



Shell Canada Limited

Material Safety Data Sheet

Effective Date: 2006-07-31

Supersedes: 2006-04-25

Class A Compressed
GasClass B1 Flammable
Gas

1. PRODUCT AND COMPANY IDENTIFICATION

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

SUPPLIER

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 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 Odourless

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

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.

Compressed Gas.
Flammable Gas.
The gas is an asphyxiant and may also have a mild narcotic effect.
Exposure to rapidly expanding gas can cause frostbite.
Product causes suffocation if present at levels that reduce oxygen to below safe breathing levels. 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.
Use with adequate ventilation.
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

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. 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: 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. 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 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):

Aliphatic Hydrocarbon Gases Alkane (C1 - C4): 1000 ppm
Propylene: 500 ppm

- Mechanical Ventilation:** Use explosion-proof ventilation as required to control vapour concentrations. Concentrations in air should be maintained below the recommended threshold limit value if unprotected personnel are involved. Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit. 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:** If exposure has the potential to exceed 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.

9. PHYSICAL DATA

- Physical State:** Liquefied Compressed Gas
- Appearance:** Colourless
- Odour:** Odourless

Odour Threshold:	Not available
Freezing/Pour Point:	< -188 °C
Boiling Point:	-42 °C
Density:	Not available
Vapour Density (Air = 1):	1.5
Vapour Pressure (absolute):	> 400 mm Hg @ -56 °C
pH:	Not applicable
Flash Point:	Tag Closed Cup -104 °C
Lower Explosion Limit:	2.1 % (vol.)
Upper Explosion Limit:	9.5 % (vol.)
Autoignition Temperature:	432 °C
Viscosity:	Not applicable
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (log K_{ow}):	2.3
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 Data
Propane	LD50 Dermal Rat = 658 mg/kg
Propylene	LC50 Inhalation Rat > 86000 mg/m ³ for 4hours
Hydrocarbons, C4 and up	

Routes of Exposure:	Exposure will most likely occur through skin contact or inhalation.
Acute Toxicity:	This product is not expected to be irritating and has a low level of toxicity under normal use.

12. ECOLOGICAL INFORMATION

Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident.

Biodegradability:	Not available.
Bioaccumulation:	Not available.
Partition Coefficient (log K_{ow}):	2.3

Aquatic Toxicity

Practically non-toxic.

Ingredient:	Toxicological Data
Propane	EL50 - growth rate Algae (72hr) > 100 mg/L. LL50 Rainbow Trout (96hr) > 100 mg/L. EL50 Daphnia Magna (48hr) > 100 mg/L.
Propylene	LL50 Rainbow Trout (96hr) > 100 mg/L.
Hydrocarbons, C4 and up	

Definition(s): LL and EL are the lethal loading concentration and effective loading concentration respectively. The concentration represents the amount of substance added to the system to obtain a toxic concentration. They replace the traditional LC and EC for low solubility substances.

13. DISPOSAL CONSIDERATIONS

Dispose of in an approved environmental fashion.

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
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:	Not Available.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

- Hazard Statement :** Compressed Gas.
Flammable Gas.
The gas is an asphyxiant and may also have a mild narcotic effect.
Exposure to rapidly expanding gas can cause frostbite.
- Handling Statement:** Eliminate all ignition sources.
Wear insulated gloves to avoid freezing burns from liquid.
Use with adequate ventilation.
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 3
Section 5
Section 7
Section 8
Section 11