MATERIAL
SAFETY
DATA SHEET

PRODUCT NAME	CAS#
Propane	74-98-6
TRADE NAME AND SYNONYMS	**DOT I.D. NO.**
Dimethylmethane; Propyl Hydride	UN 1978
CHEMICAL NAME AND SYNONYMS	**DOT HAZARD CLASS**
Hydrocarbons, Aliphatic	Class 2.1
ISSUE DATE AND REVISIONS	**FORMULA**
Revised July 2007	C_3H_8

HEALTH HAZARD DATA

EMERGENCY OVERVIEW

Propane is a colorless, flammable and liquefied gas with gasoline odor. It may cause flash fire or explosion. High concentrations may exclude oxygen and cause dizziness, central nervous system depression and suffocation. Contact with liquid or cold vapor may cause frostbite or freeze burn.

SYMPTOMS OF EXPOSURE

Ingestion: Ingestion is unlikely. Contact with mucous membranes with liquefied product may cause frostbite and freeze burns.

Skin Contact: Vapors are not irritating. Direct contact to skin or mucous membranes with liquefied product or cold vapor may cause freeze burns and frostbite. Signs of frostbite include a change in the color of the skin to gray or white, possibly followed by blistering. Skin may become inflamed and painful.

Inhalation: Non-toxic by inhalation. Inhalation of high concentrations may cause central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms, but no long-term effects. Numbness, a “chilly” feeling, and vomiting have been reported from accidental exposures to high concentration.

Eye Contact: Vapors are not irritating. However, contact with liquid or cold vapor may cause frostbite, freeze burns, and permanent eye damage.

TOXICOLOGICAL PROPERTIES

Propane exhibits some degree of anesthetic action and is mildly irritating to the mucous membranes. At high concentrations propane acts as a simple asphyxiant without other significant physiological effects. High concentrations may cause death due to oxygen depletion.

RECOMMENDED FIRST AID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO PROPANE. RESCUERS SHOULD BE EQUIPPED WITH ADEQUATE PERSONAL PROTECTIVE APPARATUS.

Ingestion: Risk of ingestion is extremely low. However, in cases of ingestionor oral exposure, seek immediate medical attention.

Skin Contact: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115°F; 41-45°C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Inhalation: Remove patients to fresh air. Give artificial respiration if not breathing. Qualified personnel may give oxygen if breathing is difficult.

Eye Contact: Immediately flush eyes with copious quantities of water and continue flushing for at least 15 minutes.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Liquid release flammable vapors at well below ambient temperatures and readily forms a flammable mixture with air.

PHYSICAL DATA

BOILING POINT	VAPOR PRESSURE
-43.8 °F (-42.1 °C)	6398 mmHg @ 21.1°C or 109.73 psig
FREEZING POINT	**VAPOR DENSITY (AIR=1)**
-310 °F (-190 °C)	1.55 @ 32 °F (0 °C)
SOLUBILITY IN WATER	**MOLECULAR WEIGHT**
Very slightly soluble	44.11
EVAPORATION RATE	**SPECIFIC GRAVITY (WATER=1)**
Not applicable	0.5853 @ -45°C
APPEARANCE AND ODOR	
Colorless gas with gasoline odor.	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	EXTINGUISHING MEDIA	FLAMMABLE LIMITS % BY VOLUME
-157 °F (-105 °C)	Dry chemical, Carbon dioxide	LEL 2.1 UEL 9.5

SPECIAL FIRE FIGHTING PROCEDURES

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions. Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Stop flow of gas.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Severe fire hazard. Severe explosion hazard. Gas/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
Unstable		Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.
Stable	X	

INCOMPATIBILITY (Materials to avoid)

Oxidizing materials, combustible materials.

HAZARDOUS POLYMERIZATION		HAZARDOUS THERMAL DECOMPOSITION PRODUCTS
May Occur		Oxides of Carbon, Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).
Will Not Occur	X	

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Evacuate all personnel from affected area. Flush down with large amount of water, spills must be contained in areas protected from pollution of environment and exposure of personnel. Wear Self-Contained Breathing Apparatus and protective clothing

WASTE DISPOSAL METHOD

Waste disposal must be in accordance with appropriate Federal, State, and local regulations. For emergency disposal assistance, contact HSG for specific advice.

SPECIAL PROTECTION INFORMATION

RESPIRTORY PROTECTION (Specify type)

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

SPECIAL	OTHER
For the gas, protective clothing is not required. For the liquid, wear appropriate protective, cold insulating clothing.	N/A

MECHANICAL (Gen.)

Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use explosion-proof equipment and lighting in classified/controlled areas.

EYE PROTECTION	PROTECTIVE GLOVES
Splash resistant safety goggles and face shield.	Insulated gloves.

OTHER PROTECTIVE EQUIPMENT

Wear full-face shield, apron, cold-impervious, insulating gloves when contact with liquid.

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION	
DOT Shipping Name: Propane DOT Shipping Label: Flammable Gas	DOT Hazard Class: Class 2.1 I.D. No.: UN 1978

SPECIAL HANDLING RECOMMENDATIONS

Use only in well-ventilated areas. Valve protection caps must remain in place unless cylinder is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure piping or system. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

SPECIAL STORAGE RECOMMENDATIONS

Keep away from flame, sparks and excessive temperatures. Keep valve-output plug tightly installed. Store with adequate ventilation. Avoid all contact with water including moisture in the air.

OTHER RECOMMENDATIONS OR PRECAUTIONS

Liquid release is only expected to cause localized, non-persistent environmental damage, such as freezing. Biodegradation of this product may occur in soil and water. Volatilization is expected to be the most important removal process in soil and water. This product is expected to exist entirely in the vapor phases in ambient air. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Law.

Since the Company shall have no control of the use of the product described herein, the Company assumes no liability for loss or damage incurred from the proper or improper use of such product.