



Westlake Group

MATERIAL SAFETY DATA SHEET

ISSUED: 10/23/97

PROPYLENE

REVISED: 11/01/99

SECTION I - PRODUCT IDENTIFICATION

Westlake CA&O
2468 Industrial Parkway
P O Box 527
Calvert City, KY 42029

Telephone No.: (270) 395-4151
Transportation Emergency No.:
CHEMTREC: (800) 424-9300
Medical Emergency No.:
POISON CENTER: (216) 379-8562

Chemical Family: Olefin

Chemical Name/Synonyms: Propene, Methylethylene

Trade Mark: None

Formula: CH₂CHCH₃

C.A.S. Registry No.: 115-07-1

TSCA Inventory Status: All ingredients are listed on the USEPA's TSCA inventory

Canadian Domestic Substances List Status: All ingredients have been nominated or are eligible for inclusion

Workplace Hazardous Materials Information System (WHMIS) Classification: B2, D2B

Product Use: Chemical Manufacture

SARA 313 Information: This product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

SECTION II - HAZARDOUS INGREDIENTS

Hazard Summary Statement: CAUTION! Material is an asphyxiant. Insure the product does not displace ambient air for work area. WARNING! FLAMMABLE GAS.

<u>Material</u>	<u>C.A.S. Number</u>	<u>Amount in Product</u>	<u>ACGIH TLV-TWA</u>	<u>OSHA PEL-TWA</u>
Propane ^{2,4,6}	74-98-6	< 3%	Simple Asphyxiant	1,000 ppm
Propylene ^{1,2,4,6}	115-07-1	< 97%	Simple Asphyxiant	N.E.

N.A. - Not Applicable

N.E. - Not Established

Legislative Footnotes

- ¹ Ingredient listed on SARA Section 313 List of Toxic Chemicals.
- ² Ingredient listed on the *Pennsylvania Hazardous Substances List*.
- ³ Ingredient listed on the California listing of *Chemicals Known to the State to Cause Cancer or Reproductive Toxicity*.
- ⁴ Ingredient listed on the *Massachusetts Substance List*.
- ⁵ *Workplace Hazardous Materials Information System* ingredient found on the Ingredient Disclosure List - Canada.
- ⁶ Ingredient listed on the *New Jersey Right to Know Hazardous Substance List*.

Notes:

TLV-TWA - Threshold Limit Value - Time Weighted Average guideline for concentration of the chemical substance in the ambient workplace air. American Conference of Governmental Industrial Hygienists (ACGIH).

OSHA PEL - OSHA Permissible Exposure Limit, 8-hour TWA. 29 CFR 1910.1000, Transitional Limits column, Table Z-1-A, Table Z-2 and Table Z-3.

SECTION III - PHYSICAL DATA

Appearance: Colorless Gas
(Liquid under pressure)

Odor: Mild Olefin

Percent Volatiles: 100%

Solubility in Water: Slight

Physical State: Gas

(Liquid under pressure)

Density: 4.34 #/gal liquid @ 15.6°C (60°F)

pH: N.A.

Melting Point: -185°C (-300°F)

Vapor Pressure: 10 atm @ 20°C (68°F)

Vapor Density: 1.4 (air=1)

Molecular Weight: 42.08

SECTION IV - FIRE & EXPLOSION HAZARD DATA

Flash Point: -108°C (-162°F)

Lower Explosive Limit (LEL): 2.0%

Upper Explosive Limit (UEL): 11.1%

Self-Ignition Temperature: 480°C (896°F)

Notes:

Flash Point - The lowest initial temperature of air passing around the specimen at which sufficient combustible gas is evolved to be ignited by a small external pilot flame.

Self-Ignition Temperature - The lowest initial temperature of air passing around the specimen at which, in absence of an ignition source, ignition occurs of itself, as indicated by an explosion, flame or sustained glow.

Extinguishing Media: Use ABC dry chemical and halons.

Special Firefighting Procedures: Firefighters should wear a self-contained breathing apparatus (SCBA) under positive pressure and full protective gear to prevent all body contact.

