

1. Product Identification

Product name	S-1 Epoxy Sealer, Part A
SDS Number	F1400A00
Product type	Epoxy polymer mixture.
Recommended use of the chemical and restrictions on use	Directed at, but not limited to, the sealing and coating of wood and fiber composites
Restrictions	None known.
Manufacturer/Supplier information	
Company name	SYSTEM THREE RESINS, INC.
Address	8517 Commerce Place Dr NE Lacey, WA 98516 United States
Telephone	1-253-333-8118
Website	www.systemthree.com
Email	support@systemthree.com
Emergency Contact	CHEMTEL (U.S. and CANADA) 1-800-704-9215 CHEMTEL (Outside the U.S.) – Call Collect accepted +1-360-256-7365

2. Hazard(s) Identification

Classification of substance or mixture/Signal Word	DANGER Flammable liquid - Category 2 Skin Corrosion/Irritation – Category 2 Serious Eye Damage/Eye Irritation - Category 2 Skin Sensitization – Category 1 Toxic to Reproduction – Category 1 Specific Target Organ Toxicity (Single Exposure) [central nervous system (CNS), liver, kidneys] – Category 1 Specific Target Organ Toxicity (Repeated Exposure) [central nervous system (CNS), respiratory tract, lungs] – Category 1
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GHS Label Elements
Hazard Pictograms



Hazard Statements/Classification of substance or mixture	H225 Highly flammable liquid and vapor H315 Causes skin irritation. H319 Causes serious eye irritation. H317 May cause an allergic skin reaction. H360 May damage fertility or the unborn child. H370 Causes damage to organs. H372 Causes damage to organs through prolonged or repeated exposure.
Precautionary statements	

Precautionary Statements

Prevention

- P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
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/light/.../equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe fume/vapors/spray.
P261 Avoid breathing fume/vapors/spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves. Wear eye or face protection.

Response

- P303 + P361 + P353 IF ON SKIN (or hair): 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.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.
P314 Get medical advice/attention if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P370 + P378 In case of fire: Use suitable extinguishing media to extinguish.

Storage

- P362 + P364 Take off contaminated clothing and wash it before reuse.
P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal

- P501 Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified (HNOC)

None Available.

3. Composition/Information On Ingredients

Chemical Name	CAS Number	Content (%)
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3	40 – 50%
Xylenes	1330-20-7	35 – 40%
Methyl Isobutyl Ketone	108-10-1	15 – 20%
Ethylbenzene	100-41-4	1 – 5%

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

4. First-Aid Measures

Skin contact

Remove contaminated clothing and shoes and wipe excess off skin. Flush skin with water for at least 15 minutes. Follow by washing in soap and water. If irritation occurs, seek medical attention. Do not reuse clothing until cleaned. Contaminated leather articles (shoes) cannot be decontaminated and should be destroyed.

Eye contact

Flush with water for 15 minutes holding eye lids open. Seek medical attention.

Ingestion Do not give anything if victim is unconscious or very drowsy. DO NOT INDUCE VOMITING. Seek medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention.

Inhalation Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments No specific treatment.

5. Fire-Fighting Measures

Suitable extinguishing media Foam, carbon dioxide, dry chemical, water fog.

Unsuitable extinguishing media None known

Specific hazards arising from the chemical Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous decomposition products Carbon oxides, aldehydes (including formaldehyde), and other organic compounds.

Special protective actions for fire-fighters 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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.

Further information None known.

6. Accidental Release Measures

Personal precautions Wear proper personal protective equipment (PPE). Avoid direct contact with material.

Emergency procedures If material is spilled, avoid contact with material. Persons not wearing appropriate protective equipment should leave the area of the spill until cleanup is complete.

Methods and materials for containment/cleanup Ventilate area of leak or spill. Stop spill at source, dike area to prevent spreading, pump liquid to salvage tank or drum. Remaining liquid may be taken up on clay, diatomaceous earth, sawdust or other absorbent, and shoveled into disposal container.

