

Material Safety Data Sheet



PROPANE- LIQUEFIED PETROLEUM GAS

1. Product and company identification

Product name	: PROPANE- LIQUEFIED PETROLEUM GAS	
Synonym	: UNSTENCHED/STANDARD PROPANE, HD-5 PROPANE	
Material uses	: Various.	
Supplier/Manufacturer	: Supplier Federated Co-operatives Limited P. O. Box 1050; 401 - 22nd Street East Saskatoon, SK S7K 3M9 Canada (306) 244-3447	: Manufacturer Consumers' Co-operative Refineries Limited P.O. Box 260; 9th Avenue North Regina, SK S4P 3A1 Canada (306) 721-5353
Code	: 127	
Responsible name	: Atrion Regulatory Services, Inc.	
In case of emergency	: CANUTEC (613) 996-6666	

2. Hazards identification

Physical state	: Gas. [Liquefied gas.]
Odor	: Boiling cabbage if stench.
Emergency overview	: DANGER! FLAMMABLE GAS. HIGH PRESSURE GAS. GAS MAY CAUSE FLASH FIRE. GAS REDUCES OXYGEN AVAILABLE FOR BREATHING. CAN CAUSE TARGET ORGAN DAMAGE. MAY CAUSE EYE AND SKIN IRRITATION. Keep away from sources of ignition. Keep away from heat (<52°C/125°F). Use only with adequate ventilation. Extremely hazardous gas under pressure. Keep cylinder valve closed when the product is not used. Contact with liquefied gas may cause frostbite or cold burns to skin or eyes.
Routes of entry	: Inhalation. Dermal contact. Eye contact.
Potential acute health effects	
Inhalation	: Propane acts as a simple asphyxiant as the oxygen content in the air is displaced by the propane. At increasing concentration levels, butane acts as an anesthetic gas causing central nervous system depression creating an impaired/narcosis condition.
Ingestion	: Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
Skin	: Contact with rapidly expanding gas may cause burns or frostbite.
Eyes	: Contact with rapidly expanding gas may cause burns or frostbite.
Potential chronic health effects	
Chronic effects	: Can cause target organ damage. The rapidity and severity of the narcosis increase with gas concentration right up to the onset of severe hypoxia (oxygen deprivation) above about 15% propane gas in air and eventual unconsciousness and death above that. At high gas concentrations, the effects of narcosis and hypoxia may be difficult to distinguish as they are similar in many respects.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Target organs	: Causes damage to the following organs: the nervous system.
Over-exposure signs/symptoms	
Inhalation	: No specific data.



2 . Hazards identification

- Ingestion** : No specific data.
- Skin** : No specific data.
- Eyes** : No specific data.
- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Propane	74-98-6	100
Ethanthiol	75-08-1	0.005

Not available.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First aid measures

- Eye contact** : Individual in contact with a gas should not wear contact lenses. Check for and remove any contact lenses. Immediately flush affected eyes with warm, running water for at least 15 minutes while holding eyelids open to ensure thorough flushing. Get medical attention if symptoms occur.
- Skin contact** : Remove contaminated clothing, launder before reusing. In case of contact, immediately flush skin with plenty of water. For frostbite, thaw frozen parts in luke warm water, then cover with blanket to keep warm. Get medical attention.
- Inhalation** : In case of inhalation, conscious persons should be assisted to an uncontaminated area and inhale fresh air. The person should be kept warmed and calm. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive. If breathing is difficult, give oxygen.
- Ingestion** : Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
- Protection of first-aiders** : Rescuers should wear self contained breathing apparatus. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

- Flammability of the product** : Extremely flammable. Gas may accumulate in confined areas. Gas may travel considerable distance to source of ignition and flash back. May be readily ignited at temperatures at or above the flashpoint. May form explosive mixtures with air. Increased risk of fire and explosion when combined with strong oxidizer. Can be ignited by static discharge.
- Extinguishing media**
- Suitable** : In case of fire, use water spray (fog), foam, dry chemical or CO₂. Use water spray to cool fire exposed containers and disperse vapors from leaks/ spills that have not been ignited.
- Not suitable** : None known.



5 . Fire-fighting measures

- Special exposure hazards** : In case of fire, allow gas to burn if flow cannot be shut off immediately. Vapors are heavier than air and may travel to distant ignition sources and flash back. Apply water from a safe distance to cool container and protect surrounding area. If possible, shut off source but do not extinguish flame until gas flow is shut off because explosive re-ignited exists. Remove cylinders from fire exposed area if without risk.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
smoke
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : 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 prior to attempting repairs. If leak is on cylinder or cylinder' valve, contact the closest Air Liquide Canada location. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product.
- Environmental precautions** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Eliminate all ignition sources if safe to do so. Use water spray to cool and disperse vapors and protect personnel.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see section 1 for emergency contact information and section 13 for waste disposal. Eliminate all ignition sources if safe to do so.

