: % High WT Code:

% Low Volume: % Low Volume Code:

% High Volume: % High Volume Code:

% Text: >90

% Environmental Weight:

Other REC Limits: 400 PPM

OSHA PEL: UNKNOWN **OSHA PEL Code:** M

OSHA STEL: **OSHA STEL Code:**

ACGIH TLV: UNKNOWN **ACGIH TLV Code:** M

ACGIH STEL: N/P **ACGIH STEL Code:**

EPA Reporting Quantity:

DOT Reporting Quantity:

Ozone Depleting Chemical:

Ingredient Name: NAPHTHALENE (SARA III)

Ingredient CAS Number: 91-20-3 **Ingredient CAS Code:** M

RTECS Number: QJ0525000 **RTECS Code:** M

=WT: =WT Code:

=Volume: =Volume Code:

>WT: >WT Code:

>Volume: >Volume Code:

<WT: <WT Code:

<Volume: <Volume Code:

% Low WT: % Low WT Code:

% High WT: % High WT Code:

% Low Volume: % Low Volume Code:

% High Volume: % High Volume Code:

% Text: 3.0

% Environmental Weight:

Other REC Limits: NONE RECOMMENDED

OSHA PEL: 10 PPM/15 STEL **OSHA PEL Code:** M

OSHA STEL: **OSHA STEL Code:**

ACGIH TLV: 10 PPM/15 STEL; 9293 **ACGIH TLV Code:** M

ACGIH STEL: N/P **ACGIH STEL Code:**

EPA Reporting Quantity: 100 LBS
DOT Reporting Quantity: 100 LBS
Ozone Depleting Chemical: N

Section 3 - Hazards Identification, Including Emergency Overview
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Health Hazards Acute & Chronic: EYES:IRRITATION. SKIN:SKIN IRRITANT.
INHALATION:LUNG IRRITATION, CNS EFFECTS. INGESTION:PRACTICALLY NON-TOXIC TO
INTERNAL ORGANS. HOWEVER, IF ASPIRATED INTO LUNGS IT MAY CAUSE CHEMICAL
PNEUMONITIS WHICH CAN BE FATAL. CHRONIC:MIDDLE DISTILLATE HAS CAUSED SKIN
CANCER WHEN REPEATEDLY APPLIED TO MICE OVER LIFETIME,KIDNEY.

Signs & Symptoms of Overexposure:

SKIN:IRRITATION, DRYING EFFECT. INHALATION: HEADACHE, DIZZINESS, LOSS OF
APPETITE, WEAKNESS AND LOSS OF COORDINATION.

Medical Conditions Aggravated by Exposure:

NONE SPECIFIED BY MANUFACTURER.

LD50 LC50 Mixture: UNKNOWN

Route of Entry Indicators:

Inhalation: YES

Skin: YES

Ingestion: YES

Carcinogenicity Indicators

NTP: NO

IARC: NO

OSHA: NO

Carcinogenicity Explanation: WHOLE DIESEL ENGINE EXHAUST IS LISTED AS A PROBABLE
CARCINOGEN BY IARC AND NIOSH.

Section 4 - First Aid Measures
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

First Aid:

EYES:FLUSH WITH FRESH WATER FOR 15 MINUTES. SKIN: REMOVE CONTAMINATED
CLOTHING. WASH SKIN THOROUGHLY WITH SOAP AND WATER. SEE A DOCTOR IF
SYMPTOMS DEVELOP. INHALATION: REMOVE TO FRESH AIR. INGESTION: GIVE WATER OR
MILK TO DRINK AND GET IMMEDIATE MEDICAL ATTENTION. DO NOT MAKE PERSON
VOMIT UNLESS DIRECTED TO DO SO BY MEDICAL PERSONNEL.

Section 5 - Fire Fighting Measures
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Fire Fighting Procedures:

WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED
BREATHING APPARATUS. EVACUATE AREA. COOL FIRE EXPOSED CONTAINERS WITH
WATER SPRAY.

Unusual Fire or Explosion Hazard:

COMBUSTION OR HEAT OF FIRE MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS
AND VAPORS. LIQUID EVAPORATES AND FORMS VAPORS WHICH CAN CATCH FIRE WITH
VIOLENT BURNING

Extinguishing Media:

USE WATER FOG, CARBON DIOXIDE, FOAM, OR DRY CHEMICAL.

