

MATERIAL SAFETY DATA SHEET

Propane

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Propane

Synonyms: Commercial Propane

HD5 Propane

LP-Gas

Liquefied Petroleum Gas

Odorized Propane

Propane (Unstented)

Propane Commercial

Propane Motor Fuel

Propane for Process

Stented Propane

Unodorized Propane

Intended Use: Fuel

Chemical Family: Petroleum Gas

Arrowhead Propane, Inc.

3 Road 5859
Farmington, NM 87401
505.327.7224

Emergency Number

PERS
1.800.633.8253

24 Hour Customer Service Telephone Numbers: 505.327.7224

Emergency Overview

Danger!!! Propane is a flammable liquefied gas under pressure. Keep away from head, sparks, flame and all other ignition sources. Vapor replaces oxygen available for breathing and may cause suffocation in confined spaces. Make sure storage areas are adequately ventilated. Odor may not provide adequate warning of potential hazardous concentrations. Avoid contact with skin, eyes and clothing as the liquid may cause freeze burn similar to frost bite. Avoid breathing the vapor. Keep the container valve closed when not in use.



Appearance: Colorless

Physical Form: Gas or Liquid (Under Pressure)

Odor: Odorless (or skunk, rotten egg or garlic if odorant added)

NFPA 704 Hazard Class:

Health: 2 (Moderate)

Flammability: 4 (Extreme)

Instability: 0 (Least)

Odorized products contain small quantities (<0.1%) ethyl mercaptan as an olfactory indicator. Contains less than 2.5% total butanes and higher. **HD-5 COMPOSITION:** Propane >90%, Propylene <5%

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

1%=10,000 PPM.

NE=Not Established

2. Composition / Information on Ingredients

Component	CASRN	Concentration *
• Propane	74-98-6	80 - 100
• Propylene	115-07-1	< 20
• Ethane	74-84-0	< 6
• N-Butane	106-97-8	< 5
• Isobutane	75-28-5	< 2.5

(* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.)

Odorized products contain small quantities (<0.1%) ethyl mercaptan as an olfactory indicator.

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye: Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage.

Skin: Contact with the liquefied or pressurized gas may cause frostbite ("cold" burn). This material is a gas under normal atmospheric conditions. No harmful effects from skin absorption are expected.

Inhalation (Breathing): Asphyxiant. High concentrations in confined spaces may limit oxygen available for breathing. See Signs and Symptoms.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Signs and Symptoms: Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death.

Cancer: There is inadequate information to evaluate the cancer hazard of this material. See Section 11 for information on the individual components, if any.

Target Organs: Inadequate data available for this material.

Developmental: No data available for this material

Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus. Exposure during pregnancy to high concentrations of carbon monoxide or carbon dioxide, which are produced during the combustion of hydrocarbon gases, can also cause harm to the developing fetus.

For products that have been odorized, the intensity of ethyl mercaptan stench (its odor) may fade due to chemical oxidation (in the presence of rust, air or moisture), adsorption or absorption. Some people have nasal perception problems and may not be able to smell the ethyl mercaptan stench. Other odors may mask or hide the ethyl mercaptan stench. While ethyl mercaptan may not warn of the presence of propane in every instance, it is generally effective in a majority of situations.

Pre-Existing Medical Conditions: Exposure to high concentrations of this material may increase the sensitivity of the heart to certain drugs. Persons with pre-existing heart disorders may be more susceptible to this effect (see Section 4 - Note to Physicians).

4. FIRST AID MEASURES

Eye: For contact with the liquefied gas, hold eyelids apart and gently flush the affected eye(s) with lukewarm water. Seek immediate medical attention.

Skin: Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. After sensation has returned to the frostbitten skin, keep skin warm, dry, and clean. If blistering occurs, apply a sterile dressing. Seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Notes to Physician: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

5. FIRE-FIGHTING MEASURES

Flammable Properties:

Flash Point: -156 Degrees F (-104 Degrees C)

Ignition Temperatures in Air: 920-1120 Degrees F

Flammable Limits in Air by Volume: Lower 2.15 % Upper 9.6%

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire. Closed containers exposed to extreme heat can rupture due to pressure buildup.

Extinguishing Media: Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area, keep unauthorized personnel out. Move undamaged containers from immediate hazard area if it can be done with minimal risk. Stay away from ends of container. Stop spill/release if it can be done with minimal risk. If this cannot be done, allow fire to burn. Cool equipment exposed to fire with water, if it can be done with minimal risk. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk.

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is released or spilled: Evacuate the area immediately. Eliminate any possible sources of ignition and provide maximum ventilation. Shut off source of propane, if possible. If leaking from container, or valve, contact your supplier.

