

GAS INNOVATIONS

MATERIAL SAFETY DATA SHEET (MSDS)

PROPYLENE

PRODUCT IDENTIFICATION

▪D.O.T. SHIPPING NAME	Propylene
▪SYNONYM (S)	Propene
▪D.O.T. I.D. NUMBER	UN-1077
▪D.O.T. HAZZARD CLASS	2.1 Flammable Gas
▪D.O.T. LABEL (S)	Flammable Gas
▪C.A.S. NUMBER	115-07-01
▪CHEMICAL FORMULA	C ₃ H ₆ or CH ₃ CH: CH ₂

PHYSICAL DATA

▪MOLECULAR WEIGHT	42.081
▪FREEZING POINT	-185.2°C, -301.4°F
▪BOILING POINT	-47.7°C, -53.9 °F
▪VAPOR PRESSURE	942 kPa (gauge), 136.5 psig
▪SPECIFIC VOLUME	0.567 m ³ /kg, 9.06ft ₃ /lb @ 1 atm, 21.1°C
▪RELATIVE DENSITY, (air=1)	1.48 @ 1 atm, 20°C
▪SOLUBILITY IN WATER	22.05 cm ³ /100 ml @ 1 atm, 20°C
▪DESCRIPTION	At room temperature and atmospheric pressure propylene 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

▪FLAMMABLE LIMITS IN AIR	2.0 – 11.1 % by volume
▪AUTO-IGNITION TEMPERATURE	480.0°C, 896.0°F
▪FIRE FIGHTING PROCEDURES	The only safe way to extinguish a propylene 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.
▪UNUSUAL HAZARDS	<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.
▪ EMISSIONS	Products of combustion in atmosphere: CO, CO ₂ Products of combustion with oxygen: H ₂ O, CO, CO ₂ ,

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HEALTH HAZARD DATA

- PERMISSIBLE EXPOSURE LIMITS
- ACCUTE EFFECTS OVEREXPOSURE

- CHRONIC EFFECTS OF OVEREXPOSURE

ACGIH TLV (United States, 1/2006)

TWA: 500 ppm 8 hours

Propylene 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.

None known.

FIRST AID INFORMATION

- INHALATION

- CONTACT

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

Treat for frostbite.

REACTIVITY DATE

- STABILITY
- INCOMPATIBILITY
- HAZARDOUS DECOMPOSITION/ OXIDATION PRODUCTS
- POLYMERIZATION

(X) Stable. () Unstable.

Oxidizing material.

Carbon monoxide, carbon dioxide

(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

- PERSONAL PROTECTIVE EQUIPMENT

- BEFORE USING THE GAS

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

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

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