



MATERIAL SAFETY DATA SHEET

Section 1: Product and Company Identification

Product: Propane	Company: Worthington Cylinder Corporation
Description: Odorized Commercial Propane	Address: 200 Old Wilson Bridge Road
Date Issued: February 8, 2012	Columbus, Ohio 43085
Last Revised: April 10, 2013	Information: 614-438-7960
	Emergency: CHEMTREC – (800) 424-9300

Section 2: Hazardous Ingredients and Exposure Limits

Ingredient	CAS Number	Weight %	OSHA PEL (ppm)	ACGIH TLV (ppm)
Propane	74-98-6	87.5 – 100	1000	1000 ^b
Ethane	74-84-0	0 – 7.0	1000 ^a	1000 ^b
Propylene	115-07-1	0 – 5.0	1000 ^a	500
Butane	106-97-8	0 – 2.5	1000 ^a	1000 ^b
Ethyl Mercaptan (odorant)	75-08-1	<0.0050	10 (Ceiling)	0.5

^a For Liquefied petroleum gas

^b For Aliphatic hydrocarbon gases

Section 3: Hazards Identification

Propane (also called Liquefied Petroleum Gas or LP-Gas) is a liquid fuel stored under pressure that rapidly turns into a gas at standard atmospheric temperatures and pressure. Propane is extremely flammable and explosive. At high concentrations it acts as a simple asphyxiant by diluting and displacing oxygen, particularly in confined spaces. Direct contact with liquefied product may cause freeze burns and frostbite. Vapor is heavier than air and may accumulate in low-lying areas. Use this product only in well ventilated areas and, where appropriate, proper respiratory protection and personal protective equipment should be worn. An odorant (ethyl mercaptan) is added to provide a strong unpleasant odor akin to rotten eggs.

Section 4: First Aid Measures

Eye Contact: Flush eyes with plenty of water for at least 15 minutes while occasionally lifting the eyelids. Seek medical attention.

Skin Contact: Remove contaminated clothing. Wash with soap and water. Get medical attention if irritation or redness develops. In case of frostbite, place affected area in warm water or wrap in blankets if warm water is not available. DO NOT USE HOT WATER. Seek immediate medical attention.

Inhalation: Remove to fresh air. Administer oxygen or artificial respiration if necessary. Seek immediate medical attention.

Ingestion: Risk of ingestion is extremely low. Seek immediate medical attention in cases of ingestion or oral exposure.

Section 5: Fire and Explosion Data

Fire Hazards: Extremely flammable. Liquid releases vapors that readily form a flammable mixture with air. Dangerous fire and explosion hazard when exposed to heat, sparks or flame. Vapors are heavier than air and may



MATERIAL SAFETY DATA SHEET

accumulate in low-lying areas and form explosive mixtures. Vapors may travel long distances to a point of ignition. Container may explode in heat or flame.

Flash Point: -156 °F (-104 °C)

Auto Ignition: 842 °F (432 °C)

Lower Explosion Limit: 2.15% by volume in air

Upper Explosion Limit: 9.6% by volume in air

Hazardous Combustion Products: Carbon monoxide, carbon dioxide and various non-combusted hydrocarbons.

Extinguishing Media: Dry chemical, foam, carbon dioxide, Halon or water.

Unusual Fire Hazards: Use extreme caution when fighting liquefied petroleum gas fires. Heated containers may rupture violently and suddenly without warning due to vessel overpressure (BLEVE-boiling liquid expanding vapor explosions). If safe to do so stop the flow of gas and allow the flame to burn out. Extinguishing the flame before shutting off the supply can cause formation of explosive mixtures. In some cases it may be preferred to allow the flame to continue to burn. Use water to cool equipment, surfaces and containers exposed to fire and excessive heat. Continue use water to cool containers until well after flames are extinguished.

Section 6: Accidental Release Measures

Evacuate all personnel from the area. Eliminate all sources of ignition. If possible, stop the flow of product. Ventilate the area thoroughly. Take precautions against static discharges. Vapors are heavier than air and may accumulate in low-lying areas and form explosive mixtures with air.

Section 7: Handling and Storage

Handling Precautions: Keep away from flame, sparks and excessive temperatures. Use only in well-ventilated areas. Containers must be grounded to avoid generation of static charges. Do not smoke while handling product. Follow use instructions fully and carefully.

Storage Requirements: Store in a cool, dry, well-ventilated area away from sources of ignition, strong oxidizers or other incompatible materials. Keep containers closed at all times. Check regularly for leaks. Ensure equipment is electrically bonded and grounded to prevent static accumulation. Post "No Smoking or Open Flame" signs in the storage and use areas. Protect cylinders against physical damage. Do not cut, drill, grind or weld on empty cylinders since they may contain explosive residues. Do not attempt to refill cylinders.

Section 8: Exposure Control/Personal Protection

Occupational Exposure Limits: See Section 2.

Engineering Controls: Good industrial hygiene practice requires that engineering controls be used where feasible to reduce workplace concentrations of hazardous materials.

Ventilation: Use adequate ventilation to keep gas and vapor concentrations of this product below the occupational exposure and flammability limits, particularly in confined spaces. Use mechanical ventilation that is explosion proof.

Respiratory Protection: Maintain oxygen levels above 19.5% in the workplace. Respirators must be worn if ambient concentrations of contaminants exceed prescribed exposure limits. Seek professional advice prior to respirator selection and use. Select respirator based on its suitability to provide adequate worker protection for given work conditions, level of airborne contamination, and presence of sufficient oxygen. When required, only professionally approved respirators should be used.

