

MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

TRADE NAME PROPANE
CAS NUMBER 74-98-6
MSDS NUMBER 5399
PRODUCT CODE ND
SYNONYMS LPG
HD-5 PROPANE
LIQUEFIED PETROLEUM GAS
C3
P-GRADE

SUPPLIER Littlefield Propane, LLC
P.O Box 299
Stigler, OK 74462

TELEPHONE NUMBERS (800) 752-7541

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
PROPANE	74-98-6	92 - 100%	1000 ppm 8-Hour TWA (OSHA) Simple Asphyxiant (ACGIH)
ETHANE	74-84-0	0 - 7 %	Simple Asphyxiant (ACGIH)
ISOBUTANE	75-28-5	0 - 2.5 %	800 ppm 8-Hour TWA (OSHA) 800 ppm 8-Hour TWA (ACGIH)
N-BUTANE	106-97-8	0 - 1 %	800 ppm 8-Hour TWA (ACGIH)
ISOPENTANE	78-78-4	0 - 0.5 %	ND
PENTANE 1	09-66-0	0 - 0.5 %	1000 ppm 8-Hour TWA (OSHA) 600 ppm 8-Hour TWA (ACGIH) 750 ppm 15-Min STEL (ACGIH)
ETHYL MERCAPTAN (USED AS A MALODORANT)	75-08-1	0 - 50 ppm (Trace)	0.5 ppm 8-Hour TWA (ACGIH)

PROPYLENE	115-07-1	0 - 500 ppm (Trace)	Simple Asphyxiant (ACGIH)
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* Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

ND = No Data

NA = Not Applicable

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HEALTH HAZARDS

DANGER!

MAY CAUSE CARDIAC SENSITIZATION

ASPHYXIANT GAS

OVEREXPOSURE MAY CAUSE CNS DEPRESSION

LIQUEFIED MATERIAL MAY CAUSE FROSTBITE AND FREEZE BURNS

FLAMMABILITY HAZARDS

EXTREMELY FLAMMABLE

FORMS EXPLOSIVE MIXTURES WITH AIR

MAY CAUSE FLASH FIRE

REACTIVITY HAZARDS

STABLE

POTENTIAL HEALTH EFFECTS, SKIN

Contact with liquefied material may cause frostbite. Short term contact may result in tissue destruction and severe burns.

POTENTIAL HEALTH EFFECTS, EYE

Direct contact with liquefied material may cause frostbite and permanent damage.

POTENTIAL HEALTH EFFECTS, INHALATION

Asphyxiant gas. High concentrations in the immediate area can displace oxygen and can cause central nervous system depression from oxygen deprivation. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, iight-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

May cause cardiac sensitization, including arrhythmias (irregular heart

beats) and death due to cardiac arrest.

Overexposure to this material may cause systemic damage including target organ effects listed under "Special Toxic Effects."

Other specific symptoms of exposure are listed under "Special Toxic Effects."

POTENTIAL HEALTH EFFECTS, INGESTION

Not a normal route of exposure.

SPECIAL TOXIC EFFECTS

Acute or chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the following: cardiovascular and central nervous systems.

Contains asphyxiant which may cause reproductive and/or developmental effects in pregnant women.

Pre-existing medical conditions which may be aggravated by exposure include disorders of the respiratory and cardiovascular systems.

4 FIRST AID MEASURES

- | | |
|---------------------------|---|
| SKIN | For frostbite or freeze burns, keep affected area warm by immersing or flushing with warm water. GET IMMEDIATE MEDICAL ATTENTION. |
| EYE | Burns due to either hot or cold contact require immediate medical attention. Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION. |
| INHALATION | Remove to fresh air. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure airway is clear and give oxygen. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION. |
| INGESTION | Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION. |
| NOTES TO PHYSICIAN | In cases of acute poisoning, artificial respiration with administration of oxygen may be useful for support. DO NOT GIVE EPINEPHRINE, EPHEDRINE OR SIMILAR ADRENERGIC DRUGS. THEY MAY INDUCE FATAL VENTRICULAR FIBRILLATION. Electrocardiographic monitoring should be carried out with severely ill patients |

to anticipate possible cardiac arrest.

5 FIRE FIGHTING MEASURES

HAZARDOUS COMBUSTION PRODUCTS

Combustion may produce CO_x, NO_x, SO_x, reactive hydrocarbons and irritating vapors.

