



MATERIAL SAFETY DATA SHEET

Propane

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Propane
Product Code: Multiple
Sap Code: Multiple
Synonyms: HD5 Propane
 LP-Gas
 Liquefied Petroleum Gas
 Odorized Propane
 Propane (Stenched)
 Propane (Unstenched)
 Propane Commercial
 Propane Motor Fuel
 Propane for Process
 Unodorized Propane
Intended Use: Fuel
Chemical Family: Liquefied petroleum gas
Responsible Party: ConocoPhillips
 P.O. Box 2197
 Houston, TX
 77252

For Additional MSDSs 800-762-0942

Technical Information: 918-661-9476

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:

Spill, Leak, Fire or Accident

California Poison Control System: (800) 356-3129

Call CHEMTREC

North America: (800)424-9300

Others: (703)527-3887 (collect)

Health Hazards/Precautionary Measures: Liquefied gas may cause eye and skin burns and frostbite. Gas may reduce oxygen available for breathing. Use ventilation adequate to keep exposure below recommended limits, if any. Avoid contact with eyes, skin and clothing.

Physical Hazards/Precautionary Measures: Flammable gas. Can cause flash fire. Liquefied petroleum gas. Contents under pressure. Keep away from heat, sparks, flames, static electricity or other sources of ignition. Do not enter storage areas or confined space unless adequately ventilated.

Appearance: Colorless

Physical form: Gas or Liquid (Under pressure)

Odor: Odorless (or skunk, rotten egg, dead animal, or garlic if odorant added)

NFPA Hazard Class:

Health: 3 (High)
 Flammability: 4 (Extreme)

HMIS Hazard Class

Health: 3 (High)
 Flammability: 4 (Extreme)

Reactivity: 0 (Least)

Physical Hazard: 0 (Least)

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>HAZARDOUS COMPONENTS</u>	<u>% WEIGHT</u>	<u>EXPOSURE GUIDELINE</u>		
		<u>Limits</u>	<u>Agency</u>	<u>Type</u>
Propane CAS# 74-98-6	>65	2500 ppm 1000 ppm 2100 ppm	ACGIH OSHA NIOSH	TWA TWA IDLH
Propylene CAS# 115-07-1	<35	ACGIH Simple asphyxiant		
Ethane CAS# 74-84-0	<6	ACGIH Simple asphyxiant		
Total Butanes CAS# 78-28-5: 106-97-8	<5	800 ppm	ACGIH	TWA
Ethyl mercaptan CAS# 75-08-1	<0.1	0.5 ppm 10 ppm	ACGIH OSHA	TWA CEIL

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

1%=10,000 PPM.

All components are listed on the TSCA inventory.

3. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye: Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage.

Skin: Contact with the liquefied or pressurized gas may cause frostbite ("cold" burn). This material is a gas under normal atmospheric conditions. No harmful effects from skin absorption are expected.

Inhalation (Breathing): Asphyxiant. High concentrations in confined spaces may limit oxygen available for breathing. See Signs and Symptoms.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Signs and Symptoms:

Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death.

Cancer: Inadequate data available to evaluate the cancer hazard of this material.

Target Organs: Inadequate data available for this material.

Developmental: Inadequate data available for this material.

Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus. Exposure during pregnancy to high concentrations of carbon monoxide or carbon dioxide, which are produced during the combustion of hydrocarbon gases, can also cause harm to the developing fetus.

This material contains mercaptans. Mercaptans are toxic gases with the smell of rotten cabbage. The smell disappears rapidly because of olfactory fatigue. Therefore, odor may not be a reliable indicator of exposure. Effects of overexposure include nausea, vomiting, irritation of the nose, throat and digestive tract, signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination and fatigue), pulmonary edema, muscle weakness, convulsions, respiratory failure, coma and death.

Pre-Existing Medical Conditions:

Exposure to high concentrations of this material may increase the sensitivity of the heart to certain drugs. Persons with pre-existing heart disorders may be more susceptible to this effect (see Section 4 - Note to Physicians).

4. FIRST AID MEASURES

Eye: For contact with the liquefied gas, hold eyelids apart and gently flush the affected eye(s) with lukewarm water. Seek immediate medical attention.

Skin: Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. After sensation has returned to the frostbitten skin, keep skin warm, dry, and clean. If blistering occurs, apply a sterile dressing. Seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Note To Physicians: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

5. FIRE FIGHTING MEASURES

Flammable Properties:

- Flash Point: -156°F/-104°C
- OSHA Flammability Class: Flammable Gas
- LEL%: 2.1 / UEL%: 9.5
- Autoignition Temperature: 842°F/432°C

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically

safe). Contents under pressure. Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire. Closed containers exposed to extreme heat can rupture due to pressure buildup.

Extinguishing Media: Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk.

