

GASES GROUP MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT IDENTIFICATION

PRODUCT NAME: PROPANE
SYNONYMS: Dimethylmethane
TRADE NAMES: LP-Gas, Liquefied Petroleum Gas (LPG)
FORMULA: C₃H₈
CHEMICAL FAMILY: Aliphatic hydrocarbon
MANUFACTURER: Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, PA 18195 - 1501

PRODUCT INFORMATION: 1 - 800 - 752 - 1597

MSDS NUMBER: 2P03 -4 **EFFECTIVE DATE:** February 1993 **REVISION:** 4

SECTION 2: HAZARDOUS COMPONENTS

Propane is packaged as a pure material (>99 %).

EXPOSURE LIMITS

OSHA: PEL-TWA = 1000 ppm

ACGIH: Simple Asphyxiant

CAS NUMBER: 74-98-6

SECTION 3: HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

Propane is a flammable, colorless liquefied compressed gas that poses an immediate fire and explosion hazard when concentrations exceed 2.1%. Propane is heavier than air and may collect in low areas or travel along the ground where there may be an ignition source present. It is generally odorless at concentrations below 2.0%. Direct contact with liquid can cause frostbite. High concentrations that can cause rapid suffocation are above the lower flammable limit and must not be entered.

EMERGENCY TELEPHONE NUMBERS

800 - 523 - 9374 in Continental U.S. (except PA), Canada and Puerto Rico
800 - 322 - 9092 in Pennsylvania
215 - 481 - 7711 outside U.S.

POTENTIAL HEALTH EFFECTS

INHALATION: Propane is nontoxic, but breathing high concentrations (> 10 %) may produce dizziness. It can also reduce the amount of oxygen in the air necessary to support life. Exposure to oxygen-deficient atmospheres (< 19.5 %) may produce dizziness, nausea, vomiting, loss of consciousness, and death. At very low oxygen concentrations (< 12 %) unconsciousness and death may rapidly occur without warning.

EYE CONTACT: Contact with liquid can cause freezing of tissue.

SKIN CONTACT: Contact with liquid can cause freezing of tissue and frostbite.

CARCINOGENIC POTENTIAL: Propane is NOT listed as a carcinogen or potential carcinogen by NTP, IARC, or OSHA Subpart Z.

EXPOSURE INFORMATION

ROUTE OF ENTRY: Inhalation.

TARGET ORGANS: Brain.

EFFECT: Asphyxiation (suffocation).

CONDITIONS AGGRAVATED: None

SECTION 4: FIRST AID

INHALATION: Conscious persons should be assisted to an uncontaminated area and inhale fresh air and given supplemental oxygen by mask if available. Unconscious persons should be moved to an uncontaminated area, if not breathing, given resuscitation and supplemental oxygen. Quick removal from contaminated area is most important.

EYE CONTACT: No treatment necessary for gas exposure. Contact with liquid can cause freezing of tissue. Gently flush eyes with lukewarm water. Consult a physician.

SKIN CONTACT: No treatment necessary for gas exposure. Contact with liquid can cause frostbite or deep tissue freezing. Remove contaminated clothing and flush area with lukewarm water. DO NOT USE HOT WATER. Consult physician if blisters form or if deep tissue freezing is suspected.

SECTION 5: FIRE AND EXPLOSION

FLASH POINT
N/A

AUTOIGNITION TEMP
842 °F (432 °C)

FLAMMABLE LIMITS
2.1% - 9.5%

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, or water.

HAZARDOUS COMBUSTION PRODUCTS: None

FIRE FIGHTING PROCEDURES: If possible, shut off source of propane to fire. If the flow of propane cannot be safely shut off, allow fire to burn itself out. This will avoid possible accumulation and re-ignition of a flammable mixture. Cool cylinders with water spray until well after fire is out. If possible, without risk, move cylinders away from fire area.

UNUSUAL HAZARDS: Upon exposure to intense heat or flame cylinder may vent rapidly or explode. Propane is heavier than air, therefore, it may collect in low areas or travel along the ground where an ignition source may be present.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Evacuate all personnel from affected area. Increase ventilation in area of release. Use a flammable gas meter (explosimeter) calibrated for Propane to monitor concentration. An immediate fire and explosion hazard exists when atmospheric concentrations exceed 2.1%. Use appropriate protective equipment (SCBA and fire resistant suit). Never enter an area where the concentration is greater than 20% of the LEL. If leak is from cylinder or cylinder valve call the Air Products emergency telephone number. If leak is in user's system close cylinder valve and vent and purge lines with inert gas before attempting repairs.

SECTION 7: STORAGE AND HANDLING

STORAGE: Cylinders should be stored upright in a well-ventilated, secure area. Storage area temperatures should not exceed 125 °F (52 °C) and should be free of oxidizers and sources of ignition. "No Smoking or Open Flames" signs should be posted in storage area. Storage should be away from heavily traveled areas and emergency exits. Avoid areas where salt or other corrosive materials are present. Separate full from empty cylinders. Valve protection caps should remain on cylinders not connected for use. Keep good inventory records. Visually inspect stored cylinders on a routine basis, at least weekly, for any indication of leakage or other problems.

