

SPI Supplies Division

Structure Probe, Inc.

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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: April 10, 2018

SPI Catalog # 02833-AB
Araldite® 6005 Epoxy Resin

Component of 02650-AA, 02650-AB
SPI-Chem™ Araldite® 6005 Embedding Resin Kit

Section 1.1: Identification

Chemical Name/Synonyms Araldite 6005; 4-(1,1-Dimethylethyl)phenoxyethyl oxirane

Product or Trade Name: Araldite® 6005 Epoxy Resin

CAS #'s 25085-99-8; 25068-38-6; 3101-60-8

Section 1.2: Relevant Uses/Restrictions

Resin for use in embedding applications for microscopy.

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):

Skin irritation (category 2)

Eye irritation (category 2A)

Skin sensitization (category 1B)

Acute aquatic toxicity (category 2)
Chronic aquatic toxicity (category 2)

2.2 Label elements

Pictogram



Signal Word: Warning!

Hazard statements:

- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

- P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 Wash skin thoroughly after handling,
- P272 Contaminated work clothing should not be allowed out of the workplace,
- P273 Avoid release to the environment,
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P362 Take off contaminated clothing and wash before reuse.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P337 + P13 If eye irritation persists: Get medical advice/ attention.
- P391 Collect spillage.
- P501 Dispose of contents / container in accordance with local/regional/national/international regulations.

2.3 Other Hazards: No data available.

Hazardous Material Information System USA

Health 2
Fire Hazard 1
Reactivity 0
Personal Protection

NFPA Rating (estimated)

Health 2
Flammability..... 1
Reactivity 0

Section 3: Composition

3.1 Substance: n/a

3.2 Mixture:

Component	CAS #'s	EC #	Percentage
Bisphenol A epoxy resin	25085-99-8; 25068-38-6	none	60-100
Butylphenyl glycidyl ether	3101-60-8	221-453-2	3-7

Section 4: First Aid Measures

4.1 Description of first aid measures:

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation:

Move exposed person to fresh air. If not breathing, if breathing is irregular, or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention immediately.

Ingestion:

Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

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

No additional information available.

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

Notes to physician:

No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.

Section 5: Fire Fighting Measures

Flash point: Closed cup: >200°C (>392°F)

5.1 Extinguishing media:

Use an extinguishing agent suitable for the surrounding fire. None known to be not suitable.

Hazardous thermal decomposition products:

Decomposition products may include carbon dioxide and carbon monoxide.

5.2 Special exposure hazards:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action

shall be taken involving any personal risk or without suitable training. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

5.3 Special protective equipment for fire-fighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6: Accidental Release Measures

6.1 Personal precautions:

No action shall be taken involving any personal risk for without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

6.2 Environmental precautions:

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up:

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material (erg. sand, earth, vermiculite or semiautomatic earth) and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

6.4 Reference to other sections:

See Section 13 for disposal information.

Section 7: Handling and Storage

7.1 Precautions for safe handling:

Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or and approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

7.2 Conditions for safe storage, including any incompatibilities:

Store between the following temperatures: 2 to 40°C (35.6 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end uses:

Resin for use in embedding applications for 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:

Consult local authorities for acceptable exposure limits.

Workplace exposure limits: None established

Biological limit values: No information available.

8.2 Exposure controls:

8.2.1 Appropriate engineering controls:

Recommended monitoring procedures:

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures:

No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures:

Wash hands, forearms, and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

8.2.2 Individual protection measures:

Respiratory:

In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands:

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. >8 hours (breakthrough time): butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL), nitrile rubber, neoprene, Polyvinyl Chloride (PVC).

