

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Trade name	: Propylene Oxide
Chemical name	: propylene oxide, 1,2-epoxypropane, methyloxirane
CAS-No.	: 75-56-9
Product code	: 00236
Formula	: C3H6O
Synonyms	: Epoxypropane / 1,2-Epoxypropane / Methyloxirane / Oxirane, methyl- / Propane, 1,2-epoxy- / Propylene epoxide / 1,2-Propylene oxide / Oxirane, 2-methyl- / 2-Methyloxirane

1.2. Recommended use and restrictions on use

Recommended use	: Use as laboratory reagent, Manufacture of substances
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1.3. Supplier

Supplier

Polysciences
400 Valley Road
Warrington, PA 18976 - United States
T +1 215 343 6484 - F +1 215 343 0214
info@polysciences.com - www.polysciences.com

1.4. Emergency telephone number

Emergency number	: 24-hour emergency phone number ChemTel 1-800-255-3924
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids Category 2	Highly flammable liquid and vapor
Acute toxicity (oral) Category 4	Harmful if swallowed
Skin corrosion/irritation Category 2	Causes skin irritation
Serious eye damage/eye irritation Category 1	Causes serious eye damage

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US)



Signal word (GHS US)

: Danger

Hazard statements (GHS US)

: Highly flammable liquid and vapor
Harmful if swallowed
Causes skin irritation
Causes serious eye damage

Precautionary statements (GHS US)

: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Keep container tightly closed.
Ground/Bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

Propylene Oxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	GHS US classification
Propylene Oxide (Main constituent)	(CAS-No.) 75-56-9	≤ 100	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

- First-aid measures general : Call a physician immediately.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a physician immediately. Call a doctor.
- First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. If skin irritation occurs: Get medical advice/attention.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- First-aid measures after ingestion : Rinse mouth. Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

- Symptoms/effects after inhalation : May cause respiratory irritation.
- Symptoms/effects after skin contact : Irritation.
- Symptoms/effects after eye contact : Eye irritation.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Specific hazards arising from the chemical

- Fire hazard : Extremely flammable liquid and vapor.
- Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : No open flames, no sparks, and no smoking. Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapors/spray.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

Propylene Oxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapors/spray.
- Hygiene measures : Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Ground/bond container and receiving equipment.
- Storage conditions : Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up. Store at room temp.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Propylene Oxide (75-56-9)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Propylene oxide
ACGIH TWA (ppm)	2 ppm
Remark (ACGIH)	TLV® Basis: Eye & URT irr. Notations: DSEN; A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
ACGIH chemical category	dermal sensitizer, Confirmed Animal Carcinogen with Unknown Relevance to Humans
USA - OSHA - Occupational Exposure Limits	
Local name	Propylene oxide
OSHA PEL (TWA) (mg/m ³)	240 mg/m ³
OSHA PEL (TWA) (ppm)	100 ppm
USA - IDLH - Occupational Exposure Limits	
US IDLH (ppm)	400 ppm

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
- Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):

Propylene Oxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Colorless liquid.
Color	: Colorless
Odor	: No data available
Odor threshold	: 10 ppm (Hellman and Small) 24 mg/m ³ (Hellman and Small)
pH	: No data available
Melting point	: -112 °C
Freezing point	: No data available
Boiling point	: 34.23 °C
Flash point	: -37 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: 440.7 hPa (at 20 °C)
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Density	: 0.83 g/cm ³ (at 20 °C)
Solubility	: Water: 405 g/l (at 20 °C)
Partition coefficient n-octanol/water (Log Pow)	: 0.08
Auto-ignition temperature	: 449 °C (at 1013 hPa)
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Extremely flammable liquid and vapor.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Propylene Oxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Propylene Oxide (75-56-9)	
LD50 oral rat	520 mg/kg
LD50 dermal rabbit	1244 mg/kg
LC50 Inhalation - Rat	0.948 mg/l/4h
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Propylene Oxide (75-56-9)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicity Program (NTP) Status	Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes

Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
Viscosity, kinematic : No data available
Symptoms/effects after inhalation : May cause respiratory irritation.
Symptoms/effects after skin contact : Irritation.
Symptoms/effects after eye contact : Eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Propylene Oxide (75-56-9)	
LC50 fish 1	215 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 1	350 mg/l (Exposure time: 48 h - Species: Daphnia magna)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Propylene Oxide (75-56-9)	
Partition coefficient n-octanol/water (Log Pow)	0.08

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Propylene Oxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Additional information : Flammable vapors may accumulate in the container.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1280 Propylene oxide, 3, I
UN-No.(DOT) : UN1280
Proper Shipping Name (DOT) : Propylene oxide
Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Packing group (DOT) : I - Great Danger
Hazard labels (DOT) : 3 - Flammable liquid



DOT Packaging Non Bulk (49 CFR 173.xxx) : 201
DOT Packaging Bulk (49 CFR 173.xxx) : 243
DOT Special Provisions (49 CFR 172.102) : A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging.
N34 - Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.
T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
TP7 - The vapor space must be purged of air by nitrogen or other means.
DOT Packaging Exceptions (49 CFR 173.xxx) : None
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L
DOT Vessel Stowage Location : E - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"
Emergency Response Guide (ERG) Number : 127P
Other information : No supplementary information available.

Transportation of Dangerous Goods

Not applicable

Transport by sea

Transport document description (IMDG) : UN 1280 PROPYLENE OXIDE, 3, I (< -18°C c.c.)
UN-No. (IMDG) : 1280
Proper Shipping Name (IMDG) : PROPYLENE OXIDE
Class (IMDG) : 3 - Flammable liquids
Packing group (IMDG) : I - substances presenting high danger
Limited quantities (IMDG) : 0
MFAG-No : 127P

Propylene Oxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Air transport

Transport document description (IATA)	: UN 1280 Propylene oxide, 3, I
UN-No. (IATA)	: 1280
Proper Shipping Name (IATA)	: Propylene oxide
Class (IATA)	: 3 - Flammable Liquids
Packing group (IATA)	: I - High danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Propylene Oxide (75-56-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	100 lb
RQ (Reportable quantity, section 304 of EPA's List of Lists)	100 lb
Section 302 EPCRA Reportable Quantity (RQ)	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	10000 lb

15.2. International regulations

CANADA

Propylene Oxide (75-56-9)	
Listed on the Canadian DSL (Domestic Substances List)	
Toxic Substance (CEPA – Schedule I)	Yes

EU-Regulations

Propylene Oxide (75-56-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Propylene Oxide (75-56-9)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

Propylene Oxide

Safety Data Sheet

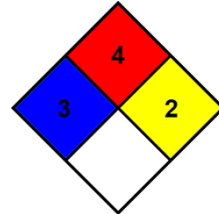
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Propylene Oxide (75-56-9)	
U.S. - California - Proposition 65 - Carcinogens List	Yes
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

- NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.
- NFPA fire hazard : 4 - Materials that rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and burn readily.
- NFPA reactivity : 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.



SDS US (GHS HazCom 2012)

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