Stopping the flow of gas rather than extinguishing the fire is usually the best procedure to follow when escaping gas is burning. It may be dangerous to extinguish the flame and allow the gas to continue to flow as an explosive mixture may be formed with air which, if ignited, may cause far greater damage than if the original fire had been permitted to burn. Extinguishing the flame by dry chemical may be desirable where necessary to permit immediate access to shut off the supply.

Unusual Fire and Explosion Hazards: Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by flame, sparks, heaters or other ignition sources at distant locations. Vapors may explode if ignited in a closed area. Containers may explode in a fire.

SECTION V - REACTIVITY

Stability: Stable

Hazardous Polymerization: Will not occur.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide and small amounts of aromatic and aliphatic hydrocarbons.

Incompatibility (Materials to Avoid): Reacts vigorously with oxidizing agents. With nitrogen dioxide, extremely unstable nitrogen compounds are formed.

SECTION VI - HEALTH HAZARD DATA

Threshold Limit Value: Simple Asphyxiant.

Permissible Exposure Limit: None Established.

Primary Routes of Exposure: Inhalation.

Effects of Overexposure: Causes asphyxiation through displacement of atmospheric oxygen. Contact with liquid propylene can cause freezing effect on contacted tissue (frostbite).

Hazardous ingredient specific medical data (if ingredient found in "pure" form):

Propylene is primarily a simple asphyxiant without other significant physiological effects. The limiting factor is the available oxygen. Minimal oxygen content should be maintained at 19.5% by volume under normal atmospheric pressure. Atmospheres deficient in oxygen do not provide adequate warning. Lack of oxygen can cause dizziness, deep breathing (shortness of breath), possible nausea, unconsciousness or death. Although propylene was not carcinogenic in lifetime studies with rats and mice, animal studies indicate that propylene is metabolized to propylene oxide, an animal carcinogen. IARC classifies propylene in Group 3, not classifiable as to its carcinogenicity to humans. When compressed to liquid form, propylene can cause skin burns from freezing effects on tissue by rapid evaporation.

Propane is also a simple asphyxiant. See the above information on minimum oxygen and effects resulting from oxygen deficits.

Emergency and First Aid Procedures:

Inhalation: Remove affected individual to fresh air while insuring the rescuers utilize appropriate protective equipment. If breathing is difficult, administer oxygen. If breathing has ceased, administer artificial respiration. If no pulse is found administer cardiopulmonary resuscitation immediately. Obtain medical attention immediately.

Eye Contact: Immediately flush eyes with lukewarm water for at least 15 minutes while lifting upper and lower eyelids. Continue to flush the eyes if there is any indication of residual chemical. Seek medical attention immediately.

Skin Contact: For exposure to liquid, warm frostbite area gently with room temperature water. Seek medical attention.

SECTION VII - SPILL & LEAK PROCEDURE

Steps to be taken in case material is released or spilled: Issue warning: Extreme fire and explosion danger. Eliminate all ignition sources. Shut off leak if safe to do so. Wear NIOSH/MSHA approved self-contained breathing apparatus (SCBA) to avoid an oxygen depleted atmosphere. All unnecessary personnel and persons without suitable respiratory protection must be escorted from the spill or release area. Do not flush chemical into a sewer or water system. Isolate the hazard area (be prepared to evacuate unnecessary people at least 2,000 feet if there is danger of exploding containers. Ventilate enclosed area. Use explosion-proof fans to increase ventilation and to keep gas concentrations below explosive limits.

Notify the Coast Guard and pollution authorities if the spill will enter navigable waters.

Waste disposal method: HAZARDOUS WASTE (EPA Hazardous Waste Number: D001 (Flammable Liquid)). Incinerate under controlled conditions.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Use under well-ventilated conditions. Exhaust ventilation should be used at any operation capable of releasing vapors. Maintain oxygen level above 19.5%. Confined

spaces where an oxygen deficient atmosphere may exist should be checked for oxygen content before entry.

Respiratory Protection: Wear a NIOSH/MSHA-approved airline or air-supplied respirator when oxygen levels drop below 19.5%. Use in accordance with manufacturer's use limitations and OSHA Standard 1910.134 (29 CFR).

Eye Protection: Chemical goggles with face shield.

Protective Equipment: Wear protective gloves and clothing as needed to prevent contact with liquefied propylene.