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).

7. Handling and Storage

Precautions for safe handling Avoid contact with skin and eyes. Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations. Use personal protective equipment. When using, do not eat, drink or smoke.

Precautions/Recommendations for safe/proper storage

Keep away from heat, sparks, and open flame, and out of the reach of pets or children. Securely fasten container lids and tops, and prevent products from sitting and below freezing temperatures. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

Components	CAS No.	Type	Value
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3	ACGIH TLV	TWA – 10 mg/m ³ Form: inhalable particulate
		OSHA PEL 1989 Vacated	TWA – 5 mg/m ³ Form: respirable particulate TWA – 15 mg/m ³ Form: total dust
Xylene	1330-20-7	ACGIH TLV (1996-05-18)	TWA – 434 mg/m ³ 100 ppm
		Short Term Exposure Limit (STEL)	651 mg/m ³ 150 ppm
		OSHA PEL (1993-06-30)	TWA – 435 mg/m ³ 100 ppm
Ethylbenzene	100-41-4	ACGIH TLV (2011-09-30)	TWA – 87 mg/m ³ 20 ppm
		Short Term Exposure Limit (STEL)	543 mg/m ³ 125 ppm
		NIOSH REL (1994-06-01)	TWA – 435 mg/m ³ 100 ppm
Methyl Isobutyl Ketone	108-10-1	ACGIH	TWA – 20 ppm
		Short Term Exposure Limit (STEL)	75 ppm
		NIOSH REL	TWA – 205 mg/m ³ 50 ppm
		OSHA Z-1	TWA – 410 mg/m ³ 100 ppm
		OSHA P0	TWA – 205 mg/m ³ 50 ppm

Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure 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.

Individual protection measures/Personal protective equipment

Eye/face protection

Splash proof goggles or safety glasses with side shields are recommended. Always wear eye protection when sanding cured epoxy to avoid dust in eyes.

Hand protection

Wear chemical resistant gloves such as: Poly Vinyl Alcohol (PVA), Viton, or Teflon gloves, apron, boots, head and face protection should be worn. The equipment must be cleaned thoroughly after each use.

Skin protection	Wear clean, body-covering clothing to avoid skin contact.
Respiratory protection	Use a NIOSH-approved respiratory device or air-supplied respirator if exposure exceeds any occupational limits. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors.
Special instructions for protection and hygiene	Wear gloves at all times when handling product, avoid direct contact with skin. When finished using product, dispose of gloves properly and wash hands with warm, soapy water.

9. Physical and Chemical Properties

Chemical family	Translucent liquid
Appearance	Pourable liquid
Physical State	
Form	Pourable liquid
Color	Clear
Odor	Pungent odor
Density (Specific Gravity)	0.968
Viscosity	600 – 750 CPS @ 25°C
pH	Data not available
Melting point/freezing point	Data not available
Initial boiling point and boiling range	281-400°F
Flash point	60°F (Tag Closed Cup)
Evaporation rate	Slower than ether
Flammability (solid, gas)	Data not available
Upper/lower flammability limit (by volume)	Data not available
Upper flammability limit (by volume)	Data not available
Lower flammability limit (by volume)	Data not available
Material VOC	526 g/L
Vapor density	Heavier than air
Relative density	Data not available
Solubility in water	Not determined
Partition coefficient: n-octanol/water	Negligible, in water
Auto-ignition temperature	Data not available
Decomposition temperature	300°C (572.00°F)

10. Stability and Reactivity

Reactivity	Stable under normal conditions.
Chemical Stability	Stable.
Possibility of hazardous reactions	Under normal conditions, hazardous polymerization will not occur.

Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Incompatible materials

Strong oxidizing agents, Lewis and mineral acids.

Hazardous decomposition products

Oxides of carbon, aldehydes, acids.