Protective Clothing: Protective clothing should be worn to prevent skin contact. Protective gloves should be worn as required for welding or burning. Use insulated gloves where there is the possibility of liquid contact.



MATERIAL SAFETY DATA SHEET

Eye Protection: Use safety glasses or goggles as required for welding or burning. Use splash-proof goggles or faceshield where there is the possibility of liquid contact.

Section 9: Physical and Chemical Properties

Boiling Point: -44 °F (-42 °C) @ 14.7 psia	Vapor Pressure: 127 psig @ 70 °F
Melting Point: -306 °F (-188 °C)	Specific Gravity of Vapor (air=1): 1.5 @ 60 °F
Specific Gravity of Liquid (water=1): 0.504	Solubility in Water: Slight
Molecular Weight: 45	Percent Volatile by Weight: 100
Appearance: Colorless gas	Odor: Odorant has a foul smell akin to rotten eggs

Section 10: Stability and Reactivity

Chemical Stability: Stable
Hazardous Decomposition Products: Carbon oxides and various hydrocarbons formed when burned.
Incompatibility: Strong oxidizers, strong acids, halogens.
Hazardous Polymerization: Will not occur
Conditions to Avoid: Sources of heat, sparks or flame.

Section 11: Toxicological Information

Overview: Propane is an anesthetic and is mildly irritating to the mucous membranes. At high concentrations propane acts as a simple asphyxiant without significant potential for systemic toxicity. Direct contact with liquefied product may cause freeze burns and frostbite. Additional data can be found in the Registry of Toxic Effects of Chemical Substances available on-line from the National Institute for Occupational Safety and Health (NIOSH).

Primary Entry Routes: Inhalation

Target Organs: Respiratory system

Potential Health Effects:

- **Inhalation:** Product is an anesthetic at high concentrations. Inhalation may cause central nervous system depression producing dizziness, drowsiness, headache, and similar narcotic symptoms. Extremely high concentrations can cause asphyxiation and death by displacing oxygen from the breathing atmosphere.
- **Eyes:** Vapor is generally non-irritating to the eyes. Contact with liquefied gas or rapidly expanding gases may cause freeze burns and frostbite.
- **Skin:** Vapor is generally non-irritating to the skin. Contact with liquefied gas or rapidly expanding gases may cause freeze burns and frostbite.
- **Ingestion:** Ingestion is not likely.

Medical Conditions Aggravated by Exposure: Chronic diseases or disorders of the respiratory system.

Carcinogenic Effects: Propane is not identified as being carcinogenic by the International Agency for Research on Cancer (IARC), The National Toxicology Program (NTP), ACGIH or OSHA.

Section 12: Ecological Information

Propane is expected to be inherently biodegradable. Propane is readily degraded by microorganisms and is therefore not expected to bioaccumulate or bioconcentrate in organisms and food chains. Propane emissions would



MATERIAL SAFETY DATA SHEET

have practically no adverse effects on plant growth. Not expected to cause serious soil or groundwater contamination due to rapid evaporation.

Section 13: Disposal Considerations

Use the container until empty. Empty containers have residual vapor that is flammable and explosive. Waste disposal must be in accordance with appropriate federal, state and local regulations.

Section 14: Transport Information

Shipping Name: Liquefied Petroleum Gas
Hazard Class: 2.1 (Flammable Gas)
ID Number: UN 1075
IMO Shipping Name: Propane
IMO Identification Number: UN 1978
Packing Group: Not Applicable
Marking: Propane, UN 1075
Label: Flammable Gas
Placard: Flammable Gas / UN1075
Hazardous Substance/RQ: Not Applicable
Shipping Description: Propane, 2.1 (Flammable Gas), UN 1075
Packaging References: 49 CFR 173.304, 173.306, 173.314 and 173.315

Section 15: Regulatory Information

Users of this product are responsible for their own regulatory compliance on a federal, state (provincial

US Federal Regulations:

- OSHA Hazardous Communication (29 CFR Part 1910.1200): This product is hazardous as defined in OSHA's Hazard Communication standard.
- OSHA Process Safety Management (29 CFR Part 1910.119): This product may be subject to OSHA's Process Safety Management of Highly Hazardous Chemicals standard.
- CERCLA Reportable Quantities (40 CFR Part 302.4): This product is not reportable under 40 CFR Part 302.4.
- Extremely Hazardous Substances (40 CFR Part 355): This product is not regulated under 40 CFR Part 355.
- SARA 311/312 Hazard Class (40 CFR Part 370): The following hazard categories apply to this product:
 - Acute Health Hazard
 - Fire Hazard
 - Sudden Release of Pressure
- SARA 313 (40 CFR Part 372): This product may contain up to 5.0% propylene (CAS 115-07-1) which is reportable under 40 CFR Part 372.
- TSCA Inventory Status: Propane is listed on the TSCA Inventory.
- Chemical Accident Prevention Provisions (40 CFR Part 68): Propane is subject to the reporting requirements of 40 CFR Part 68.

State Regulations:

- California Proposition 65: This product is not listed.



MATERIAL SAFETY DATA SHEET

- Several states have specific regulations related to hazardous materials. Consult local officials for additional state requirements.

Other Regulations:

- Canada DSL/NDSL Inventory: Propane is listed on the Domestic Substances List.

Section 16: Other Information

Hazard Ratings:

NFPA:	H-1, F-4, R-0
HMIS®:	H-1, F-4, PH-0
WHIMS:	A, B1

The HMIS ratings displayed on this MSDS are from the HMIS Third Edition. There have been significant changes made to the system. "PH" stands for "Physical Hazard" as defined in the OSHA Hazardous Communication Standard and replaces the former code "R" for "Reactivity."

Disclaimer: All information in this Material Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.