

Propane

Section 1. Chemical product and company identification

Common name	: Propane
Synonym	: Petroleum hydrocarbon.
Material uses	: Fuel.
Manufacturer	: ConocoPhillips Canada Limited or its affiliates PO Box 130, 401 - 9th Avenue S.W. Calgary, Alberta T2P 2H7 (403) 233-4000
In case of emergency	: CANUTEC (613) 996-6666 CHEMTREC, U.S. : (800) 424-9300 International: (703) 527-3887

Section 2. Hazards identification

Physical state	: Gas.
Emergency overview	: DANGER! FLAMMABLE GAS. MAY CAUSE FLASH FIRE. CONTENTS UNDER PRESSURE. POTENTIAL SUFFOCATION HAZARD. GAS REDUCES OXYGEN AVAILABLE FOR BREATHING. Extremely hazardous liquid and vapor under pressure. Keep away from heat, sparks and flame. Do not puncture or incinerate container. Avoid breathing vapor or mist. Avoid breathing dust. Keep container closed. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
Routes of entry	: Inhalation.
Potential acute health effects	
Eyes	: Non-irritating to the eyes.
Skin	: Non-irritating to the skin. Non-sensitizer to skin.
Inhalation	: Gas reduces oxygen available for breathing.
Ingestion	: Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
Potential chronic health effects	: Carcinogenic effects: Classified None. by NIOSH [Propylene]. Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [Propylene]. Mutagenic effects: Mutagenic in mammalian somatic cells, based on <i>in vivo</i> studies. [Propylene]. Teratogenic effects: Not available.
Medical conditions aggravated by over-exposure	: Overexposure may cause weakness, headache, nausea, confusion, blurred vision, drowsiness, and other nervous system effects; greater overexposure may cause dizziness, slurred speech, flushed face, unconsciousness, and convulsions. Higher concentrations, usually above 10%, may sensitize the heart and lead to fatal cardiac arrhythmia. The odorant, ethyl mercaptan, can be irritating to the eyes, skin and respiratory tract. At high concentrations, a person can temporarily lose the ability to smell ethyl mercaptan. In addition, some individuals may have an impaired sense of smell, which inhibits the detection of the odorant. Propane and odorant are heavier than air and will collect and pool along the ground or floor. Odorant, therefore, may not be detectable above the location of propane storage or service (for example, odorant in propane released or leaked into the basement of a dwelling may not be detected above the basement). WARNING - The intensity of the odorant may fade over prolonged storage or in the presence of rust, when placed initially in new or freshly-cleaned storage vessels, or when

exposed to masonry.

DEALERS - Familiarize yourself and your customers with this warning and other facts associated with odor fade.

See toxicological information (section 11)

Section 3. Composition, Information on Ingredients

	CAS number	% by weight
Canada		
Propane	74-98-6	70-100
Propylene	115-07-1	3-5
Ethyl Mercaptan	75-08-1	0-0.0200

This material is classified hazardous under the WHMIS Controlled Product Regulation in Canada.

See Sections 8, 11 and 14 for details.

Section 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. Cold water may be used. Get medical attention if irritation occurs. Check for frostbite.
- Skin contact** : Wash with soap and water. Get medical attention if irritation develops, or frostbite has occurred.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
- Ingestion** : Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
- Notes to physician** : THIS MATERIAL MAY MAKE THE HEART MORE SUSCEPTIBLE TO ARRHYTHMIAS. Catecholamines, such as adrenaline and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.

Section 5. Fire fighting measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : 455°C (851°F)
- Flash point** : The lowest known value is Closed cup: -108.15°C (-162.7°F). (Pensky-Martens.). (Propylene)
- Flammable limits** : Lower: 2.1% Upper: 9.5%
- Products of combustion** : These products are carbon oxides.
- Fire hazards in the presence of various substances** : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
Highly flammable in the presence of the following materials or conditions: heat.
Slightly flammable in the presence of the following materials or conditions: shocks and mechanical impacts.
- Explosion hazards in the presence of various substances** : Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
- Fire-fighting media and instructions** : SMALL FIRE: Use dry chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet. Move containers from fire area if this can be done without risk. Cool containing vessels with flooding quantities of water until well after fire is out. Cool containers with water jet in order to prevent pressure build-up, auto-ignition or explosion. Do not extinguish a leaking gas flame unless leak can be stopped. Extinguish secondary fire. Handle damaged cylinders with extreme care. Use extinguishing media suitable for surrounding materials.
In case of fire, allow gas to burn if flow cannot be shut off immediately. Apply water from a safe distance to cool container and protect surrounding area.