Flash Point: Flash Point Text: 130F,54C

Autoignition Temperature:

Autoignition Temperature Text: N/K

Lower Limit(s): 0.4

Upper Limit(s): 6

Section 6 - Accidental Release Measures
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Spill Release Procedures:

THIS MATERIAL IS CONSIDERED TO BE A WATER POLLUTANT AND RELEASES OF THIS PRODUCT SHOULD BE PREVENTED. ELIMINATE ALL OPEN FLAMES. STOP SOURCE OF THE LEAK. CONTAIN LIQUID. CLEAN UP SPILL USING APPROPRIATE TECHNIQUES SUCH AS ABSORBENT MATERIALS.

Section 7 - Handling and Storage
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Handling and Storage Precautions:

Other Precautions:

Section 8 - Exposure Controls & Personal Protection
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Respiratory Protection:

NONE NORMALLY REQUIRED. USE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS IF TLV IS EXCEEDED OR WHEN SPRAYING OR USING IN CONFINED SPACES.

Ventilation:

USE THIS MATERIAL ONLY IN WELL VENTILATED AREAS.

Protective Gloves:

PVC

Eye Protection: GOGGLES

Other Protective Equipment: WEAR PROTECTIVE CLOTHINGS.

Work Hygienic Practices: WASH HANDS THOROUGHLY AFTER HANDLING THIS PRODUCT.

Supplemental Health & Safety Information: NONE

Section 9 - Physical & Chemical Properties
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

HCC: F4

NRC/State License Number:

Net Property Weight for Ammo:

Boiling Point: Boiling Point Text: 350F,177C

Melting/Freezing Point: Melting/Freezing Text: N/A

Decomposition Point: Decomposition Text: UNKNOWN

Vapor Pressure: 1 Vapor Density: >1

Percent Volatile Organic Content:

Specific Gravity: 0.85-0.93

Volatile Organic Content Pounds per Gallon:

pH: N/A

Volatile Organic Content Grams per Liter:

Viscosity: 1.9 CST

Evaporation Weight and Reference: N/K

Solubility in Water: INSOLUBLE

Appearance and Odor: CLEAR OR LIGHT YELLOW LIQUID, AROMATIC ODOR

Percent Volatiles by Volume: NIL

Corrosion Rate: UNKNOWN

Section 10 - Stability & Reactivity Data
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Stability Indicator: YES

Materials to Avoid:

STRONG OXIDIZING AGENTS

Stability Condition to Avoid:

HIGH HEAT, OPEN FLAMES AND OTHER SOURCES OF IGNITION

Hazardous Decomposition Products:

TOXIC CARBON MONOXIDE AND CARBON DIOXIDE, AND SULFUR DIOXIDE.

Hazardous Polymerization Indicator: NO

Conditions to Avoid Polymerization:

NOT APPLICABLE

Section 11 - Toxicological Information
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Toxicological Information:

N/P

Section 12 - Ecological Information
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Ecological Information:

N/P

Section 13 - Disposal Considerations
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Waste Disposal Methods:

PLACE CONTAMINATED MATERIALS IN DISPOSABLE CONTAINERS AND DISPOSE OF IN A MANNER CONSISTENT WITH APPLICABLE REGULATIONS. CONTACT LOCAL ENVIRONMENTAL OR HEALTH AUTHORITIES FOR APPROVED DISPOSAL OF THIS MATERIAL.

Section 14 - MSDS Transport Information
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Transport Information:

N/P

Section 15 - Regulatory Information
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

SARA Title III Information:

N/P

Federal Regulatory Information:

N/P

State Regulatory Information:

N/P

Section 16 - Other Information
NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Other Information:
N/P

HMIS Transportation Information

Product Identification: NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

Transportation ID Number: 66870

Responsible Party CAGE: DO839

Date MSDS Prepared: 10/01/1990

Date MSDS Reviewed: 11/27/1992

MFN: 11/27/1992

Submitter: D DG

Status Code: C

Container Information

Unit of Issue: GL

Container Quantity: X

Type of Container: BULK

Net Unit Weight:

Article without MSDS: N

Technical Entry NOS Shipping Number: HYDROCARBONS(ALIPHATIC AND AROMATIC),
NAPHTHALENE.

