

## SPI Supplies Division

Structure Probe, Inc.

206 Garfield Ave., West Chester, PA 19380-4512 USA

Phone: 1-(610)-436-5400 Fax: 1-(610)-436-5755

[sales@2spi.com](mailto:sales@2spi.com)

<http://www.2spi.com>

Manufacturer's CAGE: 1P573

## Safety Data Sheet

Date Effective: July 24, 2019

SPI Catalog #'s 02524-AA, 02524-AB, 02524-NA

SPI-Chem™ Propylene Oxide

### Section 1.1: Identification

Chemical Name/Synonyms ..... Propylene oxide; 1,2-Epoxypropane; Methyloxirane

Product or Trade Name ..... SPI-Chem™ Propylene Oxide

CAS #'s ..... 75-56-9

Chemical Formula..... CH<sub>3</sub>CHCH<sub>2</sub>O

### Section 1.2: Relevant Uses/Restrictions

Used as an extender and diluent for epoxy resin formulations.

### Section 1.3: Supplier of the Safety Data Sheet

**SPI Supplies Division**

**Structure Probe, Inc.**

206 Garfield Ave., West Chester, PA 19380-4512 USA

Phone: 1-(610)-436-5400 Fax: 1-(610)-436-5755

[sales@2spi.com](mailto:sales@2spi.com)

<http://www.2spi.com>

Manufacturer's CAGE: 1P573

### Section 1.4: Emergency telephone number

Emergencies

Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...

Worldwide phone: 1-(703)-741-5970

Toll-free phone: 1-(800)-424-9300 USA + Canada only

### Section 2: Hazard Identification

#### 2.1 Classification of the substance

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable Liquids (category 1)

Acute Oral Toxicity (category 4)

Acute Dermal toxicity (category 3)

Acute Inhalation Toxicity – vapors (category 3)

Serious Eye Damage/ Eye Irritation (category 2)

Germ Cell Mutagenicity (category 1B)  
Carcinogenicity (category 1B)  
Specific Target Organ Toxicity (single exposure) (category 3)  
Target Organs – Respiratory System

## 2.2 Label elements

### Pictogram



**Signal Word:** Danger

### Hazard statements:

H224 Extremely flammable liquid and vapor.  
H302 Harmful if swallowed.  
H311 Toxic in contact with skin.  
H319 Causes serious eye irritation.  
H331 Toxic if inhaled.  
H335 May cause respiratory irritation.  
H340 May cause genetic defects.  
H350 May cause cancer.

### Precautionary statements:

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P281 Use personal protective equipment as required.  
P264 Wash face, hands, and any exposed skin thoroughly after handling.  
P270 Do not eat, drink, or smoke when using this product.  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear eye/face protection.  
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. – No smoking.  
P233 Keep container tightly closed.  
P240 Ground/ bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P235 Keep cool.  
P308 + P313 If exposed or concerned: Get medical attention/ advice.  
P304 + P340 + P311 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.  
P312 Call a POISON CENTER or doctor/ physician if you feel unwell.  
P363 Wash contaminated clothing before reuse.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + PP313 If eye irritation persists: Get medical advice/ attention.  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.  
P370 + P378 In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction.  
P405 Store locked up.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P501 Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Other Hazards:

#### Hazards not otherwise classified (HNOC):

Hazardous polymerization may occur.  
WARNING: Cancer. CAS # 75-56—9 is known to the State of California to cause cancer.  
See <https://www.p65warnings.ca.gov/>.

#### Hazardous Material Information System USA

Health ..... 3  
Fire Hazard ..... 4  
Reactivity ..... 0  
Personal Protection .....

#### NFPA Rating (estimated)

Health ..... 3  
Flammability..... 4  
Reactivity ..... 2

## **Section 3: Composition**

### 3.1 Substances:

Component: Propylene oxide                      CAS # 75-56-9                      EC # 200-879-2                      >95%

## **Section 4: First Aid Measures**

### 4.1 Description of first aid measures:

#### General advice:

Show this safety data sheet to the doctor in attendance.  
Immediate medical attention is required.

#### Inhalation:

Move to fresh air.  
If not breathing, give artificial respiration.  
Do NOT use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.  
Immediate medical attention is required.