HANDLING: Do not drag, roll, or slide cylinder. Use a suitable handtruck designed for cylinder movement. Never attempt to lift a cylinder by its cap. Secure cylinders at all times while in use. Use a pressure reducing regulator or separate control valve to safely discharge gas from cylinder. Use a check valve to prevent reverse flow into cylinder. Do not use near a flame or other source of ignition. Never apply flame or localized heat directly to any part of the cylinder. Do not allow any part of the cylinder to exceed 125 °F (52 °C). High temperature may cause damage to cylinder and/or premature failure of pressure relief device which will result in the venting of the cylinder contents. If user experiences any difficulty operating cylinder valve, discontinue use and contact supplier. Use an adjustable strap-wrench to remove over-tight or rusted caps. Electrically bond and ground cylinder when transferring liquid product.

Use a "FULL", "IN USE", and "EMPTY" tag system on cylinders. This will greatly reduce the chances of inadvertently connecting or operating the wrong cylinder.

SPECIAL REQUIREMENTS: Always store and handle compressed gases in accordance with Compressed Gas Association, Inc. (ph.703-412-0900) pamphlet CGA P-1, *Safe Handling of Compressed Gases in Containers*. Local regulations may require specific equipment for storage or use.

CAUTION: Compressed gas cylinders shall not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder refilled by someone other than the owner without the owner's written consent is a violation of federal law.

SECTION 8: PERSONAL PROTECTION / EXPOSURE CONTROL

ENGINEERING CONTROLS: Provide good ventilation and / or local exhaust to prevent accumulation of gas concentrations above the TWA.

RESPIRATORY PROTECTION:

GENERAL USE: None required.

EMERGENCY: SCBA or positive pressure air line with mask should be used in areas where concentration is above the TWA, however do not enter areas where concentration is greater than 0.42% (20% of the LEL).

SKIN PROTECTION:

GENERAL USE: Leather work gloves and safety shoes for handling cylinders.

EMERGENCY: Leather gloves, fire resistant suit.

EYE PROTECTION: Safety glasses.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless

MOLECULAR WEIGHT: 44.1

ODOR: Sweet.

VAPOR PRESSURE: 124.9 psia @ 70 °F 1 atm.

GAS DENSITY: 0.116 lb / cu. ft. @ 70 °F 1 atm.

BOILING POINT: -43.67 °F

FREEZING POINT: -305.82 °F

SPECIFIC GRAVITY: 1.548 @ 70 °F 1 atm. (air=1)

SPECIFIC VOLUME: 8.6 cu. ft. / lb. @ 70 °F 1 atm.

SOLUBILITY IN WATER (vol./vol.): 6.5 / 100

SECTION 10: REACTIVITY

CHEMICAL STABILITY: Stable

CONDITIONS TO AVOID: High temperatures

INCOMPATIBILITY: Oxygen and other oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Propane is nontoxic and acts as a simple asphyxiant, however it does have slight anesthetic properties and higher concentrations may cause dizziness.

SECTION 12: ECOLOGICAL INFORMATION

Propane does not contain any Class I or Class II ozone depleting chemicals. It is not listed as a marine pollutant by DOT in proposed rulemaking (49 CFR, HM-211).

SECTION 13: DISPOSAL

UNUSED PRODUCT / EMPTY CYLINDER: Return cylinder and unused product to supplier. Do not attempt to dispose of unused product.

DISPOSAL: Residual product in the system may be burned if a suitable burning unit (flair incinerator) is available on site. This shall be done in accordance with federal, state, and local regulations. Wastes containing this material may be classified by EPA as hazardous waste by characteristic (i.e., Ignitability, Corrosivity, Toxicity, Reactivity). Waste streams must be characterized by the user to meet federal, state, and local requirements. If classified as hazardous waste this material will have a CERCLA reportable quantity (RQ) of 100 pounds (D001 Ignitable).

SECTION 14: TRANSPORTATION

DOT HAZARD CLASS: 2.1

DOT SHIPPING LABEL: Flammable Gas

DOT SHIPPING NAME: Propane

IDENTIFICATION NUMBER: UN 1978

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure upright position in a well ventilated truck. Never transport in passenger compartment of a vehicle.

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980 requires notification to the National Response Center of a release of quantities of hazardous substances equal to or greater than the reportable quantities (RQ's) in 40 CFR 302.4.

CERCLA Reportable Quantity: NONE (see Section 13)

SARA TITLE III: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986

SECTION 302: Requires emergency planning based on threshold planning quantities (TPQ's) and release reporting based on reportable quantities (RQ's) of EPA's extremely hazardous substances (40 CFR 355).

Extremely Hazardous Substances: None

SECTION 311 / 312: Requires chemical inventory reporting with identification of hazard classes. The hazard classes for this product are:

HEALTH: Immediate

PHYSICAL: High Pressure
Fire

SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372.

Propane does NOT require reporting under Section 313.

TOXIC SUBSTANCE CONTROL ACT (TSCA): Propane is on the TSCA inventory.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

29 CFR 1910.119: Process Safety Management of Highly Hazardous Chemicals. Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Propane is not specifically listed in Appendix A, as a highly hazardous chemical. However, any process that involves a flammable gas on site in one location, in a quantity of 10,000 lb. (4553.6 kg.) or greater is covered under this regulation, unless it is used as a fuel.

STATE REGULATIONS

CALIFORNIA:

Proposition 65: This product contains no levels of listed substances which the State of California requires warning under this statute.

SCAQMD Rule: VOC = 8.6 cu. ft./lb

SECTION 16: SUPPLEMENTAL INFORMATION

HAZARD RATINGS:

	HEALTH	FLAMMABILITY	REACTIVITY	SPECIAL
NFPA:	1	4	0	
HMIS:	0	4	0	

REVISION INFORMATION: New Format with additional sections added. N/A = Not Applicable.