



SAFETY DATA SHEET

1. Identification

Product identifier Propylene, Chemical Grade
Other means of identification
SDS number 310-GHS
Synonyms Chemical Grade Propylene, Propene, Methylethene, Methyl Ethylene, 1-Propene
Recommended use Organic synthesis. Household and industrial fuel.
Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Valero Marketing & Supply Company and Affiliates
One Valero Way
San Antonio, TX 78269-6000
General Assistance 210-345-4593
E-Mail CorpHSE@valero.com
Contact Person Industrial Hygienist
Emergency Telephone 24 Hour Emergency 866-565-5220
1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards Flammable gases Category 1
Gases under pressure Liquefied gas

Health hazards Not classified.

OSHA defined hazards Simple asphyxiant

Label elements



Signal word Danger

Hazard statement Extremely flammable gas. Contains gas under pressure; may explode if heated.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage Protect from sunlight. Store in a well-ventilated place.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

3. Composition/information on ingredients

Mixtures

| Chemical name | CAS number | % |
|---------------|------------|----------|
| Propylene | 115-07-1 | 92 - 100 |
| Propane | 74-98-6 | 0 - 10 |
| Ethane | 74-84-0 | 0 - 1 |
| Ethylene | 74-85-1 | 0 - 1 |

4. First-aid measures

| | |
|---|---|
| Inhalation | Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center immediately. |
| Skin contact | Wash frost-bitten areas with plenty of water. Do not remove clothing. Get medical attention immediately. |
| Eye contact | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately. |
| Ingestion | Ingestion is not a typical route of exposure for gases or liquefied gases. |
| Most important symptoms/effects, acute and delayed | Narcosis. Behavioral changes. Decrease in motor functions. Contact with liquefied gas may cause frostbite. |
| Indication of immediate medical attention and special treatment needed | Treat symptomatically. |

5. Fire-fighting measures

| | |
|--|---|
| Suitable extinguishing media | Dry chemical, CO ₂ , water spray, fog, or foam. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | During fire, gases hazardous to health may be formed. |
| Special protective equipment and precautions for firefighters | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| Fire-fighting equipment/instructions | Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire. Move container from fire area if it can be done without risk. Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply. |

6. Accidental release measures

| | |
|--|--|
| Personal precautions, protective equipment and emergency procedures | Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. Keep unnecessary personnel away. Ensure adequate ventilation. In case of inadequate ventilation, use respiratory protection. Wear appropriate personal protective equipment (See Section 8). |
| Methods and materials for containment and cleaning up | Ventilate well, stop flow of gas or liquid if possible. Immediately contact emergency personnel. |
| Environmental precautions | Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent from entering into soil, ditches, sanitary sewers, waterways and/or groundwater. |

7. Handling and storage

| | |
|---|--|
| Precautions for safe handling | Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear appropriate personal protective equipment (See Section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Do not breathe gas. Do not get in eyes, on skin, on clothing. Use only with adequate ventilation. |
| Conditions for safe storage, including any incompatibilities | Store in accordance with local, regional, national, and international regulations. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a cool, dry, well-ventilated place. Keep container tightly closed and sealed until ready for use. Protect cylinders from damage. |

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value |
|-----------------------|------|------------------------------------|
| Propane (CAS 74-98-6) | PEL | 1800 mg/m ³ 1000 ppm |

US. ACGIH Threshold Limit Values

| Components | Type | Value |
|--------------------------|------|---------|
| Propylene (CAS 115-07-1) | TWA | 500 ppm |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value |
|-----------------------|------|------------------------------------|
| Propane (CAS 74-98-6) | TWA | 1800 mg/m ³ 1000 ppm |

| | |
|--|--|
| Biological limit values | No biological exposure limits noted for the ingredient(s). |
| Appropriate engineering controls | Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. The engineering controls also need to keep gas, vapor, or dust concentrations below any lower explosive limits. |
| Individual protection measures, such as personal protective equipment | |
| Eye/face protection | Wear approved safety glasses or goggles. |
| Skin protection | |
| Hand protection | Wear appropriate chemical resistant gloves. |
| Other | Wear protective clothing appropriate for the risk of exposure. |
| Respiratory protection | If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. |
| Thermal hazards | Wear appropriate thermal protective clothing, when necessary. |
| General hygiene considerations | Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices. |

