

GAS INNOVATIONS

MATERIAL SAFETY DATA SHEET (MSDS)

PROPANE

PRODUCT IDENTIFICATION

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| ▪D.O.T. SHIPPING NAME | Propane |
| ▪SYNONYM (S) | Liquefied Petroleum Gas, Dimethylmethane |
| ▪D.O.T. I.D. NUMBER | UN-1978 |
| ▪D.O.T. HAZZARD CLASS | 2.1 Flammable Gas |
| ▪D.O.T. LABEL (S) | Flammable Gas |
| ▪C.A.S. NUMBER | 74-98-6 |
| ▪CHEMICAL FORMULA | C ₃ H ₈ or CH ₃ CH ₂ CH ₃ |

PHYSICAL DATA

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|----------------------------|---|
| ▪MOLECULAR WEIGHT | 44.097 |
| ▪FREEZING POINT | -187.7°C, -305.9°F |
| ▪BOILING POINT | -42.1°C, 43.7 °F |
| ▪VAPOR PRESSURE | 752 kPa (gauge), 109 psig |
| ▪SPECIFIC VOLUME | 0.531 m ³ /kg, 8.5ft ³ /lb @ 1 atm, 21.1°C |
| ▪RELATIVE DENSITY, (air=1) | 1.55 @ 1 atm, 20°C |
| ▪SOLUBILITY IN WATER | 6.5 cm ³ /0.1 kg water @ 1 atm, 18°C |
| ▪DESCRIPTION | At room temperature and atmospheric pressure propane is a colorless, flammable, relatively nontoxic gas, with a characteristic natural gas odor. It is shipped as a liquefied gas under its own vapor pressure. |

FIRE AND EXPLOSION HAZARD DATA

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| ▪FLAMMABLE LIMITS IN AIR | 2.2 – 9.5 % by volume |
| ▪AUTO-IGNITION TEMPERATURE | 468°C, 874°F |
| ▪FIRE FIGHTING PROCEDURES | <p>The only safe way to extinguish a Propane fire is to stop the flow of gas. IF the flow cannot be stopped, let the fire burn out while cooling the cylinder and the surroundings using a water spray. Personnel may have to wear approach-type protective suits and positive pressure self-contained breathing apparatus. Firefighters' turnout gear may be inadequate.</p> <ol style="list-style-type: none">1. Cylinders exposed to fire may rupture with violent force. Extinguish surrounding fire and keep cylinders cool by applying water from a maximum possible distance with a water spray.2. Flammable gases may spread from a spill after the fire is extinguished and be subject to re-ignition. |
| ▪ UNUSUAL HAZARDS | |

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**HEALTH
HAZARD DATA****▪ PERMISSIBLE EXPOSURE
LIMITS**OSHA TWA 1,000 ppm (1,800 mg/m³)

ASGIH TWA None established.

**▪ ACCUTE EFFECTS
OVEREXPOSURE**

Propane is nontoxic but can act as a simple asphyxiant by displacing air. Symptoms of asphyxia include rapid respirations, dizziness and fatigue. Contact with the liquid phase or with the cold gas escaping from cylinder may cause frostbite.

**▪ CHRONIC EFFECTS
OF OVEREXPOSURE**

None known.

**FIRST AID
INFORMATION****▪ INHALATION**

Move victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

▪ CONTACT

Treat for frostbite.

**REACTIVITY
DATE****▪ STABILITY**

(X) Stable. () Unstable.

▪ INCOMPATIBILITY

Oxidizing material.

**▪ HAZARDOUS
DECOMPOSITION/
OXIDATION PRODUCTS**

Carbon monoxide, carbon dioxide

▪ POLYMERIZATION

(X) Will not occur () May Occur

**SPILL OR
LEAKAGE
PROCEDURE**

Shut off all ignition sources and ventilate the area. For controlling large flows, personnel may have to wear approach-type protective suits and self-contained breathing apparatus.

PRECAUTIONS**▪ STORAGE
RECOMMENDATIONS**

Cylinders should be stored and used in dry, well-ventilated areas away from sources of heat or ignition. Do not store with oxidizers

**▪ PERSONAL PROTECTIVE
EQUIPMENT**

1. Eye protection – Safety glasses should be worn.
2. Respiratory protection – Approved respiratory equipment must be worn when airborne concentrations exceed safe levels.
3. Skin protection – No special equipment is required. Gloves are recommended for cylinder handling.

▪ BEFORE USING THE GAS

1. Secure the cylinder to prevent it from falling or being knocked over.
2. Leak check the lines and equipment.
3. Have an emergency plan covering steps to be taken in the event of an accidental release.

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