#### Skin Contact:

Wash off immediately with plenty of water for at least 15 minutes.  
Immediate medical attention is required.

#### Eye Contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**Ingestion:**

Do not induce vomiting.  
Call a physician or POISON CONTROL CENTER immediately.

**Self-protection of the first aider:**

Do not use mouth-to-mouth method of artificial respiration if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**4.2 Most important symptoms and effects, both acute and delayed:**

Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

**4.3 Indication of any immediate medical attention and special treatment needed:**

Notes to Physician: Treat symptomatically.

**Section 5: Fire Fighting Measures**

**5.1 Extinguishing media:**

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.  
Unsuitable extinguishing media: No information available.

**5.2 Special hazards arising from the substance or mixture:**

Flash Point: -37 °C (-34.6 °F) Method: No information available.  
Auto-ignition Temperature: 430 °C (806 °F)  
Explosion Limits:  
Upper 37 vol %  
Lower 2.3 vol %  
Sensitivity to Mechanical Impact: No information available.  
Sensitivity to Static Discharge: No information available.

Extremely flammable.  
Containers may explode when heated.  
Vapors may form explosive mixtures with air.  
Vapors may travel to source of ignition and flash back.

**5.3 Hazardous combustion products:**

Carbon monoxide (CO); Carbon dioxide (CO<sub>2</sub>)

**5.4 Advice for firefighters:**

**Special protective equipment and precautions for firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**Section 6: Accidental Release Measures**

**6.1 Personal precautions:**

Use personal protective equipment.  
Ensure adequate ventilation.  
Remove all sources of ignition.  
Take precautionary measures against static discharges.  
Keep people away from and upwind of spill/leak.  
Evacuate personnel to safe areas.

## 6.2 Environmental precautions:

Should not be released into the environment.

## 6.3 Methods and material for containment and cleaning up:

Soak up with inert absorbent material.  
Keep in suitable, closed containers for disposal.  
Remove all sources of ignition.  
Use spark-proof tools and explosion-proof equipment.

## 6.4 Reference to other sections:

See Section 8 for Personal Protection.  
See Section 13 for disposal information.

# Section 7: Handling and Storage

## 7.1 Precautions for safe handling:

### Protective measures:

Wear personal protective equipment.  
Do not get in eyes, on skin, or on clothing.  
Use only under a chemical fume hood.  
Do not breathe vapors or spray mist.  
Do not ingest.  
Keep away from open flames, hot surfaces and sources of ignition.  
Use explosion-proof equipment.  
Use only non-sparking tools.  
To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.  
Take precautionary measures against static discharges.

## 7.2 Conditions for safe storage, including any incompatibilities:

Keep containers tightly closed.  
Store in a dry, cool and well-ventilated place.  
Store in a Flammables area.  
Keep away from heat and sources if ignition.

## 7.3 Specific end uses:

Used as an extender and diluent for epoxy resin formulations.  
This material is not being offered for clinical or diagnostic applications, agricultural uses or for human or animal consumption.

# Section 8: Exposure Controls and Personal Protection

## 8.1 Control parameter and Personal Protection:

### Workplace exposure limits:

Component: Propylene oxide

ACGIH TLV:

TWA: 2 ppm

OSHA PEL:

(Vacated) TWA: 20 ppm

(Vacated) TWA: 50 mg/m<sup>3</sup>

TWA: 100 ppm

TWA: 240 mg/m<sup>3</sup>

NIOSH IDLH:

IDLH: 400 ppm

Mexico OEL (TWA):  
TWA: 2 ppm

**Biological limit values:** No relevant information available.

## 8.2 Exposure controls:

### 8.2.1 Appropriate engineering controls:

Use only under a chemical fume hood.  
Ensure that eyewash stations and safety showers are close to the workstation location.  
Use explosion-proof electrical/ventilating/lighting/equipment.  
Ensure adequate ventilation, especially in confined areas.

### 8.2.2 Individual protection measures:

Eye/Face Protection: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN 166.

Skin and Body Protection: Long sleeved clothing.