9. Physical and chemical properties

| | |
|---|----------------------------------|
| Appearance | Colorless liquefied gas. |
| Physical state | Gas. |
| Form | Compressed liquefied gas. |
| Color | Colorless |
| Odor | Weak odor. Gassy. |
| Odor threshold | Not available. |
| pH | Not available. |
| Melting point/freezing point | -301 °F (-185 °C) |
| Initial boiling point and boiling range | -53.86 °F (-47.7 °C) |
| Flash point | -162.7 °F (-108.2 °C) Closed Cup |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not available. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower (%) | 2 % |
| Flammability limit - upper (%) | 11.1 % |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | Not available. |

Propylene, Chemical Grade

914480 Version #: 02 Revision date: 28-May-2014 Print date: 28-May-2014

Prepared by 3E Company

| | |
|--|---|
| Vapor density | 1.4 |
| Relative density | 0.61 |
| Solubility(ies) | |
| Solubility (water) | Insoluble in the cold water. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | 850.73 - 859.73 °F (454.85 - 459.85 °C) |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Other information | |
| Percent volatile | Essentially 100% |
| VOC (Weight %) | 100 % |

10. Stability and reactivity

| | |
|---|--|
| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Stable under normal temperature conditions and recommended use. |
| Possibility of hazardous reactions | Polymerization will not occur. |
| Conditions to avoid | In a fire or if heated, a pressure increase will occur and the container may burst or explode. |
| Incompatible materials | Oxidizing agents. Reducing agents. Acids. Alkalis. |
| Hazardous decomposition products | No hazardous decomposition products are known. |

11. Toxicological information

Information on likely routes of exposure

| | |
|---------------------|---|
| Ingestion | Not likely, due to the form of the product. |
| Inhalation | Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. |
| Skin contact | Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. |
| Eye contact | Contact with liquefied gas may cause frostbite. |

Symptoms related to the physical, chemical and toxicological characteristics Narcosis. Behavioral changes. Decrease in motor functions.

Information on toxicological effects

Acute toxicity Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn").

| Components | Species | Test Results |
|--|--|-------------------------|
| Propane (CAS 74-98-6) | | |
| Acute | | |
| <i>Inhalation</i> | | |
| LC50 | Rat | > 1442 mg/l, 15 Minutes |
| Propylene (CAS 115-07-1) | | |
| Acute | | |
| <i>Inhalation</i> | | |
| LC50 | Mouse | 680 mg/l, 2 Hours |
| | Rat | 658 mg/l, 4 Hours |
| Skin corrosion/irritation | Contact with liquefied gas might cause frostbites, in some cases with tissue damage. | |
| Serious eye damage/eye irritation | Direct contact with liquefied gas may cause eye damage from frostbite. | |
| Respiratory or skin sensitization | | |
| Respiratory sensitization | Based on available data, the classification criteria are not met. | |

Propylene, Chemical Grade

914480 Version #: 02 Revision date: 28-May-2014 Print date: 28-May-2014

Prepared by 3E Company

| | |
|-------------------------------|---|
| Skin sensitization | Not a skin sensitizer. |
| Germ cell mutagenicity | Based on available data, the classification criteria are not met. |
| Carcinogenicity | |

IARC Monographs. Overall Evaluation of Carcinogenicity

Propylene (CAS 115-07-1) 3 Not classifiable as to carcinogenicity to humans.

| | |
|---|---|
| Reproductive toxicity | Based on available data, the classification criteria are not met. |
| Specific target organ toxicity - single exposure | Based on available data, the classification criteria are not met. |
| Specific target organ toxicity - repeated exposure | Based on available data, the classification criteria are not met. |
| Aspiration hazard | Not applicable. |
| Chronic effects | May cause central nervous system effects. |

