PROPANE MSDS

ProductName: Propane
ChemicalName: Propane
Formula: C_3H_8
ChemicalFamily: Alkane (hydrocarbon)
Use: Various
Synonyms: Dimethylmethane, LP-Gas, Liquified petroleum gas (LPG)

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NFPA Fire:	4	**HMIS Fire:**	4	**Acute:**	No
NFPA Health:	1	**HMIS Health:**	0	**Chronic:**	No
NFPA Reactivity:	0	**HMIS Reactivity:**	0	**Fire:**	Yes
NFPA Special Hazard:		**Mixture:**	No	**Reactive:**	No
				Sudden Release Pressure:	Yes

02. INGREDIENTS - COMPOSITION & INFORMATION

COMPONENT	CAS No.	PERCENT (BY WT.)		EXPOSURE GUIDELINES OSHA - TWA	ACGIH - STEL
Propane	74-98-6	99.0%	100.0%	1000	Simple Asphyxiant

LD50: None. LC50: None.

03. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Warning: Flammable liquid gas under pressure.
Can form explosive mixtures with air.
May cause frostbite.

Potential Health Effects Information:

Routes of Exposure:

Inhalation: Simple asphyxiant. It should be noted that before suffocation could occur, the lower flammability limit of propane in air would be exceeded; possibly causing both an oxygen-deficient and explosive atmosphere. Exposure to concentrations (> 10%) may cause dizziness. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning, and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

Eye Contact: Contact with liquid or cold vapor can cause freezing of tissue.

Skin Contact: Contact with liquid or cold vapor can cause frostbite.

Chronic Effects: None.

Medical Conditions Aggravated By: None.

Overexposure:

Other Effects Of Overexposure: None.

Carcinogenicity: Propane is not listed by NTP, OSHA or IARC.

04. FIRST AID MEASURES

Inhalation: Persons suffering from lack of oxygen should be removed to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Obtain prompt medical attention.

Eye: Contact with liquid or cold vapor can cause freezing of tissue. Gently flush eyes

with lukewarm water. Obtain medical attention immediately.

Skin: Contact with liquid or cold vapor can cause frostbite. Immediately warm affected area with lukewarm water not to exceed 105°F (40°C).

Ingestion: None.

Notes To Physician: None.

05. FIRE FIGHTING MEASURES

Flash Point: -156F (-104C)

Autoignition: 842F (432C)

Flammable Limits - Lower: 2.2%

Flammable Limits - Upper: 9.5%

Extinguishing Media: CO2, dry chemical, water spray or fog for surrounding area. Do not extinguish until propane source is shut off.

Fire Fighting Instructions: Evacuate all personnel from danger area. Immediately cool container with water spray from maximum distance, taking care not to extinguish flames. If flames are accidentally extinguished, explosive re-ignition may occur. Stop flow of gas if without risk while continuing cooling water spray.

Fire And Explosion Hazards: Propane is easily ignited. It is heavier than air, therefore, it may collect in low areas or travel along the ground where an ignition source may be present. Pressure in a container can build up due to heat, and it may rupture if pressure relief devices should fail to function.

Hazardous Combustion Products: None known.

Sensitivity To Static Discharge: Possible, container should be grounded.

Sensitivity To Mechanical Impact: None.

06. ACCIDENTAL RELEASE MEASURES

Evacuate: Evacuate the immediate area. Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. Shut off source of propane, if possible. If leaking from cylinder, or valve, contact your supplier. Never enter a confined space or other area where the concentration is greater than 10% of the lower flammable limit which is 0.22%.

07. HANDLING AND STORAGE

Storage: Specific requirements are listed in NFPA 58. Cylinder storage locations should be well-protected, well-ventilated, dry, and separated from combustible materials. Cylinders should never knowingly be allowed to reach a temperature exceeding 125°F (52°C). Cylinders of propane should be separated from oxygen cylinders or other oxidizers by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high having a fire resistance rating of at least ½ hour. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from physical damage; do not drag, roll, slide or drop. Use a suitable hand truck for cylinder movement. Post "No Smoking or Open Flames" signs in the storage areas. There should be no sources of ignition. All electrical equipment should be explosion proof in the storage and use areas. Storage areas must meet national electric codes for class 1 hazardous areas.