Eyes:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin:

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

8.2.3 Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to endure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:

General Information:

Appearance:

Physical State: Liquid
Color: Colorless
Odor: Slight

Important health, safety and environmental information:

pH: 7 [Conc. (%w/w): 50%]
Boiling/condensation point: >200°C (>392°F)
Melting/freezing point: Not available
Flash point: Closed cup: >200°C (>392°F)
Flammable limits: Not available
Auto-ignition temperature: Not available
Decomposition temperature: >200°C 392°F)
Vapor pressure: <0.00001kPa (<0.000075mm Hg) [20°C]
Specific gravity: not available
Water solubility: practically insoluble
Partition coefficient:(n-octanol/water (log Kow): Not available
Viscosity: Dynamic: 7000 to 9000 mPa-s (7000 to 9000 cP)
Density: 1.15 to 1.2 g/cm³ [25°C (77°F)]
Vapor density: Not available
Evaporation rate (butyl acetate = 1): Not available

9.2 Other information: No additional information available.

Section 10: Stability and Reactivity

10.1 Reactivity:

No information available.

10.2 Chemical Stability:

The product is stable.

10.3 Possibility of Hazardous Reactions:

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid:

Avoid short term exposures to temperatures above 300 °C.
Potentially violent decomposition can occur above 350 °C.
Avoid prolonged exposure to temperatures above 250 °C.
Generation of gas during decomposition may cause rapid pressure build-up.

10.5 Incompatible materials:

Oxidizing materials, Acids, Bases.

Avoid unintended contact with amines.

10.6 Hazardous decomposition products:

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

Decomposition products depend upon temperature, air supply, and the presence of other materials.

Gases are released during decomposition.

Uncontrolled exothermic reaction of epoxy resins may release phenolics, carbon monoxide, and water.

Section 11: Toxicological Information

Information on the likely routes of exposure:

General:

Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Target Organs:

No known significant effects or critical hazards.

Carcinogenicity:

No known significant effects or critical hazards.

Mutagenicity:

No known significant effects or critical hazards.

Teratogenicity:

No known significant effects or critical hazards.

Developmental effects:

No known significant effects or critical hazards.

Fertility effects:

No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure:

Pre-existing skin disorders may be aggravated by over-exposure to this product.

11.1 Information on toxicological effects:

A. Acute toxicity:

Potential acute health effects

Inhalation: No known significant effect or critical hazards.

Ingestion: No known significant effects or critical hazards.

Skin Contact: Irritating to skin. May cause sensitization by skin contact.

Eye Contact: Irritating to eyes.

Bisphenol A epoxy resin

LC0 Inhalation Vapor Rat – Male 0.00001 ppm / 5 hours

LD50 Dermal Rat – Male, Female >2000 mg/kg

LD50 Oral Rat – Female >2000 mg/kg

B. Skin corrosion/irritation:

Bisphenol A epoxy resin

Rabbit Skin Mild Irritant

Rabbit Eye Mild Irritant

Skin: Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight <700): Slightly irritating to the skin.

C. Serious eye damage/irritation:

Eyes: Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight <700): Slightly irritating to the eyes.

D. Respiratory or skin sensitization:

Bisphenol A epoxy resin

Skin Mouse Sensitizing

E. Germ cell mutagenicity:

Bisphenol A epoxy resin

Experiment: In vitro	Subject: Bacteria	Metabolic activation: +/-	Positive
Experiment: In vitro	Subject: Mammalian-Animal		
	Cell: Somatic	Metabolic activation: +/-	Positive
Experiment: In vivo	Subject: Mammalian-Animal		
	Cell: Germ		Negative
Experiment: In vivo	Subject: Mammalian-Animal		
	Cell: Somatic		Negative

F. Carcinogenicity:

Bisphenol A epoxy resin

Rat – Male, Female	2 years; 7 days per week	Negative – Oral – NOEL
Rat – Female	2 years; 5 days per week	Negative – Dermal – NOEL
Mouse – Male	2 years; 3 days per week	Negative – Dermal – NOEL

G. Reproductive toxicity:

Bisphenol A epoxy resin

Rat – Male, Female Oral: 540 mg/kg NOEL
Negative for Maternal toxicity, Fertility, and Developmental effects.

Teratogenicity:

Bisphenol A epoxy resin

Rat – Female	Negative - Oral
Rabbit – Female	Negative – Dermal
Rabbit – Female	Negative – Oral

H. STOT-single exposure:

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

I.. STOT-repeated exposure:

Potential chronic health effects:

Bisphenol A epoxy resin

Sub-chronic NOAEL Oral	Rat – Male, Female	50 mg/kg	14 weeks; 7 days per week
Sub-chronic NOEL Dermal	Rat – Male, Female	10 mg/kg	13 weeks; 5 days per week
Sub-chronic NOALE Dermal	Mouse – Male	100 mg/kg	13 weeks; 3 days per week

J. Aspiration hazard: No additional information available.

Section 12: Ecological Information

12.1 Toxicity:

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Water polluting material. May be harmful to the environment if released in large quantities.

