



## MATERIAL SAFETY DATA SHEET

PRODUCT NAME: PROPYLENE

### 1. Product and Company Identification

BOC Gases,  
Division of,  
The BOC Group, Inc.  
575 Mountain Avenue  
Murray Hill, NJ 07974

BOC Gases  
Division of,  
BOC Canada Limited  
5975 Falbourne Street, Unit 2  
Mississauga, Ontario L5R 3W6

TELEPHONE NUMBER: (908) 464-8100  
24-HOUR EMERGENCY TELEPHONE NUMBER:  
CHEMTREC (800) 424-9300

TELEPHONE NUMBER: (905) 501-1700  
24-HOUR EMERGENCY TELEPHONE NUMBER:  
(905) 501-0802  
EMERGENCY RESPONSE PLAN NO: 2-0101

PRODUCT NAME: PROPYLENE  
CHEMICAL NAME: Propylene  
COMMON NAMES/SYNONYMS: Propene  
TDG (Canada) CLASSIFICATION: 2.1  
WHMIS CLASSIFICATION: A, B1

PREPARED BY: Loss Control (908)464-8100/(905)501-1700  
PREPARATION DATE: 6/1/95  
REVIEW DATES: 06/28/04

### 2. Composition, Information on Ingredients

#### EXPOSURE LIMITS<sup>1</sup>:

INGREDIENT	% VOLUME	PEL-OSHA <sup>2</sup>	TLV-ACGIH <sup>3</sup>	LD <sub>50</sub> or LC <sub>50</sub> Route/Species
Propylene FORMULA: C <sub>3</sub> H <sub>6</sub> CAS: 115-07-1 RTECS #: UC6740000	>99.0 to 99.7	None Established	Simple Asphyxiant	Not Available

<sup>1</sup> Refer to individual state or provincial regulations, as applicable, for limits which may be more stringent than those listed here.

<sup>2</sup> As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

<sup>3</sup> As stated in the ACGIH 2004 Threshold Limit Values for Chemical Substances and Physical Agents. Propylene is on the ACGIH Notice of Intended Changes (NIC) with a proposed TWA of 500 ppm based on nasal and cancer effects. The ACGIH cancer designation is A4 (not classifiable as a human carcinogen).

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

### 3. Hazards Identification

#### EMERGENCY OVERVIEW

Colorless, extremely flammable gas with mild odor. Dangerous fire and explosion hazard. Avoid heat, sparks, and flame. This product does not contain oxygen and may cause asphyxia if released in a confined area. Contents under pressure. Use and store below 125 °F.

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**ROUTE OF ENTRY:**

Skin Contact No	Skin Absorption No	Eye Contact No	Inhalation Yes	Ingestion No
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**HEALTH EFFECTS:**

Exposure Limits No	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None Reported		

Carcinogenicity: -- NTP: No IARC: No OSHA: No

**EYE EFFECTS:** Contact with rapidly expanding gas near the point of release may cause frostbite.

**SKIN EFFECTS:** Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.

**INGESTION EFFECTS:** Ingestion is unlikely.

**INHALATION EFFECTS:** Product is relatively nontoxic. May cause minor eye, mucous membrane and respiratory system irritation at high concentrations.

Inhalation of high concentrations may cause dizziness, disorientation, incoordination, narcosis, nausea or narcotic effects. This product may displace oxygen if released in a confined space. Maintain oxygen levels above 19.5% at sea level to prevent asphyxiation.

Effects of oxygen deficiency resulting from simple asphyxiants may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgement, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma, and death.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** None known.

**POTENTIAL ENVIRONMENTAL EFFECTS:** Not expected to be toxic to fish and wildlife.

## 4. First Aid Measures

**EYES:** None required for gas. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

**SKIN:** None required for gas. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER. Obtain medical attention.

**INGESTION:** Not normally required. Seek immediate medical attention.

**INHALATION:** PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO PRODUCT. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. 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 (artificial) respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.

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**Revised:** 06/28/04

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## 5. Fire Fighting Measures

Conditions of Flammability: Flammable liquid and vapor		
Flash point: -162°F (-108°C)	Method: TCC	Autoignition Temperature: 927°F (460°C)
LEL(%): 2.1		UEL(%): 11
Hazardous combustion products: Carbon monoxide, Carbon dioxide		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: Not Available		

**FIRE AND EXPLOSION HAZARDS:** This product will ignite at ambient temperatures and can be expected to form a flammable mixture upon release to the atmosphere. May burn with an almost invisible flame in bright light. Cylinder may vent rapidly or rupture violently from pressure when involved in a fire situation.

**EXTINGUISHING MEDIA:** Water, carbon dioxide, dry chemical.

**FIRE FIGHTING INSTRUCTIONS:** If possible, stop the flow of gas. Inerting the atmosphere to reduce oxygen levels may extinguish flame, allowing capping of leaking container. Do not attempt this unless specifically trained. Reduce the rate of flow and inject an inert gas, if possible, before completely stopping the flow to prevent flashback. Do not extinguish the fire until the supply is shut off as otherwise an explosive re-ignition may occur. If the fire is extinguished and the flow of gas continues, use increased ventilation to prevent build-up of explosive atmosphere. Use non-sparking tools to close container valves.

Use water spray to cool surrounding containers. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. Direct 500 GPM water stream onto containers above liquid level with remote monitors. Limit the number of personnel in proximity of fire and evacuate surrounding areas in all directions.

Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed cylinders until well after flames are extinguished.

## 6. Accidental Release Measures

Extinguish all ignition sources. No smoking, flames, flares, or sparks in hazard area. Evacuate all personnel from affected area. Use appropriate protective equipment (See Section 8). Increase ventilation to prevent build up of a flammable/explosive atmosphere. Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Ventilate enclosed areas. All ventilation should be appropriate for use in a potentially flammable atmosphere. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

## 7. Handling and Storage

Earth bond and ground all lines and equipment associated with the product system. All equipment should be non-sparking and explosion proof. Propylene is non-corrosive and may be used with any common structural material.

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 regulator when connecting cylinder to lower pressure 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 into the cylinder. Do not insert any object (i.e.: screwdriver) into valve cap openings as this can damage the valve causing leakage.

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Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125°F (52°C). 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 from being stored for excessive periods of time. Post "No Smoking" signs in storage or use areas. There should be no source for accidental ignition in use and storage areas. Outside or detached storage is preferred. Store and use well away from oxidizers and other incompatible materials.

For additional recommendations consult Compressed Gas Association Pamphlet P-1 and SB-2.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

## 8. Exposure Controls, Personal Protection

**ENGINEERING CONTROLS:** Use local exhaust and general ventilation systems to prevent build up of flammable concentrations. Small quantities can be handled in forced ventilation hoods. If product is handled routinely where the potential for leaks exists, all electrical equipment must be rated for use in potentially flammable atmospheres. Consult the National Electrical Code for details.

**EYE/FACE PROTECTION:** Safety goggles or glasses.

**SKIN PROTECTION:** Protective gloves appropriate for the job.

**RESPIRATORY PROTECTION:** For emergency release use a positive pressure NIOSH approved air-supplying respirator systems (SCBA or airline/escape bottle) using at a minimum Grade D air.

**OTHER/GENERAL PROTECTION:** Safety shoes, eyewash station

## 9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure at 70°F	: 151	psia
Vapor density at STP (Air = 1)	: 1.43	
Evaporation point	: Not Available	
Boiling point	: -53.9	°F
	: -47.7	°C
Freezing point	: Not Available	
PH	: Not Available	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H <sub>2</sub> O)	: Slightly soluble	
Odor threshold	: Not Available	
Odor and appearance	: A colorless gas with a mild olefinic odor.	

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## 10. Stability and Reactivity

**STABILITY:** Stable

**INCOMPATIBLE MATERIALS/CONDITIONS:** Keep away from open flames, oxygen and oxidizing materials. Reacts with oxides of nitrogen (NO<sub>2</sub>, N<sub>2</sub>O<sub>4</sub> and N<sub>2</sub>O) to form an explosive product. Oxidizers, mineral acids, halogenated compounds, nitrogen dioxide, molten sulfur. May explode at high temperature and pressure (955 atm.; 327 °C).

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide

**HAZARDOUS POLYMERIZATION:** Self polymerization will not occur. Explosive polymerization is initiated by lithium nitrate and sulfur dioxides.

## 11. Toxicological Information

**SKIN AND EYE:** Adverse effects are not expected.

**INHALATION:** Product is a simple asphyxiant. Maintain atmospheric oxygen at or above 19.5%.

**OTHER:** Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

## 12. Ecological Information

Product does not contain Class I or Class II ozone depleting substances. Not toxic. Will not bioconcentrate.

## 13. Disposal Considerations

Do not attempt to dispose of residual 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 BOC Gases or authorized distributor for proper disposal.

## 14. Transport Information

PARAMETER	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Propylene	Propylene
HAZARD CLASS:	2.1	2.1
IDENTIFICATION NUMBER:	UN 1077*	UN 1077
SHIPPING LABEL:	FLAMMABLE GAS	FLAMMABLE GAS

\* For domestic transportation only, the identification number UN 1075 may be used in place of UN 1077.

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## 15. Regulatory Information

### SARA TITLE III NOTIFICATIONS AND INFORMATION

#### SARA TITLE III - HAZARD CLASSES:

Fire Hazard

Sudden Release of Pressure Hazard

#### SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product contains the following toxic chemical subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

CAS NUMBER	INGREDIENT NAME	PERCENT BY VOLUME
115-07-1	PROPYLENE	99.0 to 99.7

This information must be included on all MSDSs that are copied and distributed for this material.

**U.S. TSCA/Canadian DSL:** All ingredients are listed on the U.S. Toxic Substances Control Act (TSCA) inventory or exempt from listing and on the Canadian Domestic Substance List (DSL).

**California Proposition 65:** This product does not contain ingredient(s) known to the State of California to cause cancer or reproductive toxicity.

**Canadian Controlled Products Regulations (CPR):** This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

## 16. Other Information

NFPA HAZARD CODES	HMIS HAZARD CODES	RATINGS SYSTEM
Health: 1	Health: 0	0 = No Hazard
Flammability: 4	Flammability: 4	1 = Slight Hazard
Instability: 0	Physical Hazard: 2	2 = Moderate Hazard
		3 = Serious Hazard
		4 = Severe Hazard

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2004, *CGA Recommended Hazard Ratings for Compressed Gases, 2<sup>nd</sup> Edition*.

ACGIH	American Conference of Governmental Industrial Hygienists
DOT	Department of Transportation
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
WHMIS	Workplace Hazardous Materials Information System

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Revised: 06/28/04

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Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

**DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:**

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