

## SPI Supplies Division

Structure Probe, Inc.

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Manufacturer's CAGE: 1P573

## Safety Data Sheet

Date Effective: May 16, 2016

02524-AA, 02524-AB, 02524-NA  
SPI-Chem™ Propylene Oxide

### Section 1.1: Identification

Chemical Name/Synonyms..... Propylene Oxide

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

Identified use: Scientific research and development.

Intended use: Extender and diluent for epoxy resin formulations.

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

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### 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 liquid (category 1)

Mutagen (category 1B)

Carcinogen (category 1B)

Acute toxicity (category 4)[ ingested, skin, inhaled]

Skin irritant (category 2)

Eye irritant (category 2)

Specific Target Organ Toxicity, single exposure (category 3)

## 2.2 Label elements

### Pictogram



Signal Word: Danger

### Hazard statements:

- H224 Extremely flammable liquid and vapor
- H302 + H312 + H332 Harmful if swallowed, in contact with skin, or inhaled
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation
- H340 May cause genetic defects
- H350 May cause cancer

### Precautionary statements:

- P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
- P405 Store locked up
- P501 Dispose of contents/container in accordance with local/ regional/ national/

## 2.3 Other Hazards:

### Results of PBT and vPvB assessment:

- PBT: not applicable
- vPvB: not applicable

### Hazardous Material Information System USA

- Health..... 2
- Fire Hazard..... 4
- Reactivity..... 1
- Personal Protection.....

### NFPA Rating (estimated)

- Health..... 3
- Flammability..... 4
- Reactivity..... 1

## **Section 3: Composition**

### 3.1 Substances:

Propylene oxide      CAS# 75-56-9    EC# 200-879-2      >99%

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

### 4.1 Description of first aid measures:

#### Inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
Seek immediate medical advice.

#### Skin Contact

Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.

#### Eye Contact

Rinse opened eye for several minutes under running water.  
Then consult a doctor.

#### Ingestion

Seek medical treatment.

#### Self-protection of the first aider

No further relevant information available.

### 4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available

### 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

## **Section 5: Fire Fighting Measures**

### 5.1 Extinguishing media

Suitable extinguishing media: Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

### 5.2 Special hazards arising from the substance or mixture

If this material is involved in a fire, carbon monoxide and carbon dioxide may be released.

Hazardous combustion products: carbon monoxide and carbon dioxide

### 5.3 Advice for firefighters

#### Special protective equipment and precautions for firefighters

Wear self-contained respirator.

Wear fully protective impervious suit.

## **Section 6: Accidental Release Measures**

### 6.1 Personal precautions

Wear protective equipment.

Keep unprotected persons away.

Ensure adequate ventilation.

Keep away from ignition sources.

### 6.2 Environmental precautions

Do not allow material to be released to the environment without proper governmental permits.

Do not allow product to reach sewage system or any water course.

Do not allow to penetrate the ground / soil.

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

Keep away from ignition sources.

Absorb with liquid-binding materials (sand, diatomite, acid binders, universal binders, sawdust).

Dispose of contaminated material as waste according to Section 13.

Endure adequate ventilation.

#### 6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

## **Section 7: Handling and Storage**

### 7.1 Precautions for safe handling

Keep container tightly sealed.

Ensure good ventilation at the workplace.

Open and handle container with care.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Keep ignition sources away.

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

Store in cool, dry place in tightly closed containers.

Keep away from heat and direct sunlight.

Do not store together with acids.

Store away from strong bases, oxidizing agents, and amines.

### 7.3 Specific end uses

No further relevant information available.

## **Section 8: Exposure Controls and Personal Protection**

### 8.1 Control parameter and Personal Protection

#### Workplace exposure limits

CAS# 75-56-9 Propylene oxide (>99%)

OSHA PEL (USA): Long-term value: 240 mg/m<sup>3</sup>, 100 ppm

ACGIH TWA: 2 ppm

NIOSH IDLH: 400 ppm

EL (Canada): Long-term value: 2 ppm

EV (Canada): Long-term value: 2 ppm

Mexico OEL TWA: 20 ppm, 50 mg/m<sup>3</sup>

#### Biological limit values

No further relevant information available.

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

#### 8.2.2 Individual protection measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Recommended filter device for short term use:** Use a respirator with organic vapor/ acid gas cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN(EU).

**Protection of hands:** Impervious gloves. Check protective gloves prior to each use for their proper condition. The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer. Material of gloves: Butyl rubber.

