

## 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: August 14, 2018

02629-AB, 02629-AF

SPI-Chem™ Polyethylene Glycol PEG 200

### Section 1.1: Identification

Chemical Name/Synonyms ..... Carbowax Polyethylene Glycol 200

Product or Trade Name ..... SPI-Chem™ Polyethylene Glycol PEG 200

CAS #'s ..... 25322-68-3; 111-46-6; 107-21-2

Chemical Formula..... mixture

### Section 1.2: Relevant Uses/Restrictions

Laboratory chemical used in embedding systems for light microscopy and electron microscopy.

### 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

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

**2.3 Other Hazards:** No data available.

**Hazardous Material Information System USA**

Health ..... 0  
Fire Hazard ..... 1  
Reactivity ..... 0  
Personal Protection .....

**NFPA Rating (estimated)**

Health ..... 0  
Flammability..... 1  
Reactivity ..... 0

**Section 3: Composition**

**3.1 Substances:** Carbowax Polyethylene Glycol 200

<b>Component</b>	<b>CAS #</b>	<b>EC #</b>	<b>Concentration</b>
Polyethylene glycol	25322-68-3	500-038-2	> 96.0 %
Diethylene glycol	111-46-6	203-372-2	< 4.0 %
Ethylene glycol	107-21-1	203-473-3	<= 1.0 %

**Section 4: First Aid Measures**

**4.1 Description of first aid measures:**

**General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

**Inhalation:**

Move person to fresh air; if effects occur, consult a physician.

**Skin Contact:**

Wash off with plenty of water.

**Eye Contact:**

Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion:**

If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

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

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

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

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 111: Toxicology Information.

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

Due to structural analogy and clinical data, this material may have a mechanism of intoxication similar to ethylene glycol. On that basis, treatment similar to ethylene glycol intoxication may be of benefit. In cases where several ounces (60-100 ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100-150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG, or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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

#### **5.1 Extinguishing media:**

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** Do not use direct water stream. May spread fire.

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

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

#### **5.3 Hazardous combustion products:**

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

#### **5.4 Advice for firefighters:**

##### **Fire Fighting Procedures:**

Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

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

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes fire-fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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

### **6.1 Personal precautions:**

Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

### **6.2 Environmental precautions:**

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

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

Contain spilled material if possible. Collect in suitable and properly labeled containers.

### **6.4 Reference to other sections:**

See Section 8 for Exposure Controls and Personal Protection.

See Section 12 for Ecological Information.

See Section 13 for Disposal Considerations.

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

### **7.1 Precautions for safe handling:**

**Protective measures:** See Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the auto-ignition temperatures possibly resulting in spontaneous combustion.

#### **Advice on general hygiene conditions:**

Wash promptly if skin becomes contaminated.

Take off contaminated clothing and wash before reuse.

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

Store in original container.

Use product promptly after opening.

Avoid prolonged exposure to heat and air.

Store in the following material(s): Stainless steel. Polypropylene. Polyethylene-lined container. Teflon.

Glass-lined container. Plasite 3066 lined container. Plasite 3070 lined container. 316 stainless steel.

#### **Storage stability:**

Shelf life: Use within 36 months.

### **7.3 Specific end uses:**

Laboratory chemical used in embedding systems for light microscopy and electron microscopy.

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:

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

<b>Component</b>	<b>Regulation</b>	<b>Type of Listing</b>	<b>Value/Notation</b>
Polyethylene glycol	US WEEL	TWA aerosol	10 mg/m <sup>3</sup>
Diethylene glycol	US WEEL	TWA	10 mg/m <sup>3</sup>
Ethylene glycol	Dow IHG	TWA	50 mg/m <sup>3</sup>
	Dow IHG	STEL	100 mg/m <sup>3</sup>
	ACGIH	STEL Aerosol only	10 mg/m <sup>3</sup>
	ACGIH	TWA Vapor and inhalable Aerosols	25 ppm
	ACGIH	STEL Vapor and inhalable Aerosols	50 ppm

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

## 8.2 Exposure controls:

### 8.2.1 Appropriate engineering controls:

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

### 8.2.2 Individual protection measures:

#### Eye/face protection:

Use safety glasses with side shields.

#### Skin protection:

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specification provided by the glove supplier.

**Other protection:** When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as face-shield, boots, apron, or full-body suit will depend on the task.

#### Respiratory protection:

Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

### 8.2.3 Environmental exposure controls:

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.  
See Section 12, Ecological Information.

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

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

**Appearance:** Colorless liquid

**Odor:** Mild

**Odor threshold:** No test available

**pH:** 4.5-7.0 ASTM E70 (5% aqueous solution)

**Melting point/Freezing point:** Not applicable to liquids

**Boiling point/Boiling point range (760 mm Hg):** > 200 °C (> 392 °F) Calculated. Decomposes

**Flash Point:** 185 °C (365 °F) Closed cup. ASTM D 93

**Evaporation rate:** No test data available

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

**Upper/lower flammability or explosive limits:** No test data available

**Vapor Pressure:** <0.01 mm Hg at 20 °C (68 °F) ASTM E1719

**Relative Vapor Density (air=1):** 7 Calculated

**Relative density (water = 1):** 1.127 at 20 °C (68 °F) Calculated

**Solubility, water:** 100 % at 20 °C (38 °F) Measured

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

**Auto-ignition temperature:** No test data available

**Decomposition temperature:** No test data available

**Kinetic Viscosity:** 4.1 – 4.8 cSt at 98.9 °C (210.0 °F) ASTM D 445

**Explosive properties:** No data available

**Oxidizing Properties:** No data available

**Liquid Density:** 9.379 lb/gln at 20°C (38 °F) ASTM D 4052

**Molecular Weight:** 190 – 210 g/mol Calculated

**Percent Volatility:** No data available

**Volatile Organic Compounds:** 11 g/L EPA Method No. 24

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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