Aquatic ecotoxicity:

Bisphenol A epoxy resin

–	Acute EC50	72 hours Static	Algae	9.4 mg/L
	OECD 202 Daphnia sp. Acute Immobilization Test			
	Acute EC50	48 hours Static	Daphnia	1.7 mg/L
—	Acute IC50	3 hours Static	Bacteria	>100 mg/L
	OECD 203 Fish, Acute Toxicity Test			
	Acute LC50	96 hours Static	Fish	1.5 mg/L
	OECD 211 Daphnia Magna Reproduction Test			
	Chronic NOEC	21 days Semi-static	Daphnia	0.3 mg/L

12.2 Persistence and degradability:

Bisphenol A epoxy resin

OECD derived from OECD 301F (Biodegradation Test): 28 days 5%

Conclusion/Summary: Reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight <700): Not readily biodegradable.

Bisphenol A epoxy resin	Aquatic half-life	
Fresh water	4.83 days	Not readily biodegradable
Fresh water	3.58 days	
Fresh water	7.1 days	

12.3 Bio-accumulative potential:

Bisphenol A epoxy resin

LogP_{ow} : 3.242 BCF: 31 Potential: Low

Other adverse effects: No known significant effects or critical hazards.

Other ecological information:

BOD5: Not determined.
COD: Not determined
TOC: Not determined.

12.4 Mobility in soil:

Potential for mobility in soil is low (Koc between 500 and 2000).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient: n-octanol/water (log Pow): 1800 – 4400 estimated.

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:

Waste disposal:

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: Transport Information

DOT: Not regulated for transport.

IATA:

UN Number: UN 3082
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN)
Class: 9
Packing group: III

IMDG:

UN Number: UN 3082
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN)
Marine pollutant
Class: 9
Packing group: III

Section 15: Regulatory Information

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

HCS Classification

Irritating material
Sensitizing material

U.S. Federal Regulations

TSCA 8(b) Inventory: All components are listed or exempted
TSCA 5(a)2 final significant new use rule (SNUR): No ingredients listed.
TSCA 5(e) substance consent order: No ingredients listed.
TSCA 12(b) export notification: No ingredients listed.

SARA 302/304/311/312

SARA 302/304/311/312 extremely hazardous substances – No products were found.
SARA 302/3047 emergency planning and notification – No products were found.
SARA 302/304/311/312 hazardous chemicals – No products were found.
SARA 311/312 MSDS distribution – chemical inventory – hazard identification:
No products were found.

SARA 313: No ingredients listed.

CERCLA Section 304 Hazardous substances:

1-Chloro-2,3-epoxypropane Concentration: 0.000955113 CERCLA RQ (Lbs): 100
Product Reportable Quantity (Lbs): 10469965

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs): No ingredients were listed.

Clean Air Act – Ozone Depleting Substances (ODS): This product does not contain nor is it manufactured with ozone depleting substances.

California Prop. 65

Warning: This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

Warning: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient: 1-Chloro-2,3-epoxypropane 0.000955113 %

State Right-to-Know Lists

Not listed.

Other regulations, limitations and prohibitive regulations:

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC)

No. 1907/2006:

Substance is not listed.

Conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC)

No 197/2006 (REACH) for the manufacturing, placing on the market and use must be observed:

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorization for use):

Substance is not listed.

Canada:

WHMIS: Class D-2B: Material causing other toxic effects (Toxic)

DSL: All components are listed or exempted.

International Lists:

All components are listed or exempted:

Australia inventory (AICS)

China inventory (IECSC)

Japan inventory

Korea inventory

New Zealand Inventory of Chemicals (NZIoC)

Philippines Inventory (PICCS)

15.2 Chemical Safety Assessment: Has not been carried out.

Date of Preparation: 10 April 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

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.

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