12. Ecological information

| | |
|--------------------------------------|--|
| Ecotoxicity | Not expected to be harmful to aquatic organisms. |
| Persistence and degradability | Not available. |
| Bioaccumulative potential | Not available. |

Partition coefficient n-octanol / water (log Kow)

| | |
|--------------------------|------|
| Propane (CAS 74-98-6) | 2.36 |
| Propylene (CAS 115-07-1) | 1.77 |

| | |
|------------------------------|----------------|
| Mobility in soil | Not available. |
| Other adverse effects | Not available. |

13. Disposal considerations

| | |
|--|--|
| Disposal instructions | Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. |
| Local disposal regulations | Dispose of in accordance with local regulations. |
| Hazardous waste code | D001: Waste Flammable material with a flash point <140 °F |
| Waste from residues / unused products | Dispose of in accordance with local regulations. |
| Contaminated packaging | Since emptied containers may retain product residue, follow label warnings even after container is emptied. |

14. Transport information

DOT

| | |
|-------------------------------------|---|
| UN number | UN1075 |
| UN proper shipping name | Petroleum gases, liquefied |
| Transport hazard class(es) | |
| Class | 2.1 |
| Subsidiary risk | - |
| Packing group | Not applicable. |
| Special precautions for user | Read safety instructions, SDS and emergency procedures before handling. |
| Special provisions | T50 |
| Packaging exceptions | 306 |
| Packaging non bulk | 304 |
| Packaging bulk | 314, 315 |

IATA

| | |
|-------------------------------------|---|
| UN number | UN1075 |
| UN proper shipping name | Petroleum gases, liquefied |
| Transport hazard class(es) | |
| Class | 2.1 |
| Subsidiary risk | - |
| Label(s) | 2.1 |
| Packing group | Not applicable. |
| Environmental hazards | No. |
| ERG Code | 10L |
| Special precautions for user | Read safety instructions, SDS and emergency procedures before handling. |

IMDG

UN number UN1075
UN proper shipping name PETROLEUM GASES, LIQUEFIED
Transport hazard class(es)
Class 2.1
Subsidiary risk -
Label(s) 2.1
Packing group Not applicable.
Environmental hazards
Marine pollutant No.
EmS F-D*, S-U
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. This product is a compressed or liquefied gas and when transported in bulk is covered under IGC code.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
 All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

| | |
|--------------------------|--------|
| Propane (CAS 74-98-6) | LISTED |
| Propylene (CAS 115-07-1) | LISTED |

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
 Delayed Hazard - No
 Fire Hazard - No
 Pressure Hazard - No
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by wt. |
|---------------|------------|----------|
| Propylene | 115-07-1 | 92 - 100 |

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Propane (CAS 74-98-6)
 Propylene (CAS 115-07-1)

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

WARNING: Byproducts of the combustion of propane contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

California requires all "persons in the course of doing business" whose products are sold in California to comply with Proposition 65 (Cal. Health and Safety Code Sections 25249.6 et seq.). Accordingly, resellers of this product in California shall comply with Proposition 65, including the provision of any necessary warnings for exposure to chemicals listed by the State of California: http://oehha.ca.gov/prop65/prop65_list/files/P65single111811.pdf

US. Massachusetts RTK - Substance List

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. New Jersey Worker and Community Right-to-Know Act

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Rhode Island RTK

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

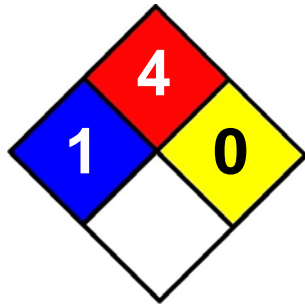
*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

| | |
|----------------------------|---|
| Issue date | 27-June-2013 |
| Revision date | 28-May-2014 |
| Version # | 02 |
| Further information | HMIS® is a registered trade and service mark of the NPCA. |

NFPA Ratings



References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use, the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.