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

**10.1 Reactivity:** No data available.

**10.2 Chemical Stability:** Thermally stable at typical use temperatures.

**10.3 Possibility of Hazardous Reactions:** Polymerization will not occur.

**10.4 Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

**10.5 Incompatible materials:** Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

**10.6 Hazardous decomposition products:** Decomposition products depend upon temperature, air supply, and the presence of other materials. Decomposition products can include, and are not limited to: Aldehydes. Alcohols. Ethers. Carbon dioxide. Carboxylic acids. Polymer fragments.

## **Section 11: Toxicological Information**

**Toxicological information appears in this section when such data is available.**

### **11.1 Information on toxicological effects:**

#### **A. Acute toxicity:**

##### **Acute oral toxicity:**

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.  
LD50, Rat, >10,000 mg/kg

##### **Acute dermal toxicity:**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.  
Prolonged/repeated exposure to damaged skin (as in burn patients) may result in absorption of toxic amounts.  
Typical for this family of materials: LD50, Rabbit, > 20,000 mg/kg

##### **Acute inhalation toxicity:**

At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. No adverse effects are anticipated from single exposure to mist. For respiratory irritation and narcotic effects: No relevant data found.  
LC50, Rat, 6 Hour, dust/mist, >2.5 mg/l – No deaths occurred at this concentration.

#### **B. Skin corrosion/irritation:**

Prolonged contact is essentially non-irritating to skin.  
May cause more severe response if skin is abraded (scratched or cut).

#### **C. Serious eye damage/irritation:**

May cause slight temporary eye irritation.  
Corneal injury is unlikely.

#### **D. Respiratory or skin sensitization:**

Did not cause allergic skin reactions when tested in guinea pigs.  
Did not cause allergic skin reactions when tested in humans.  
For respiratory sensitization: No relevant data found.

#### **E. Germ cell mutagenicity:**

In vitro genetic toxicity studies were negative.  
Animal genetic toxicity studies were negative.

#### **F. Carcinogenicity:**

Polyethylene glycols did not cause cancer in long-term animal studies.

#### **G. Reproductive toxicity:**

In animal studies, did not interfere with reproduction.

#### H. STOT-single exposure:

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

#### I. STOT-repeated exposure

Recent findings of kidney failure and death in burn patients, as well as some studies using animal burn models, suggest that polyethylene glycol may have been a factor. The use of topical applications containing this material may not be appropriate in severely burned patients.

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

#### J. Aspiration hazard:

Based on physical properties, not likely to be an aspiration hazard.

## Section 12: Ecological Information

### 12.1 Toxicity:

Acute toxicity to fish:

Material is practically non-toxic to aquatic organisms on an acute basis  
(LC50/EC50/EL50/LL50 > 100 mg/l in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), static test, 96 hour, > 10,000 mg/l, OECD Test Guideline 203 or Equivalent.

Acute toxicity to aquatic invertebrates:

LC50, Daphnia magna (Water flea), 48 hour, > 10,000 mg/l

Acute toxicity to algae/aquatic plants:

ErC50, Skeletonema costatum (marine diatom), 72 hour, Growth rate, > 100 mg/l

### 12.2 Persistence and degradability:

Biodegradability:

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 8%%

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent.

Theoretical Oxygen Demand: 1.67 mg/mg

### 12.3 Bio-accumulative potential:

Bio-accumulation: No bio-concentration is expected because of the relatively high water solubility.

12.4 Mobility in soil: No relevant data found.

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

12.6 Other adverse effects: No further relevant information available.

## Section 13: Disposal Considerations

### 13.1 Waste treatment methods:

#### Disposal methods:

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER.

All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO



CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. The information presented here pertains only to the product as shipped in its intended condition as described in SDS section: Composition Information.

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler, Reclaimer, Incinerator or other thermal destruction device.

## **Section 14: Transport Information**

**DOT:** Not regulated for transport.

**IATA:** Not regulated for transport.

**IMDG:** Not regulated for transport.

## **Section 15: Regulatory Information**

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

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

##### **US TCSA Inventory:**

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory. All components are on the Interim Active TSCA List as of April 2018.

##### **SARA Sections 311 and 312 Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community right-to-Know Act of 1986):**

No SARA Hazards

##### **SARA Section 313 Superfund Amendments and Reauthorization Act of 1986 title III (Emergency Planning and Community Right-to-Know Act of 1986):**

Component: Ethylene glycol CAS # 107-21-1

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

Pennsylvania Right-to-Know Components:

Propylene glycol	CAS # 25322-68-3
Diethylene glycol	CAS # 111-46-6
Ethylene glycol	CAS # 107-21-1

New Jersey Right-to-Know Components:

Propylene glycol	CAS # 25322-68-3
Diethylene glycol	CAS # 111-46-6
Ethylene glycol	CAS # 107-21-1

Massachusetts Right-to-Know Components:

Ethylene glycol	CAS # 107-21-1
-----------------	----------------

##### **California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Component: Ethylene glycol CAS # 107-21-1

### **15.2 Chemical Safety Assessment:**

Date of Preparation: 14 August 2018

## **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.