6. ACCIDENTAL RELEASE MEASURES

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Notify fire authorities and appropriate federal, state, and local agencies. Water spray may be useful in minimizing or dispersing vapors (see Section 5). If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Contents under pressure. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Use good personal hygiene practices.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. Containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional engineering controls may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: Wear a positive pressure air supplied respirator in situations where there may be potential for airborne exposure above exposure limits (see Section 2). If exposure concentration is unknown or if conditions immediately dangerous to life or health (IDLH) exist, use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin: The use of thermally resistant gloves is recommended.

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Appearance: Colorless

Physical State: Gas or Liquid (Under pressure)

Odor: Odorless (or skunk, rotten egg, dead animal, or garlic if odorant added)

Vapor Pressure (mm Hg): 108-124 psia@ 70°F (221°C)

Vapor Density: 1.50

Boiling Point/Range: -44°F / -42°C

Freezing/Melting Point: -309.46°F

Freezing/Melting Point: -189.7°C

Solubility in Water: Negligible

Specific Gravity: 0.508-0.510 @60/60°F (15.6/15.6°C)

Evaporation Rate (nBuAc=1): >1

Flash Point: -156°F / -104°C

Flammable/Explosive Limits (%): LEL: 2.1 / UEL: 9.5

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable gas.

Conditions To Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: Combustion can yield carbon dioxide and carbon monoxide.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data:

No definitive information available on carcinogenicity, mutagenicity, target organ, or developmental toxicity.

Acute Data:

Ethyl Mercaptan:

Dermal LD50=No data available

LC50>991 ppm (4-hr., Rat)

Oral LD50=No data available

Isobutane: Dermal LD50 = No data available

LC50 = 13,023 ppm (4-hr., Rat)

Oral LD50 = No data available

n-Butane:

Dermal LD50 = No data available

LC50>10,325 ppm (4-hr., Rat)

Oral = No data available

Propane:

Dermal LD50=No data available

LC50>12,190 ppm (4-hr., Rat)

Oral LD50=No data available

Propylene:

Dermal LD50=No data available

LC50>7,2000 ppm (4-hr., Rat)

Oral LD50=No data available

12. ECOLOGICAL INFORMATION

There is no information available on the ecotoxicological effects of petroleum gases. Because of their high volatility, they are unlikely to cause ground or water pollution. Petroleum gases released into the environment will rapidly disperse into the atmosphere and undergo photochemical degradation.

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to the characteristic(s) of ignitability (D001). If the spilled or released material impacts soil, water, or other media, characteristic testing of the contaminated materials may be required prior to their disposal. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent than the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

14. TRANSPORT INFORMATION

DOT Shipping Description: Petroleum gases, liquefied,2.1,UN1075

Non-Bulk Package Marking: Petroleum gases, liquefied, UN1075
Non-Bulk Package Label: Flammable gas
Bulk Package Placard/Marking: Flammable Gas/1075
Hazardous Substance/RQ None
Packaging References 49 CFR 173.306, 173.304, 173.314, 173.315
Emergency Response Guide: 115

Note: IMDG:
 Shipping Description: Petroleum gases, liquefied, 2.1, UN1075
 Non-Bulk Package Marking: Petroleum gases, liquefied, UN1075
 Labels: Flammable gas
 Placards/Marking (Bulk): Flammable gas/1075
 Packaging - Non-Bulk: P200
 EmS#: F-D, S-U

IATA:
 Proper Shipping Name: Petroleum gases, liquefied
 Hazard Class/Division: 2.1
 Un/ID#: UN1075
 Packing Group: None
 Subsidiary Risk: None
 Non-Bulk Package Marking: Petroleum gases, liquefied, UN1075
 Labels: Flammable gas

	LTD.	QTY.	Passenger Aircraft	Cargo Aircraft Only
Packing Instruction #:	-		Forbidden	200
Max. Net Qty. Per Package:	-	-		150 kg

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories):

Acute Health: Yes
Chronic Health: No
Fire Hazard: Yes
Pressure Hazard: Yes
Reactive Hazard: No

SARA 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:

Component	CAS Number	Weight %
Propylene	115-07-1	<35
Mercaptans	Various	<0.1

California Proposition 65:

Warning: This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

--None Known--

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA.

EPA (CERCLA) Reportable Quantity:

--None--

Canada - Domestic Substances List: Listed

WHMIS Class:

A-Compressed Gas
B1-Flammable Gas

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.

16. OTHER INFORMATION

Issue Date: 04/17/03

Previous Issue Date: 06/21/02

Product Code: Multiple

Revised Sections: 1, 2, 5, 14, 16

Previous Product Code: Multiple

MSDS Number: 169570

Status: Final

Disclaimer of Expressed and Implied Warranties:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. **HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.** No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.