Handling: Propane is heavier than air and may collect in low areas that are without proper ventilation. Leak check system with leak detection solution, never with flame. If user experiences difficulty operating cylinder valve, discontinue use and contact supplier. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Non-sparking tools should be used. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Electrically bond and ground cylinder when transferring liquid product. For additional precautions in using propane see Section

16 - Other Information.

08. EXPOSURE CONTROLS - PERSONAL PROTECTION

Engineering Controls:

Ventilation:	Natural or mechanical to prevent accumulation in worker's breathing zone above exposure limits. (See Section 2).

Personal Protective Equipment (PPE):

Clothing:	Cotton Clothing is recommended for use to prevent static electric buildup.
Glasses:	Safety glasses are recommended when handling cylinders.
Shoes:	Safety shoes are recommended when handling cylinders.
Gloves:	Work gloves are recommended when handling cylinders.
Respirator:	None required in general use.
Emergency Use:	Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmosphere. Respirators will not function. Before entering area, you must check for flammable and oxygen deficient atmospheres.

09. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Gas
Color:	Colorless
Odor:	Unodorized propane has a slightly sweet odor. If an odorant has been added it will have a strong unpleasant odor.
Molecular Weight:	44.097
Boiling Point:	-43.67°F (-42.04°C) @ 1 atm
Specific Gravity:	1.5223 At 70°F (21.1°C) @ 1 atm, Air = 1
Freezing/Melting Point:	-305.84F (-187.69C) at 1 atm
Vapor Pressure:	109.73 psig, (756.56 kPa) at 70°F (21.2°)
Vapor Density:	0.110 lb./cu ft (1.1.77kg/CuM), At 70°F (21.1°C) @ 1 atm
Water Solubility:	.065 Vol./Vol. At 100° F (37.8°C)
Expansion Ratio:	1 to 290 at 70°F (21.1°C)
pH:	Not applicable
Odor Threshold:	1800 mg/CuM
Evaporation Rate:	Not Applicable - Gas
Coefficient Of Water/Oil Distribution:	Information not available

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable
Conditions To Avoid:	None.
Incompatibility With Other Materials:	Oxidizing agents.
Hazardous Decomposition Products:	None.
Hazardous Polymerization:	Will not occur

11. TOXICOLOGICAL INFORMATION

Other Studies Relevant To Material:	Propane is nontoxic and is a simple asphyxiant, however it does have slight anesthetic properties and higher concentrations may cause dizziness.
Irritancy Of Material:	None.
Reproductive Effects:	None.
Teratogenicity:	None.
Synergistic Materials:	None.
Sensitization To Material:	None.
Mutagenicity:	None.

12. ECOLOGICAL INFORMATION

ECOTOXICITY:	No adverse ecological effects are expected. Propane does not contain any Class I or Class II Ozone depleting chemicals (40 CFR Part 82). Propane is not listed as a marine pollutant by DOT (49 CFR Part 171).

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:	Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier. Residual product within process system may be burned at a controlled rate, if a

suitable burning unit (flare stack) is available on site. This shall be done in accordance with federal, state, and local regulations.

14. TRANSPORT INFORMATION

DOT/IMO Shipping Name:	Propane
HAZARD CLASS:	2.1 (Flammable gas.)
Identification Number:	UN 1978*
PIN:	1978
Product RQ:	None.
Shipping Label:	Flammable Gas.
Placard (When Required):	Flammable gas.
Special Shipping Information:	Cylinders should be transported in a secure position, in a well ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious hazards and should be discouraged.
Special Shipping Information	*For domestic transportation only: The identification number UN 1075 may be used in place of the identification number UN 1978. The identification number used must be consistent on package markings, shipping papers, and emergency response information (Special provision 19 from 49 CFR 172.101).