Special protective equipment for fire-fighters

- Extremely flammable. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion.
- : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards

- : Vapor may travel a considerable distance to source of ignition and flash back.

Section 6. Accidental release measures**Small spill and leak**

- : NOTE: Review FIRE-FIGHTING MEASURES AND HANDLING (PERSONNEL) sections before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.

Keep upwind of leak. Evacuate until gas has dispersed.

NOTE: Vapors released from the spill may create an explosive atmosphere.

Large spill and leak

- : Let evaporate. If possible, turn leaking container so that gas escapes rather than liquid. Do not touch spilled material. Do not direct water at spill or source. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas. Eliminate all ignition sources.

Section 7. Handling and storage**Handling**

- : Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire, eliminate ignition sources. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Extremely hazardous liquid and vapor under pressure. Do not puncture or incinerate container.

Storage

- : Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Segregate from oxidizing materials.

Section 8. Exposure controls, personal protection**Engineering controls**

- : Ventilation is normally required when handling or using this product.

Personal protection**Eyes**

- : Safety glasses with side shields.

Respiratory

- : Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Hands

- : Nitrile gloves.

Skin/Body

- : Overall.

**Personal protection in case of a large spill**

- : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.

Product name**Exposure limits****Canada**

Propane

ACGIH TLV (United States, 1/2005).

TWA: 1000 ppm 8 hour(s). Form: All forms.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Physical state	: Gas.
Color	: Colorless.
Odor	: Sulfurous.
Boiling/condensation point	: -48 to -42°C (-54.4 to -43.6°F)
Melting/freezing point	: -185.84°C (-302.5°F)
Critical temperature	: 96.6°C (205.9°F)
Specific gravity	: 0.5 to 0.6 (Water = 1)
Vapor pressure	: 10,000 mm Hg or 200 psi at 100°F (38°C).
Vapor density	: 1.6 (Air = 1).
Volatility	: 100% (v/v)
Evaporation rate	: >1 compared with Ether (anhydrous).
VOC	: 100 (%)
Solubility	: Very slightly soluble in cold water.

Section 10. Stability and reactivity

Stability and reactivity	: The product is stable.
Conditions of instability	: Avoid all possible sources of ignition (spark or flame).
Incompatibility with various substances	: Reactive with oxidizing agents, acids. Avoid contact with peroxides, plastics, and chlorine dioxide.
Hazardous decomposition products	: Carbon monoxide.
Hazardous polymerization	: Will not occur.

Section 11. Toxicological information

Acute Effects

Eyes	: Non-irritating to the eyes.
Skin	: Non-irritating to the skin. Non-sensitizer to skin.
Inhalation	: Gas reduces oxygen available for breathing.
Ingestion	: Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
Potential chronic health effects	: Carcinogenic effects: Classified None. by NIOSH [Propylene]. Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [Propylene]. Mutagenic effects: Mutagenic in mammalian somatic cells, based on <i>in vivo</i> studies. [Propylene]. Teratogenic effects: Not available.
Target organs	: Contains material which causes damage to the following organs: the nervous system.

Section 12. Ecological information

Products of degradation	: These products are carbon oxides and water.
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Section 13. Disposal considerations

Waste disposal	: Do not puncture or incinerate container. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.
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Consult your local or regional authorities.

Section 14. Transport information

NAERG : 115

Regulatory information	Proper shipping name	Class	UN number	PG	Label
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UN / IMDG / IATA Classification	PROPANE	2.1	UN1978	-	
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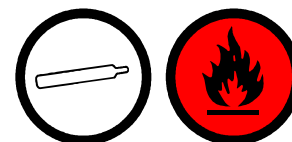
TDG Classification	PROPANE	2.1	UN1978	-	
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Additional information	UN	IMDG	IATA	TDG
	-	-	-	Special provisions 102

Section 15. Regulatory information

Canada

WHMIS (Canada) : Class A: Compressed gas.
Class B-1: Flammable gas.



DSL : All components listed.

International regulations

International lists : All components listed are listed on major international inventories or exempted from being listed in Australia (AICS), Europe (EINECS/ELINCS), Korea (TCCL), Japan (METI/MOL), Philippines (RA6969).

Section 16. Other information

Hazardous Material Information System (U.S.A.) :

Health	*	1
Fire hazard		4
Reactivity		0
Personal protection		C

National Fire Protection Association (U.S.A.) :

Health	1	4	Flammability
		0	Instability
			Special

References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005.

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