Radioactivity:

Form:

Net Explosive Weight:

Coast Guard Ammunition Code:

Magnetism: N/P

AF MMAC Code:

DOD Exemption Number:

Limited Quantity Indicator:

Multiple Kit Number: 0

Kit Indicator: N

Kit Part Indicator: N

Review Indicator: Y

Additional Data:

NONE

Department of Transportation Information

DOT Proper Shipping Name: GAS OIL OR DIESEL FUEL OR HEATING OIL, LIGHT

DOT PSN Code: GTF

Symbols:

DOT PSN Modifier:

Hazard Class: 3

UN ID Number: UN1202

DOT Packaging Group: III

Label: FLAMMABLE LIQUID

Special Provision(s): B1,T7,T30

Packaging Exception: 150

Non Bulk Packaging: 203

Bulk Packaging: 242

Maximum Quantity in Passenger Area: 60 L

Maximum Quantity in Cargo Area: 220 L

Stow in Vessel Requirements: A

Requirements Water/Sp/Other:

IMO Detail Information

IMO Proper Shipping Name: GAS OIL
IMO PSN Code: HRR
IMO PSN Modifier:
IMDG Page Number: 3375
UN Number: 1202
UN Hazard Class: 3.3
IMO Packaging Group: III
Subsidiary Risk Label: -
EMS Number: 3-07
Medical First Aid Guide Number: 311

IATA Detail Information

IATA Proper Shipping Name: GAS OIL
IATA PSN Code: MTX
IATA PSN Modifier:
IATA UN Id Number: 1202
IATA UN Class: 3
Subsidiary Risk Class:
UN Packaging Group: III
IATA Label: FLAMMABLE LIQUID
Packaging Note for Passengers: 309
Maximum Quantity for Passengers: 60L
Packaging Note for Cargo: 310
Maximum Quantity for Cargo: 220L
Exceptions: A3

AFI Detail Information

AFI Proper Shipping Name: GAS OIL OR DIESEL FUEL OR HEATING OIL, LIGHT
AFI Symbols:
AFI PSN Code: MTX
AFI PSN Modifier:
AFI UN Id Number: UN1202
AFI Hazard Class: 3
AFI Packing Group: III
AFI Label:
Special Provisions: P5
Back Pack Reference: A7.3

HAZCOM Label Information

Product Identification: NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L
CAGE: DO839
Assigned Individual: Y
Company Name: CONOCO INC.
Company PO Box: 1267
Company Street Address1: N/K
Company Street Address2: PONCA CITY, OK 74603 US
Health Emergency Telephone: 800-441-3637
Label Required Indicator: Y
Date Label Reviewed: 11/27/1992
Status Code: C
Manufacturer's Label Number: NONE
Date of Label: 11/27/1992
Year Procured: 1992
Organization Code: F
Chronic Hazard Indicator: Y
Eye Protection Indicator: YES
Skin Protection Indicator: YES
Respiratory Protection Indicator: YES
Signal Word: WARNING

Health Hazard: Slight
Contact Hazard: Slight
Fire Hazard: Moderate
Reactivity Hazard: None

**Shell Canada Limited**
Material Safety Data SheetEffective Date: 2002-08-14
Supersedes: 2001-01-08Class A Compressed
GasClass B1 Flammable
GasClass B2 Flammable
Liquid**1. PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT: **PROPANE**
SYNONYMS: Dimethylmethane
PRODUCT USE: Fuel
MSDS Number: 251-300

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
CANUTEC 24 HOUR EMERGENCY NUMBER

1-800-661-7378
613-996-6666

For general information:
For MSDS information:
(From 7:30 to 4:30 Mountain Time)

1-800-661-1600
403-691-3982
403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship 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
Propane	74-98-6	>90	Yes
Propylene	115-07-1	<5	Yes
Hydrocarbons, C4 and up	68476-44-8	<2.5	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquefied Compressed Gas Colourless Mercaptan Odor.

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.

Hazards:

Compressed Gas.

Flammable Gas.

Flammable Liquid.

The gas is an asphyxiant and may also have a mild narcotic effect.

Direct contact with liquefied gas can result in burns to skin and eyes.

Exposure to rapidly expanding gas may cause frost burns to the eyes. As a gas, is non-irritating to the eyes.

Exposure to rapidly expanding gas may cause frost burns to the skin. As a gas, is non-irritating to the skin.

At very high concentrations this product can have an anesthetic (drowsiness, weakness) and asphyxiant effect. As a gas, is non-irritating to the throat. While there is no evidence that exposure to industrially acceptable levels of hydrocarbons have produced cardiac effects in humans, animal studies have shown that inhalation of high vapour levels of low molecular weight hydrocarbons has produced cardiac sensitization. Such sensitization may cause fatal changes in heart rhythms.

Handling:

Eliminate all ignition sources.

Wear insulated gloves to avoid freezing burns from liquid.

Wear an approved respirator to prevent overexposure.

Bond and ground transfer containers and equipment to avoid static accumulation.