7 . Handling and storage

- Handling** : EXPOSURE TO VAPORIZING LIQUID OR RAPIDLY EXPANDING GAS MAY CAUSE FROSTBITE! Avoid breathing vapor. Avoid contact with skin and eyes. If contact with liquid is possible, wear chemical resistant, insulated clothing. Keep away from heat, sparks and flame. Keep away from direct sunlight or strong incandescent light. To avoid fire, eliminate ignition sources. Use explosion-proof electrical equipment (ventilating, lighting and material handling). Valve protection caps must remain in place unless cylinder is secured with valve outlet piped to usage 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 the cylinder. Do not tamper with (valve) safety device. Close valve after each use and when empty. Transfer product using proper grounding and bonding procedures to avoid static accumulation. Regularly inspect piping, valves and associated equipment.
- Storage** : Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non combustible construction away from heavily trafficked areas and emergency exits. Cylinders must 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. Keep away from direct sunlight or strong incandescent light. Post "No Smoking or Open Flames" signs in the storage or use area. There should be no source of ignition in the storage or use area. Segregate from oxidizing materials. Make sure vessel has no leaks and store in a cool, ventilated area away from oxidizers. Shut valve off when not in use.

8 . Exposure controls/personal protection

Canada

Product name

Propane

Exposure limits
ACGIH TLV (United States, 1/2007).

TWA: 1000 ppm 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Provide mechanical ventilation for confined spaces. Use explosion-proof ventilation equipment. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Lab samples should be handled with adequate ventilation (under a fume hood if necessary). Exhaust directly outdoors.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Eyes : Splash goggles. Safety glasses with side shields.

Skin : Wear chemical resistant clothing if prolonged skin contact is likely. Insulated clothing.

Respiratory : Not required if handled in a ventilated enclosure. If safe exposure limits are exceeded wear an air-supplied respirator (SCBA) or air line respirator equipped with escape bottle.

Hands : Rubber and insulated gloves.

Personal protective equipment (Pictograms)


HMIS Code/Personal protective equipment : J

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Gas. [Liquefied gas.]

Flash point : Closed cup: -101.1°C (-150°F) [Pensky-Martens.]

Auto-ignition temperature : 432°C (809.6°F)

Flammable limits : Lower: 2.2%
Upper: 9.5%

Color : Colorless.

Odor : Boiling cabbage if stench.

Molecular weight : 44.11 g/mole

Molecular formula : C₃H₈

Boiling/condensation point : -42°C (-43.6°F)



9 . Physical and chemical properties

Melting/freezing point	: -180°C (-292°F)
Critical temperature	: 96.6°C (205.9°F)
Specific gravity	: 0.58
Vapor pressure	: 1034.1 to 1241 kPa (7756.6 to 9307.9 mm Hg). 150-180 psia.
Vapor density	: 1.6 [Air = 1]
Odor threshold	: 4800 ppm
Evaporation rate	: >1 (ether (anhydrous) = 1)
VOC	: 100 (%)
Solubility	: 6.5% by volume (20C).

10 . Stability and reactivity

Stability	: The product is stable.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Excessive heat, sources of ignition or contact with oxidizing materials may cause detonation. Rapid escape of liquid or vapour may generate static charge causing ignition.
Materials to avoid	: Reactive or incompatible with the following materials: oxidizing materials and acids.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity	: Extremely flammable in the presence of open flames, sparks and static discharge. Highly flammable in the presence of heat.

11 . Toxicological information

Acute toxicity

Inhalation	: Propane acts as a simple asphyxiant as the oxygen content in the air is displaced by the propane. At increasing concentration levels, butane acts as an anesthetic gas causing central nervous system depression creating an impaired/narcosis condition.
Ingestion	: Since the product is a gas, it will probably be inhaled rather than ingested. Consider first the preventive measures in case of inhalation.
Skin	: Contact with rapidly expanding gas may cause burns or frostbite.
Eyes	: Contact with rapidly expanding gas may cause burns or frostbite.
IDLH	: 2100 ppm

12 . Ecological information

Environmental effects	: No known significant effects or critical hazards.
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13 . Disposal considerations

Waste disposal	: The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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 local authority requirements. Do not puncture or incinerate container. Empty pressure vessels should be returned to the supplier.
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Disposal should be in accordance with applicable regional, national and local laws and regulations.




Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.



13 . Disposal considerations

14 . Transport information

AERG : 115

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN1978	PROPANE	2.1	-		Special provisions 29, 42
IMDG Class	UN1978	PROPANE	2.1	-		-
IATA-DGR Class	UN1978	PROPANE	2.1	-		Passenger and Cargo Aircraft Quantity limitation: Forbidden Cargo Aircraft Only Quantity limitation: 150 kg

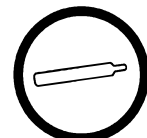
PG* : Packing group

15 . Regulatory information

Canada

WHMIS (Canada)

: Class A: Compressed gas.
Class B-1: Flammable gas.



Canadian lists

: **CEPA Toxic substances:** This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Canada inventory (DSL/NDSL)

: This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

International lists

: This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, in Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16 . Other information

Label requirements : FLAMMABLE GAS. HIGH PRESSURE GAS. GAS MAY CAUSE FLASH FIRE. GAS REDUCES OXYGEN AVAILABLE FOR BREATHING. CAN CAUSE TARGET ORGAN DAMAGE. MAY CAUSE EYE AND SKIN IRRITATION.

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

Health	*	1
Fire hazard		4
Physical Hazard		0
Personal protection		J

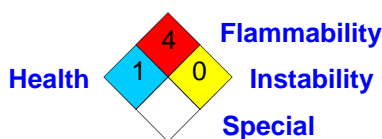
HAZARD RATINGS

4- Extreme
3- Serious
2- Moderate
1- Slight
0- Minimal

See section 8 for more detailed information on personal protection.

The customer is responsible for determining the PPE code for this material.

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



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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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.