7. HANDLING AND STORAGE

Handling: Contents under pressure. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Use good personal hygiene practices. "Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. Containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Provide separate storage locations for other compressed and flammable gases. Full and empty cylinders should be segregated. Store cylinders in upright position, or with pressure relief valve in vapor space. Empty containers retain some residue and should be treated as if they were full.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional engineering controls may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: Use a NIOSH approved self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode in oxygen deficient environments (oxygen content <19.5%) or if exposure concentration is unknown or if conditions immediately dangerous to life or health (IDLH) exist. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin: The use of thermally resistant gloves is recommended.

Eye/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed. Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Appearance: Colorless

Physical Form: Gas or Liquid (Under Pressure)

Odor: Odorless (or skunk, rotten egg or garlic if odorant added)

Odor Threshold: No data

pH: Not applicable

Vapor Pressure (mm Hg): 208 psi @ 100°F (38°C) (maximum)

Vapor Density (air=1): No data

Boiling Point: -44°F / -42°C

Melting/Freezing Point: -309°F / -190°C

Solubility in Water: Negligible

9. PHYSICAL AND CHEMICAL PROPERTIES

Partition Coefficient (n-octanol/water) (Kow): No data

Specific Gravity: 0.50-0.51 @ 60°F (15.6°C)

Percent Volatile: 100%

Evaporation Rate (nBuAc=1): >1

Flash Point: -156°F / -104°C

Test Method: Tag Closed Cup (TCC), ASTM D56

LEL%: 2.1

UEL%: 9.5

Autoignition Temperature: 842°F / 432°C

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable gas.

Conditions to Avoid: Avoid high temperatures and all sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: Combustion can yield carbon dioxide, carbon monoxide.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Chronic Data: No definitive information available on carcinogenicity, mutagenicity, target organ, or developmental toxicity. Propane is non-toxic and is a simple asphyxiant, however, it does have slight anesthetic properties and high concentrations may cause dizziness.

12. ECOLOGICAL INFORMATION

There is no information available on the ecotoxicological effects of petroleum gases. Because of their high volatility, they are unlikely to cause ground or water pollution. Petroleum gases released into the environment will rapidly disperse into the atmosphere and undergo photochemical degradation.

13. DISPOSAL CONSIDERATIONS

Residual product within process system may be burned at a controlled rate, if suitable burning unit (Flare stack) is available on site. This shall be done in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT Shipping Name: Liquefied Petroleum Gas

Hazard Class: 2.1 (Flammable gas)

Identification Number: UN1075

Bulk Package/Placard Marking: Flammable gas/1978

IMO Shipping Name: Propane

IMO Identification Number: UN1978

Shipping Description: Propane

Non-Bulk Package Marking: Propane, UN1978

Labels: Flammable gas

Placards/Marking (Bulk): Flammable gas/1978

Special Shipping Information: Container should be transported in a secure, upright position in a well-ventilated vehicle.

15. REGULATORY INFORMATION

CERCLA/SARA – Section 302 Extremely Hazardous Substances and TPQs (in pounds)

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA – Section 311/312 (Title III Hazard Categories)

- **Acute Health:** Yes
- **Chronic Health:** No
- **Fire Hazard:** Yes
- **Pressure Hazard:** Yes
- **Reactive Hazard:** No

CERCLA/SARA – Section 313 and 40 CFR 372

This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR.

Component – Propylene * **Concentration** - < 20 * **de minimis** – 1.0%

EPA (CERCLA) Reportable Quantities (in pounds):

EPA's Petroleum Exclusion applies to this material – (CERCLA 101 (14)).

OSHA Occupational Safety and Health Administration:

29 CFR 1910.119: Process Safety Management of Highly Hazardous Chemicals.

16. OTHER INFORMATION

Special Precautions: Use piping and equipment adequately designed to withstand pressure to be encountered.

NFPA 58 LP-Gas Code and OSHA 29 CFR 1910.10 require that all persons employed in handling LP-gases be trained in proper handling and operating procedures, which the employer shall document. Contact your propane supplier to arrange for the required training. Allow only trained and qualified persons to install and service propane containers and systems.

WARNING: Be aware that with odorized propane the intensity of ethyl mercaptan stench (its odor) may fade due to chemical oxidation (in the presence of rust, air or moisture), adsorption or absorption. Some people have nasal perception problems and may not be able to smell the ethyl mercaptan stench. Leaking propane from underground gas lines may lose its odor as it passes through certain soils. While ethyl mercaptan may not impart the warning of the presence of propane in every instance, it is generally effective in the majority of situations. Familiarize yourself, your employees, customers, and family with this warning, and other facts associated with the so-called 'odor-fade' phenomenon. If you do not already know all the facts, contact your propane supplier for more information about odor, electronic gas alarms and other safety considerations associated with the handling, storage and use of propane.

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