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 frostbite or burn occurs, get medical attention.
Skin:	If victim has received cold burns, treat by immersing in lukewarm water (32 to 43 deg C) for 30-45 minutes. Remove contaminated clothing unless stuck to a burn area in which case cut around it. Obtain medical attention as soon as possible after first aid has been initiated and completed.
Ingestion:	Not applicable.
Inhalation:	Remove victim from further exposure and restore breathing, if required. Obtain medical attention.
Notes to Physician:	Inhalation of product may have a narcotic effect. Assess central nervous system and cardio-respiratory status.

5. FIRE FIGHTING MEASURES

Extinguishing Media:	Carbon Dioxide Dry Chemical Water Fog
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- Firefighting Instructions:** Extremely flammable. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Evacuate hazard area. Vapours may travel along ground and flashback along vapour trail may occur. Containers exposed to intense heat may rupture. Allow gas to burn if flow cannot be shut off safely. Use water fog to disperse vapours. 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. Shut off source of gas.
- Hazardous Combustion Products:** Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Evacuate personnel not equipped with protective clothing and NIOSH approved respiratory protection. Isolate hazard area and restrict access. Avoid direct contact with material. Stop leak only if safe to do so. Eliminate all ignition sources. Handling equipment must be grounded. Use water fog to knock down vapours; contain runoff.

7. HANDLING AND STORAGE

- Handling:** Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. 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. Hot surfaces may be sufficient to ignite liquid even in the absence of sparks or flames. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air.
- Storage:** Store cylinders upright, secured in position with cylinder valve cap on. Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect against physical damage to containers.

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 (Current ACGIH TLV/TWA unless otherwise noted):

Propane: 2500 ppm

Mechanical Ventilation: Use explosion-proof ventilation as required to control vapour concentrations. Make up air should always be supplied to balance air exhausted (either generally or locally). 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.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Chemical safety goggles should be worn. Provide an eyewash station in the area.
Skin Protection: Due to cryogenic properties of liquid product wear insulated gloves suitable for low temperatures, and coveralls. Safety showers should be available for emergency use.
Respiratory Protection: 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:	Liquefied Compressed Gas
Appearance:	Colourless
Odour:	Mercaptan Odor.
Odour Threshold:	Not available
Freezing/Pour Point:	<-188 degrees C
Boiling Point:	-42 degrees C
Density:	Not available
Vapour Density (Air = 1):	1.5
Vapour Pressure (absolute):	>400 mm Hg @ -56 degrees C
pH:	Not applicable
Flash Point:	Method Tag Closed Cup -104 degrees C
Lower Explosion Limit:	2.1 % (vol.)
Upper Explosion Limit:	9.5 % (vol.)
Autoignition Temperature:	432 degrees C
Viscosity:	Not applicable
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{OW}):	229
Water Solubility:	Slight
Other Solvents:	Alcohol, Ether
Molecular Weight:	44.1 grams
Formula:	CH ₃ CH ₂ CH ₃

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Incompatible Materials:	Avoid strong oxidizing agents.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources. May explode if ignited in an enclosed area.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified) Toxicological DataPropane
Propylene
Hydrocarbons, C4 and up

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.
Irritancy: No irritation effects with the gas have been reported but in liquid form contact with skin or eyes may result in freezing burns.

12. ECOLOGICAL INFORMATION

Environmental Effects: Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident.
Biodegradability: Not available. Rapid volatilization.

13. DISPOSAL CONSIDERATIONS

Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION**Canadian Road and Rail Shipping Classification:**

UN Number	UN1075
Proper Shipping Name	LIQUEFIED PETROLEUM GAS, NOT ODORIZED
Hazard Class	Class 2.1 Flammable Gases
Shipping Description	LIQUEFIED PETROLEUM GAS, NOT ODORIZED Class 2.1 UN1075

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 A Compressed Gas
Class B1 Flammable Gas
Class B2 Flammable Liquid

DSL/NDL 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 :	Compressed Gas. Flammable Gas. Flammable Liquid. The gas is an asphyxiant and may also have a mild narcotic effect. Direct contact with liquefied gas can result in burns to skin and eyes.
Handling Statement:	Eliminate all ignition sources. Wear insulated gloves to avoid freezing burns from liquid. Wear an approved respirator to prevent overexposure. Bond and ground transfer containers and equipment to avoid static accumulation. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
First Aid Statement :	If overcome by vapours remove to fresh air. Treat freezing burns by immersing in lukewarm water. Obtain medical attention.
Revisions:	This MSDS has been reviewed and updated. Changes have been made to: Section 11 Section 14