EXTINGUISHING MEDIA

Use water spray, dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire.

BASIC FIRE FIGHTING PROCEDURES

Shut off source of flow if possible. Do not attempt to extinguish fire if gas source cannot be shut off first.

Evacuate area and fight fire from a safe distance.

If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak. Use water spray to cool adjacent structures and to protect personnel.

Containers can build up pressure if exposed to heat (fire). Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

Be aware that a BLEVE (Boiling Liquid Expanding Vapor Explosion) may occur unless surfaces are kept cool with water.

Firefighters must wear MSHA/NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

UNUSUAL FIRE & EXPLOSION HAZARDS

Extremely flammable. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back.

Explosion hazard if exposed to extreme heat or to physical or thermal shock.

Fires involving this product may release CO_x, NO_x, SO_x, reactive hydrocarbons and irritating vapors.

Flash Point -156 F (-104 C)

Autolgnition Temperature 842 F (450 C)
Flammability Limits in Air, Lower, % by Volume 2 %
Flammability Limits in Air, Upper, % by Volume g 5 %

6 ACCIDENTAL RELEASE MEASURES

EMERGENCY ACTION

Eliminate and/or shut off ignition sources and keep ignition sources out of the area. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in release. Evacuate area endangered by release as required. (See Personal Protection Information Section.)

ENVIRONMENTAL PRECAUTIONS

Eliminate all sources of ignition. Isolate hazard area and deny entry.

If product is released to the environment, take immediate steps to stop and contain release. Caution should be exercised regarding personnel safety and exposure to the released product. Notify local authorities and the National Response Center, if required.

SPILL OR LEAK PROCEDURE

Keep ignition sources out of area and shut off all ignition sources. Isolate spill area and keep unnecessary people away. Use water spray to reduce vapors. Stop leak when safe to do so.

See Exposure Controls/Personal Protection (Section 8).

7 HANDLING & STORAGE

HANDLING

Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Use non-sparking tools. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

Do not eat, drink or smoke in areas of use or storage.

STORAGE

Store in tightly closed containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Avoid contact with strong oxidizers.

Empty containers may contain product residue. Do not reuse without adequate precautions.

Do not eat, drink or smoke in areas of use or storage.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Ventilation and other forms of engineering controls are the preferred means for controlling exposures.

EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Wear safety glasses with side shields. A means for quick drenching or flushing of the eyes should be provided for first aid purposes.

SKIN PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Avoid skin contact with this material. Use appropriate chemical protective gloves when handling.

Use good personal hygiene.

RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

9 PHYSICAL & CHEMICAL PROPERTIES

ODOR AND APPEARANCE

COLORLESS, ODORLESS LIQUID UNDER PRESSURE WITH MALODORANT ADDED
COLORLESS, ODORLESS GAS AT ROOM TEMPERATURE AND PRESSURE

Boiling Point	-44 F (-42 C)
Specific Gravity	0.49 - 0.508
Melting Point	-310 F (-190 C)
Percent Volatile	100

Vapor Pressure	175 - 208 psi AT 100 F (38 C)
Vapor Density	1.5 (AIR = 1)
Bulk Density	ND
Solubility in Water	SLIGHTLY SOLUBLE
Octanol/Water Partn	ND
Volatile Organic	ND
Pour Point	ND
pH Value	ND
Freezing Point	ND
Viscosity	ND
Evaporation Rate	LIQUID BOILS RAPIDLY TO GAS AT ROOM TEMPERATURE
Molecular Formula	C3H8
Molecular Weight	44.0900
Chemical Family	ALIPHATIC HYDROCARBON
Odor Threshold	ND

10 STABILITY & REACTIVITY

STABILITY/INCOMPATIBILITY

Incompatible with oxidizing agents. See precautions under Handling & Storage (Section 7).

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons and irritating vapors.

11 TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA

See Special Toxic Effects (Section 3).

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

ND

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

This product, as supplied, when discarded or disposed of, is a hazardous waste according to Federal Regulations (40 CFR 261) due to its ignitability. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine, at the time of disposal, whether the material is a hazardous waste subject to RCRA.

The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state and local regulations.