Respiratory Protection: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

**8.2.3 Environmental exposure controls:** No further relevant information available.

## **Section 9: Physical and Chemical Properties**

### 9.1 Information on basic physical and chemical properties:

**Appearance:** Colorless liquid

**Odor:** Aromatic

**Odor threshold:** No information available

**pH:** No information available

**Melting point/Freezing point:** -112 °C (-169.6 °F)

**Boiling point/Boiling point range:** 34 °C (93.2 °F)

**Flash Point:** -37 °C (-34.6 °F)

**Evaporation rate:** No information available

**Flammability (solid, gas):** Not applicable

**Upper/lower flammability or explosive limits:**

Upper: 37 vol%

Lower: 2.3 vol%

**Vapor Pressure:** 590 mbar @ 20 °C

**Vapor density:** 2.0

**Relative density:** 0.830

**Solubility:** Soluble in water

**Partition coefficient (n-octanol/water):** No data available

**Auto-ignition temperature:** 430 °C (806 F)

**Decomposition temperature:** No information available

**Viscosity:** 0.32 mPa s @ 20 °C

**Molecular Formula:** C<sub>36</sub>O

**Molecular Weight:** 58.08

**9.2 Other information:** No further relevant information available.

## **Section 10: Stability and Reactivity**

**10.1 Reactive Hazard:** Yes.

**10.2 Chemical Stability:** Stable under normal conditions.

**10.3 Possibility of Hazardous Reactions:**

None under normal processing.

**Hazardous Polymerization:** Hazardous polymerization may occur.

**10.4 Conditions to avoid:**

Incompatible products.

Excess heat.

Keep away from open flames, hot surfaces and sources of ignition.

**10.5 Incompatible materials:**

Strong oxidizing agents, Acids, Bases, Amines, Copper, Copper alloys, Peroxides.

**10.6 Hazardous decomposition products:**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

## **Section 11: Toxicological Information**

**Information on the likely routes of exposure:**

**11.1 Information on toxicological effects:**

**A. Acute toxicity:** Propylene oxide CAS # 75-56-9

LD50 Oral, rat 520 mg/kg

LD50 Dermal, rabbit 1244 mg/kg

LC50 Inhalation, rat 9.48 mg/L – 4h

**B. Skin corrosion/irritation:** No relevant information available.

**C. Serious eye damage/irritation:** Irritating to the eyes and the respiratory system.

**D. Respiratory or skin sensitization:** No information available.

**E. Germ cell mutagenicity:** May cause heritable genetic damage.

**F. Carcinogenicity:** Propylene oxide CAS # 75-56-9

IARC: Listed as Group 2B – Possibly Carcinogenic to Humans.

NTP: Listed as Reasonably Anticipated to be a Human Carcinogen.

ACGIH: Listed as A3 – Animal Carcinogen.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Mexico: Listed as A3 – Confirmed Animal Carcinogen.

**G. Reproductive toxicity:** No information available.

Developmental Effects: No information available.

Teratogenicity: No information available.

**H. STOT-single exposure:** Respiratory system.

**I.. STOT-repeated exposure:** None known.

**J. Aspiration hazard:** No information available.

**Symptoms / effects, both acute and delayed:** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea, and vomiting.

**Endocrine Disruptor Information:** No information available.

**Other Adverse Effects:** The toxicological properties have not been fully investigated.

## **Section 12: Ecological Information**

<b>12.1 Ecotoxicity:</b> Propylene oxide	CAS # 75-56-9
EC50: 240 mg/L, 96h	Freshwater Algae ( <i>Pseudokirchneriella subcapitata</i> )
LC5: 215 mg/L, 96 h static	Freshwater fish ( <i>Lepomis macrochirus</i> )
EC50: 3300 mg/L, 160 min	Microtox
EC50: 350 mg/L, 48h	Water Flea ( <i>Daphnia magna</i> )

**12.2 Persistence and degradability:** Persistence is unlikely based on information available.

**12.3 Bio-accumulative potential:** No information available.

**12.4 Mobility in soil:** log Pow: 0.08 Will likely be mobile in the environment due to its volatility.

**12.5 Results of PBT and vPvB assessment:** No information available.

**12.6 Other adverse effects:** No further relevant information available.

## **Section 13: Disposal Considerations**

### **13.1 Waste treatment methods:**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## **Section 14: Transport Information**

### **DOT:**

UN No.	UN 1280
Proper Shipping Name	Propylene oxide
Hazard Class	3
Packing Group	1