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

### 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: Ether-like

Odor threshold: Not determined

pH: Not determined

Melting point/Freezing point: -112 °C (-170 °F)

Boiling point/Boiling point range: 34-35 °C (93-95 °F)

Flash Point: -35 °C (-37 °F)

Evaporation rate: Not determined

Flammability (solid, gas): Not applicable

Upper/lower flammability or explosive limits

Lower: 1.9 Vol %

Upper: 15 Vol %

Vapor Pressure at 20 °C (68 °F): 590 hPa (443 mm Hg)

Vapor density: Not determined

Relative density: Not determined

Solubility in / Miscibility with water: 405 g/l at 20 °C (68 °F)

Partition coefficient (n-octanol/water): Not determined

Ignition temperature: 430 °C (806 °F)

Decomposition temperature: Not determined

Viscosity: Not determined

Explosive properties: Not explosive. However, formation of explosive air/vapor mixtures possible

Oxidizing Properties: No data available

9.2 Other information: No further relevant information available.

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

10.1 Reactivity: No information known.

10.2 Chemical Stability: Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions: Reacts with strong oxidizing agents.

10.4 Conditions to avoid: Decomposition will not occur if used and stored according to specifications.

10.5 Incompatible materials: Acids, Copper and copper alloys, Oxidizing agents, Bases, Amines.

10.6 Hazardous decomposition products: Carbon monoxide and carbon dioxide.

## **Section 11: Toxicological Information**

Information on the likely routes of exposure

Registry of Toxic Effects of Chemical Substances: RTECS# TZ2975000

### **LD/LC50 VALUES THAT ARE RELEVANT FOR CLASSIFICATION:**

Oral	LD50	rat	380 mg/kg
Dermal	LD50	rabbit	1245 mg/kg
Inhalation	LC50/4hr	rat	9.7 mg/l/4H

#### 11.1 Information on toxicological effects

##### a. acute toxicity

Harmful if inhaled.

Harmful in contact with skin.

Harmful if swallowed.

Danger through skin absorption

RTECS# TZ2975000 contains acute toxicity data for this substance.

##### b. skin corrosion/irritation

Causes skin irritation.

##### c. serious eye damage/irritation

Causes serious eye irritation.

##### d. respiratory of skin sensitization

No sensitizing effects known.

##### e. germ cell mutagenicity

May cause genetic defects.

RTECS# TZ2975000 contains reproductive data for this substance.

##### f. carcinogenicity

May cause cancer.

EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies.

IARC-2B: Possible carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

NTP-R: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

RTECS# TZ2975000 contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

##### g. reproductive toxicity

RTECS# TZ2975000 contains reproductive data for this substance.

- h. STOT-single exposure  
May cause respiratory irritation.
- i. STOT-repeated exposure  
No effects known.
- j. aspiration hazard  
No effects known.

**Additional information:**

**Subacute to chronic toxicity:** RTECS# TZ2975000 contains multiple dose toxicity data for this substance.

**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

**OSHA-Ca (Occupational Safety & Health Administration):** Substance is not listed.

## **Section 12: Ecological Information**

### 12.1 Toxicity

Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability: No further relevant information available.

12.3 Bioaccumulative potential: No further relevant information available.

12.4 Mobility in soil: No further relevant information available.

Additional ecological information:

General notes:

Do not allow material to be released to the environment without proper governmental permits.

Do not allow product to reach ground water, water course, or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Avoid transfer into the environment.

12.5 Results of PBT and vPvB assessment:

PBT: Not applicable

vPvB: Not applicable

12.6 Other adverse effects: No further relevant information available.

## **Section 13: Disposal Considerations**

### 13.1 Waste treatment methods

Recommendation: Consult state, local and national regulations to ensure proper disposal.

Uncleaned packagings: Disposal must be made according to official regulations.

## **Section 14: Transport Information**

14.1 UN number:

DOT  
UN1280

IATA  
UN1280

14.2 UN proper shipping name:

propylene oxide

PROPYLENE OXIDE

14.3 Transport hazard class:

3 Flammable liquids

3 Flammable liquids

14.4 Packing Group

I

I

14.5 Environmental hazards	Not applicable	Not applicable
14.6 Special precautions for user	Warning: Flammable liquids.	

## **Section 15: Regulatory Information**

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

**TSCA:** All components of this product are listed in the US EPA TSCA Chemicals Substance Inventory.

**SARA Section 313:** CAS# 75-56-9 Propylene oxide is listed.

**OSHA** specifically regulated substances

**OSHA-Ca (Occupational Safety & Health Administration):** Substance is not listed.

### **California Proposition 65**

**Prop 65 – Chemicals known to cause cancer:** CASE 75-56-9 Propylene oxide is listed.

**Prop 65 – Developmental toxicity –** Substance is not listed.

**Prop 65 – Developmental toxicity, female –** Substance is not listed.

**Prop 65 – Developmental toxicity, male –** Substance is not listed.

### **CANADA**

**DSL:** All components of this product are listed on the Canadian Domestic Substances Lis (DSL)>

### **EU regulations**

#### **REACH Regulations (EC) No. 1907/2006:**

This substance is included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH).

15.2 Chemical Safety Assessment

#### **INFORMATION ABOUT LIMITATIONS OF USE:**

**Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases. For use only by technically qualified individuals.**

Date of Preparation: May 16, 2016

#### Abbreviations and acronyms

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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, Bioaccumulative and Toxicological

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

STEL: Short Term Exposure Limit



## **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 or fluids.

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