Other hazards

Epoxy resins and epoxy resin hardeners react with each other producing heat. They should not be mixed with each other under uncontrolled conditions or in large mass as the ensuing exotherm may result in heat and smoke, resulting in hazardous decomposition products.

11. Toxicological Information

Acute Health Hazard (components)

No comprehensive data (ingestion, inhalation, dermal) on mixture (product).

Component	Result	Species	Dose	Exposure
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	LD50 Oral	Rat	>2,000 mg/kg	-
	LD50 Dermal	Rat	>2,000 mg/kg	-
Xylene	LD50 Oral	Rat	4,300 mg/kg	-
	LC50 Inhalation	Rat	-	4h
Ethylbenzene	LD50 Oral	Rat	3,500 mg/kg	-
	LD50 Dermal	Rabbit	>5,000 mg/kg	-
	LC50 Inhalation	Rat	55 mg/l	2h
Methyl Isobutyl Ketone	LD50 Oral	Rat	2,080 mg/kg	-
	LC50 Inhalation	Rat	16.4 mg/l	4h

Irritation/Corrosion

No information on the product itself.

Sensitization

No information on the product itself.

Mutagenicity

No information on the product itself.

Carcinogenicity

No information on the product itself.

Reproductive Toxicity

No information on the product itself.

Teratogenicity

No information on the product itself.

Specific target organ toxicity (single exposure)

No information on the product itself.

Component	Category	Route of exposure	Target organs
Xylene	Category 1		Central nervous system (CNS), liver, kidneys
	Category 3		Respiratory tract irritation, narcotic effects
Ethylbenzene	Category 3		Narcotic effects, Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

No information on the product itself.

Component	Category	Route of exposure	Target organs
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-	Category 1		Lungs
	Category 2		Skin

methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]			
Xylene	Category 1		Respiratory tract irritation, Central nervous system (CNS)
Ethylbenzene	Category 2		Skin, eyes, liver, kidneys, respiratory tract irritation, blood system

Aspiration hazard

No information on the product itself.

Potential acute health effects

Eye Contact

Liquid is moderately irritating to the eyes. High vapor concentrations may also be irritating. Direct contact with the liquid or exposure to its vapors or mists may cause stinging, tearing, redness.

Inhalation

High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis and loss of consciousness).

Skin Contact

Liquid is mildly irritating to the skin. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

Ingestion

Liquid is moderately toxic and may be harmful if swallowed; may produce CNS depression. Ingestion of product may result in vomiting; aspiration (breathing) of vomitus into the lungs must be avoided as even small quantities may result in aspiration pneumonitis.

Symptoms related to the physical, chemical and toxicological characteristics

Eye Contact

Adverse symptoms may include the following:
Pain or irritation
Watering
Redness

Inhalation

Adverse symptoms may include the following:
Nausea or vomiting
Headache
Drowsiness/fatigue
Unconsciousness
Reduced fetal weight
Increase in fetal deaths
Skeletal malformations

Skin Contact

Adverse symptoms may include the following:
Pain or irritation
Redness
Reduced fetal weight
Increase in fetal deaths
Skeletal malformations

Ingestion

Adverse symptoms may include the following:
Reduced fetal weight
Increase in fetal deaths
Skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

No information on product itself.

Potential chronic health effects

General	Causes damage to organs through prolonged or repeated exposure: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	May damage the unborn child.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	May damage fertility.

Numerical measures of toxicity

Acute toxicity estimates (ATEmix)

Route	ATE value
Oral	2274.8 mg/kg
Dermal	3824.4 mg/kg
Inhalation (vapors)	81.36 mg/L

12. Ecological Information

Ecotoxicity

No information on the product itself.