SECTION IX - SPECIAL PRECAUTIONS

Material Handling: Do not breathe vapors. Use under well-ventilated conditions. Utilize good personal hygiene practices, e.g. thoroughly washing after handling the product. Keep product away from heat, sparks, and open flames. Avoid skin, eye and clothing contact.

Storage: Keep container closed when not in use. Do not reuse container for any purpose until commercially cleaned. Do not store in open, unlabeled or mislabeled containers. All wiring and electrical equipment should be Class 1, Group D. Outdoor or separate storage is preferred.

SECTION X - HAZARD CODES

NFPA 704 (1997)

(National Fire Protection Association)

Health: 1
Flammability: 4
Reactivity: 1
Special:

HMIS

(Hazardous Materials Identification System)

Health: 1
Flammability: 4
Reactivity: 1
Personal Protection: X*

Key:

0 = Insignificant
1 = Slight
2 = Moderate
3 = High
4 = Extreme

* See MSDS for specific requirements

User's Responsibility

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of the user's operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained within this bulletin should be provided to the user's employees or customers. Westlake CA&O Corporation must rely upon the user to utilize this information to develop appropriate work practice guidelines and employee instructional programs for his or her operation.

Disclaimer of Liability

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaims any liability for any use of this material. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding the accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state and local laws and regulations remains the responsibility of the user.

SHIPPING INFORMATION

IDENTIFICATION - DOMESTIC TRANSPORTATION

Proper Shipping Name (172.101(c)): Propylene
(Technical Name(s)) 172.203(k): N/A
Hazard Class 172.101(d): 2.1
UN/NA# 172.101(e): UN 1077
Haz. Substance 171.8: N/A
Inhalation Hazard 172.2a(b): N/A
Package Code 172.101(f): N/A

Reportable Quantity: N/A

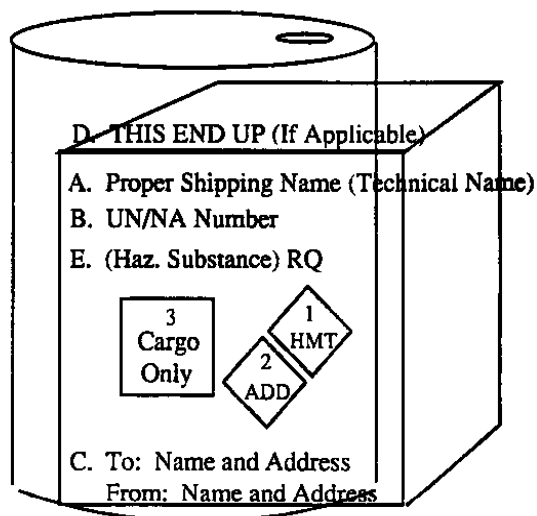
Placarded: FLAMMABLE GAS

PACKAGING (Part 173)

Packaging Section (172.101(i)) - Col. 8(A): 173.306, Col. 8(B): 173.304, Col. 8(C): 173.314, 173.315
General Packaging Section - General 173.24
Hazard Class: FLAMMABLE GAS

MARKING

- A. Proper Shipping Name 172.301(a):
(Technical Names(s)) 172.301(b):
- B. UN/NA Number 172.301(a):
- C. Name and Address 172.301(d):
- D. THIS END UP 172.312(a):
- E. Haz. Substance RQ (Name) 172.324:
- * ORM Designation 172.316(a):
- * Inhalation Hazard 172.313(a):



DOMESTIC LABELING

- 1. HMT Labels 172.400:
- 2. Additional Subsidiary Hazard 172.402(a):

IATA 1997 Edition

Proper Shipping Name (Col. B): Propylene
Class/Division (Col. C): 2.1
UN/ID# (Col. A): UN 1077
U.S. Haz. Substance (US 1): N/A
Carrier Special Provisions (Col. K): A1

Subsidiary Risk (Col. D): N/A

Other Inhalation Haz. (US 34): N/A

PACKAGING

- ◆ Max. Qty. Per Pkg. (Cols. H/J) - Passenger: Forbidden Cargo: 150 Kg
- ◆ Packaging Instructions (Cols. G/I) - Passenger: Forbidden Cargo: 200