14 TRANSPORT INFORMATION

BILL OF LADING - BULK (U. S. DOT)

Petroleum Gas, Liquefied, 2.1, UN1075

U. S. Department of Transportation (DOT) Requirements

General Transportation Information for Bulk Shipments

Proper Shipping Name	Petroleum Gas, Liquefied	
Hazard Class	2.1	UN/NA Code UN1075
Packaging Group	NA	
Labels Required	Flammable Gas	
Placards Required	Flammable Gas, UN1075	
Reportable Quantity	See Regulatory Information (Section 15)	

General Transportation Information for Non-Bulk Shipments

Proper Shipping Name	Petroleum Gas, Liquefied	
Hazard Class	2.1	UN/NA Code UN1075
Packaging Group	NA	
Labels Required	Flammable Gas	

Placards Required Flammable Gas, UN1075
Reportable Quantity See Regulatory
Information
(Section 15)

15 REGULATORY INFORMATION

FEDERAL REGULATIONS

All known major components of this product are listed on the TSCA Inventory and/or are otherwise in compliance with TSCA.

A release of this product, as supplied, is exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) by the petroleum exclusion. Releases may be reportable to the National Response Center (800-424-8802) under the Clean Water Act, 33 U.S.C. 1321 (b)(3) and (5). Failure to report may result in substantial civil and criminal penalties. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations.

This product does not contain toxic chemicals (in excess of the applicable de minimis concentration) that are subject to the annual toxic chemical release reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372).

This product contains one or more substances listed as hazardous, toxic or flammable air pollutants under Section 112 of the Clean Air Act. This product contains substances subject to accident prevention regulations when present above the threshold quantities of 10,000 pounds (section 112(r) of the Clean Air Act). This product contains up to 100 % volatile organic compounds (VOCs) per 40 CFR Part 51.100.

There may be specific regulations at the local, regional or state/provincial level that pertain to this product.

STATE REGULATIONS

Based on available information this product does not contain any components or chemicals currently known to the State of California to cause cancer, birth defects or reproductive harm at levels which would be subject to Proposition 65. Reformulation, use or processing of this product may affect its composition and require re-evaluation.

SARA TITLE III RATINGS

<input type="checkbox"/> Immediate	<input checked="" type="checkbox"/> Delayed	<input checked="" type="checkbox"/> Fire	<input checked="" type="checkbox"/> Pressure	<input checked="" type="checkbox"/>
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Hazard		Hazard		Hazard		Hazard	
Reactivity Hazard	-						
NFPA RATINGS							
Health	1	Flammability	4	Reactivity	0	Special Hazards	-
HMIS RATINGS							
Health	2*	Flammability	4	Reactivity	0		

16 OTHER INFORMATION

MISCELLANEOUS

This product has been malodorized to facilitate its identifiability. It has been determined that the odorant can diminish or fade due to exposure to oxidized substances, including the following:

1. Adsorption ("sticking") of the odorant molecules to the inside surface of metal storage containers and pipes, particularly (i) those that are new; (ii) those whose interior surfaces have been exposed to the atmosphere while out of service; or (iii) those whose interior surfaces are rough.
2. The presence of ordinary red rust (iron or ferric oxide) inside a storage container or piping.
3. Selective absorption ("filtering") of the odorant molecules by soil in the case of underground leaks.
4. Absorption of the odorant molecules on the walls (particularly those made of rough woods, rock or any other types of masonry) or on the fabric of draperies, furniture or carpets in rooms where there is little or no air circulation.

Physical and environmental conditions such as competing odors, common colds, allergies, or smoking may lessen a person's ability to smell the odorant. In addition, prolonged exposure to the odorant or exposure to extremely high concentrations of the odorant can diminish a person's ability to smell the odorant. Finally, some individuals are not capable of smelling the odor emitted by the odorant.

All product users and handlers should acquaint themselves with what they determine to be the usual odor of odorized product. Further, as such individuals use or handle the product, proper precautions should be taken to ensure that the exposure of the product to substances such as those identified above is eliminated or to properly passivate such substances prior to use. Frequent sniff tests should be conducted. Handlers and retailers of the product should conduct periodic stain tube or other testing to ensure proper levels of the odorant are maintained and documented. Special attention should be focused on storage or

transportation systems which exhibit the characteristics described above. In the event a lower level of odorant than required by law is discovered pursuant to the stain tube or other testing, additional odorant, or additional, properly odorized propane, should be added.

Purchaser and all downstream individuals who engage in the re-selling of product should continually communicate, inform, and train their employees, customers, and the public at large regarding the characteristics and hazards of the product, including specifically the possible failure of the odorant warning system under certain circumstances.

DISCLAIMER

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product