



## Material Safety Data Sheet: Propane

<b>Product Name:</b> Propane	<b>CAS:</b> 74-98-6
Propane; Liquefied Petroleum Gas (LPG); Dimethylmethane	<b>DOT I.D No.:</b> UN 1978
<b>Chemical Name and Synonyms:</b> Propane	<b>DOT Hazard Class:</b> Division 2.1
<b>Formula:</b> C <sub>3</sub> H <sub>8</sub>	<b>Chemical Family:</b> Aliphatic Hydrocarbon

### HEALTH HAZARD DATA

#### **Time Weighted Average Exposure Limit:**

Propane is defined as a simple asphyxiant (ACGIH 1997). OSHA 1995 PEL (8 Hr. TWA) = 1,000 Molar PPM

#### **Symptoms of Exposure:**

Inhalation: Moderate concentrations so as to exclude an adequate supply of oxygen to the lungs causes dizziness, drowsiness and eventual unconsciousness. It is also a narcotic which acts as a depressant on the central nervous system.

Contact with rapidly evaporating liquid causes frostbite or cryogenic "burns."

#### **Toxicological Properties:**

- Breathing high concentrations causes a narcotic effect; however, the major property is the exclusion of an adequate supply of oxygen to the lungs.
- Hydrogen is not listed in the IARC, NTP or by OSHA as a carcinogen or potential carcinogen.
- Frostbite effects are change in color of the skin to gray or white possibly followed by blistering.

#### **Recommended First Aid Treatment:**

Prompt medical attention is mandatory in all cases of overexposure to nitrogen. Rescue personnel should be equipped with self-contained breathing apparatus and be cognizant of extreme fire and explosion hazard.

**Inhalation:** Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.

**Dermal Contact or Frostbite:** Remove contaminated clothing and flush affected areas with lukewarm water. Do not use hot water.

<b>Hazardous Mixtures of other Liquids, Solids or Gases:</b> Propane is flammable in air.	
<b>PHYSICAL DATA</b>	
<b>Boiling Point:</b> -43.7°F (-42.1°C)	<b>Liquid Density at Boiling Point:</b> 36.3 lb/ft <sup>3</sup> (585 kg/m <sup>3</sup> )
<b>Vapor Pressure @ 70°F (21.1°C)</b> = 127 psia (875 kPa)	<b>Gas Density at 70°F, 1 atm</b> .117 lb/ft <sup>3</sup> (1.87 kg/m <sup>3</sup> )
<b>Solubility in Water:</b> Negligible	<b>Freezing Point:</b> -305.8°F (-187.7°C)
<b>Evaporation Rate:</b> Unknown; 99.9 + % volatile	<b>Specific Gravity (AIR=1) @ 70°F (21.1°C)</b> = 1.56
<b>Appearance and Odor:</b> Colorless, odorless gas	

## **FIRE AND EXPLOSION HAZARD DATA**

<b>Flash Point (Method used):</b> Gas	<b>Auto Ignition Temperature:</b> 896°F (480°C)	<b>Flammable Limits % by Volume:</b> LEL 2.2 UEL 9.5
<b>Extinguishing Media:</b> Water, carbon dioxide, dry chemical		<b>Electrical Classification:</b> Class 1, Group D
<b>Special Fire fighting Procedures:</b> If possible, stop the flow of propane. Use water spray to cool surrounding containers.		
<b>Unusual Fire and Explosion Hazards:</b> Propane is heavier than air and may travel a considerable distance to a source of ignition. Should flame be extinguished and flow of yes continue, increase ventilation to prevent flammable mixture formation in low areas or pockets.		

## **REACTIVITY DATA**

**Stability:** Stable

**Incompatibility (Materials to Avoid):** Oxidizers

**Hazardous Decomposition Products:** None

**Hazardous Polymerization:** Will not occur

**Conditions to Avoid:** None

## **SPILL OR LEAK PROCEDURES**

### **Steps to be taken in case material is released or spilled:**

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas to attempting repairs. If leak is in container or container valve, contact your closest supplier location or call the emergency telephone number listed herein.

### **Waste disposal methods:**

Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to your supplier. For emergency disposal assistance, contact your closest supplier location or call the emergency telephone number listed herein.

## **SPECIAL PROTECTION INFORMATION**

**Respiratory Protection (Specify type):** Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

**Ventilation:** Hood with forced ventilation

**Local Exhaust:** To prevent accumulation above the TWA

**Mechanical (Gen.):** In accordance with electrical codes

**Protective Gloves:** Plastic or rubber

**Eye Protection:** Safety goggles or glasses

**Other Protective Equipment:** Safety shoes, safety shower

## **SPECIAL PRECAUTIONS**

### **Special Labeling Information:**

DOT Shipping Name: Propane

DOT Hazard Class: Division 2.1

DOT Shipping Label: Flammable Gas

I.D. No.: UN 1978

### **Special Handling Recommendation:**

Use only in well-ventilated areas. Valve protection caps must remain in place unless container 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 (<250 psig) piping or systems. 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 in the cylinder. For additional handling recommendations, consult Compressed Gas Association's Pamphlets I P-1, P-14, and Safety Bulletin SB-2.

**Special Storage Recommendations:**

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of noncombustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125F (52C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in -first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "No Smoking or Open Flames" signs in the storage or use area. There should be no sources of ignition in the storage or use area. For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-14, and Safety Bulletin SB-2.

**Other Recommendations or Precautions:**

Earth-ground and bond all lines and equipment associated with the propane system. Electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

**Special Packaging Recommendations:**

Propane is non-corrosive and may be used with any common structural material.

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