Component	Endpoint	Result	Species	Exposure
Xylene	Acute LC50	13.4 mg/l	Fish – Fathead minnow	96 h
Methyl Isobutyl Ketone	Acute LC50	480 mg/l	Leuciscus idus melanotus	48 h
	Acute EC50	1,550 – 3,623 mg/l	Daphnia magna (water flea)	24 h
	Acute EC50	980 – 2,000 mg/l	Desmodesmus subspicatus (green algae)	48 h
Ethyl benzene	Acute LC50	9.09 mg/l	Fish – fathead minnow	4 d
	Acute LC50	4.2 mg/l	Fish – Rainbow trout	4 d
	Acute LC50	9.6 mg/l	Fish – Guppy	4 d

Persistence and degradability

No information on the product itself.

Bioaccumulative Potential

No information on the product itself.

Component	LogPow	BCF	Potential
Methyl Isobutyl Ketone	1.38	-	-
Xylene	3.12	-	-

Mobility in Soil

Soil/water partition coefficient (KOC)	No data is available on the product itself.
Other adverse effects	No significant effects or critical hazards.

13. Disposal Considerations

Waste from residues/ unused products

The preferred options for disposal are to send to licensed reclaimers, or to permitted incinerators. Any disposal practice must be in compliance with

federal, state, and local regulations. Do not dump into sewers, ground, or any body of water. Contact supplier if guidance is required.

Contaminated packaging

Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International Transport Regulations

Regulatory information	UN/NA number	Proper Shipping Name	Classes/*PG	Additional Information
DOT	UN1263	Paint related material	Class 3 II	
TDG	UN1263	Paint related material	Class 3 II	
IMO/IMDG	UN1263	Paint related material	Class 3 II	
IATA	UN1263	Paint related material	Class 3 II	

*PG: Packing group

Special precautions for user:

Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

15. Regulatory Information

UNITED STATES

U.S. Federal Regulations

United States – TSCA 12(b) – Chemical export notification: None Required.
United States – TSCA 5(a)2 – Final significant new use rules: Not Listed.
United States – TSCA 5(a)2 – Proposed significant new use rules: Not Listed.
United States – TSCA 5(e) – Substance consent order: Not listed.

Clean Air Act – Ozone Depleting Substances (ODS)

This product does not contain nor is it manufactured with ozone depleting substances.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)

Product Name	Concentration %
Ethyl benzene	
Xylene	
Methyl Isobutyl ketone	

Pennsylvania – RTK

Ethyl benzene

California Prop. 65

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

Ingredient Name	Cancer	Reproductive
Benzene, ethyl-	Yes.	No.
Benzene	Yes.	Yes.
Methyl Isobutyl ketone	Yes.	Yes.

EPA SARA 302 Extremely Hazardous Substances

To the best of our knowledge, this product is not listed as an extremely hazardous substance.

EPA SARA 302/304/311/312 Hazardous Chemicals

This product should be reported as immediate (acute) health hazard, delayed (chronic) health hazard, and a fire hazard.

SARA 313 Form R – Reporting requirements

Product Name	CAS number
Benzene, ethyl-	100-41-4
Benzene, dimethyl-	1330-20-7
Methyl Isobutyl ketone	108-10-1

CERCLA Hazardous substances

Component	%	Section 304 CERCLA Hazardous Substance	CERCLA Reportable Quantity (Lbs)	Product Reportable Quantity (Lbs)
Methyl Isobutyl Ketone			5000	5000

United States inventory (TSCA 8b)

All components are listed or exempted.

CANADA

WHMIS (Canada)

Class B-2: Flammable liquid.
Class D-2B: Material causing other toxic effects (Toxic).

**Canadian NPRI
CEPA Toxic substances**

None Required
None Required

INTERNATIONAL REGULATIONS

International Lists

Australia inventory (AICS): All components are listed or exempted.
Canada inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Japan inventory: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
New Zealand inventory (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): All components are listed or exempted.

16. Other Information, Including Date of Preparation or Last Revision

HMIS Rating

Health 2
Flammability 3
Physical Hazard 0

Date of Preparation January 22, 2020
Date of Last Revision September 26, 2019
Revision # 5.0
More Information 1-253-333-8118
Prepared by System Three Resins, Inc.

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