### **IATA:**

UN No.	UN 1280
Proper Shipping Name	PROPYLENE OXIDE
Hazard Class	3
Packing Group	1

### **IMDG:**

UN No.	UN 1280
Proper Shipping Name	PROPYLENE OXIDE
Hazard Class	3
Packing Group	1

Special precautions: Flammable liquids

## **Section 15: Regulatory Information**

### **15.1 Safety, health and environmental regulations/ legislation specific for the substance or mixture:**

#### **U.S. Government Regulations:**

**RTECS:** TZ2975000

**TSCA:** CAS # 75-56-9 (Propylene oxide) is on the TSCA Active Inventory list.

**TSCA 12(b)** – Notices of Export: Not applicable.

**SARA 302** (Extremely Hazardous Substances): CAS # 75-56-9 is listed.

**SARA 311/312 Hazard Categories:** CAS # 75-56-9  
Fire Hazard, Acute Health Hazard, Chronic Health Hazard.

**SARA 313:** CAS # 75-56-9: Threshold Values %: 0.1.

#### **CWA (Clean Water Act):**

Hazardous Substance: Propylene oxide  
Reportable Quantity: 100 lb.

#### **Clean Air Act:**

Component: Propylene oxide – HAPS Data

#### **CERCLA:**

This material, as supplied, contains one or more substance regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).  
Propylene oxide: Hazardous Substance RQ: 100 lb. CERCLA EHS RQ: 100 lb.

#### **California Proposition 65:**

Propylene oxide CAS # 75-56-9 Carcinogen

#### **State Right-To-Know-Lists:**

Propylene oxide is listed on the Massachusetts, New Jersey, Pennsylvania, Illinois, and Rhode Island Right-To-Know Lists.

#### **International Inventories:** CAS # 75-56-9

DSL (Canada): Listed  
EINECS (Europe): 200-879-2  
PICCS (Philippines): Listed  
ENCS (Japan): Listed  
AICS (Australia): Listed  
IECSC (China): Listed  
KECL (Korea): KE-24565

#### **Other International Regulations:**

**Mexico – Grade:** Severe risk, Grade 4

\*\*\*\*\*  
**U.S. Department of Homeland Security:**

This product contains the following DHS chemicals:

**Legend** – STQs = Screening Threshold Quantities; APA = A placarded amount  
Propylene oxide: Release STQS = 10,000 lb.

## **15.2 Chemical Safety Assessment:** A Chemical Safety Assessment has not been carried out.

Date of Preparation: 24 July 2019

### **Abbreviations and acronyms**

IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
CMRG: Chemical Manufacturer's Recommended Guidelines  
IATA: International Air Transport Association  
ACGIH: American Conference of Governmental Industrial Hygienists  
AIHA: American Industrial Hygiene Association  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
NFPA: National Fire Protection Association (USA)  
HMIS: Hazardous Materials Identification System (USA)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bio-accumulative and Toxicological  
vPvB: very Persistent and very Bio-accumulative  
NIOSH: National Institute for Occupational Safety  
OSHA: Occupational Safety Health  
ATE: Acute Toxicity Estimates  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
STEL: Short Term Exposure Limit  
CEIL: Ceiling  
TSCA: Toxic Substances Control Act (USA)  
DSL: Domestic Substances List (Canada)  
PICCS: Philippine Inventory of Chemicals and Chemical Substances  
ENCS: Existing and New Chemical Substances (Japan)  
AICS: Australian Inventory of Chemical Substances  
IECSC: Inventory of Existing Chemical Substances in China  
KECL: Korea Existing Chemicals List

## **Section 16: Other Information**

### **Disclaimer of Liability:**

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

The information and recommendations set forth above are taken from sources believed to be accurate as of the date hereof, however SPI Supplies and Structure Probe, Inc. make no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assume no liability to any user thereof. The information contained in this sheet does not constitute a hazard assessment and should not be used in place of

the user's own assessment of work place risks as required by other health and safety legislation. Be aware of the Structure Probe, Inc. Copyright Policy. Structure Probe, Inc. grants a nonexclusive license to make unlimited copies of this safety sheet for internal use only. Quite obviously, this information would pertain only to this material when purchased from SPI Supplies as product from other sources, with other ingredients and impurity levels could have substantially different properties.