

# **SYSTEMTHREE**

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**Safety Data Sheets (SDS)**

**Updated: January 1, 2023**

This file contains the Safety Data Sheet for Pennant Crosslinker

If this is a medical emergency, call 911 or your local poison control center. Seek medical attention.

For technical assistance, call System Three Technical Support at 253-333-8118 option 2.

These SDS are provided pursuant to 29 CFR 1910.1200(g).

## 1. Product Identification

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Product name	Pennant Topside Paint Crosslinker		
SDS Number	18XXX		
Product type	Polyaziridine solution		
Recommended use of the chemical and restrictions on use	Marine topcoat paint.		
Restrictions	None known		
<b>Manufacturer/Supplier information</b>			
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

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Classification of substance or mixture/Signal Word	DANGER Serious Eye damage/Eye Irritation – Category 1 Skin Sensitization – Category 1 Germ Cell Mutagenicity – Category 2 Specific Target Organ Toxicity (Repeated Exposure) [Oral] – Category 2
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**GHS Label Elements**  
Hazard Pictograms



Hazard Statements/Classification of substance or mixture	H318 Causes serious eye damage. H317 May cause an allergic skin reaction. H341 Suspected of causing genetic defects. H373 May cause damage to organs through prolonged or repeated exposure.
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**Precautionary statements**

<b><u>Precautionary Statements</u></b>	P201 Obtain special instructions before use.
<b>Prevention</b>	P202 Do not handle until all safety precautions have been read and understood. P260 Do not breathe vapor. P272 Contaminated work clothing must not be allowed out of the workplace. P280 Wear protective gloves/protective clothing/eye protection/face protection.

<b>Response</b>	P308 + P313 IF exposed or concerned: Get medical advice/attention. P333 + P313 If skin irritation or rash occurs: Get medical attention. P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
<b>Storage</b>	P314 Get medical attention if you feel unwell.
<b>Disposal</b>	P405 Store locked up. P501 Dispose of contents in accordance with local, regional, national and international regulations.
<b>Hazards not otherwise classified (HNOC)</b>	None known.

### 3. Composition/Information On Ingredients

Chemical Name	CAS Number	Content (%)
Pentaerythritol-tris(1-(aziridinyl) propionate)	64265-57-2	50 - 60 %
Diethylene glycol monoethyl ether acetate	112-15-2	20 - 30%

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

<b>Skin contact</b>	Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Eye contact</b>	Get medical attention immediately. Call poison control center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
<b>Ingestion</b>	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Inhalation</b>	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, or if breathing is irregular, provided artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth to mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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

**Notes to physician**

In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Specific treatments**

No specific treatment.

## 5. Fire-Fighting Measures

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**Suitable extinguishing media**

All extinguishing media are suitable.

**Unsuitable extinguishing media**

None known.

**Specific hazards arising from the chemical**

In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous decomposition products**

Decomposition products may include the following materials:

Carbon dioxide

Carbon monoxide

Nitrogen oxides

Aldehydes

Organic acids

**Special protective actions for fire-fighters**

Promptly evacuate 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.

**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**

No other information.

## 6. Accidental Release Measures

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**Personal precautions**

No action shall be taken involving any personal risk or 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 properly fitted NIOSH certified respirator when ventilation is inadequate. Wear the appropriate personal protective equipment.

**Emergency procedures**

If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See also information in "For non-emergency personnel".

**Methods and materials for containment/cleanup**

Stop leak if without risk. Ventilate area. Move containers from spill area. Dilute with water and mop up. Alternatively, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**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).

## 7. Handling and Storage

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**Precautions for safe handling**

Always wear personal protective equipment when handling (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. Avoid exposure – obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate

ventilation or wear an appropriate respirator. Keep in the original container or an 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.

**Precautions/Recommendations for safe/proper storage**

Store between 40 to 90 °F (4-32 °C). Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, out of the reach of children or pets. Keep container tightly closed and sealed until ready for use. Do not store in unlabeled containers. Store in original container, protected from direct sunlight.

## 8. Exposure Controls/Personal Protection

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<b>Occupational Exposure Limits</b>	None established.
<b>Appropriate engineering controls</b>	If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Environmental exposure controls</b>	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.
<b>Individual protection measures/Personal protective equipment</b>	
<b>Eye/face protection</b>	Splash proof goggles or safety spectacles with side shields are recommended.
<b>Hand protection</b>	Always wear impervious gloves, neoprene, vinyl or rubber.
<b>Skin protection</b>	Wear clean, body-covering clothing to avoid skin contact.
<b>Respiratory protection</b>	Use a properly fitted NIOSH certified respirator, or air-fed respirator complying with an approved standard if risk assessment indicates this is necessary. 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.
<b>Special instructions for protection and hygiene</b>	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.

## 9. Physical and Chemical Properties

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<b>Chemical family</b>	Polyaziridine solution
<b>Appearance</b>	Aqueous solution
<b>Physical State</b>	Aqueous solution
<b>Form</b>	Liquid
<b>Color</b>	Light yellow
<b>Odor</b>	Mild
<b>Density (Specific Gravity)</b>	9.43 lb/gal (1.12 g/ cm <sup>3</sup> )
<b>Viscosity</b>	25 cps @ 25°C

<b>pH</b>	8 – 8.5
<b>Melting point/freezing point</b>	Data not available
<b>Initial boiling point and boiling range</b>	Data not available
<b>Flash point</b>	Data not available
<b>Evaporation rate</b>	Data not available
<b>Flammability (solid, gas)</b>	Data not available
<b>Upper/lower flammability limit (by volume)</b>	Data not available
<b>Upper flammability limit (by volume)</b>	Data not available
<b>Lower flammability limit (by volume)</b>	Data not available
<b>Material VOC</b>	≤370 grams/liter
<b>Vapor density</b>	Heavier than air
<b>Relative density</b>	Not determined
<b>Solubility in water</b>	Data not available
<b>Partition coefficient: n-octanol/water</b>	Data not available
<b>Auto-ignition temperature</b>	Data not available
<b>Decomposition temperature</b>	Data not available

## 10. Stability and Reactivity

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<b>Reactivity</b>	No specific data.
<b>Chemical Stability</b>	Stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous polymerization will not occur.
<b>Conditions to avoid</b>	No specific data.
<b>Incompatible materials</b>	Acids, strong oxidizing materials.
<b>Hazardous decomposition products</b>	No specific data.
<b>Other hazards</b>	None known.

## 11. Toxicological Information

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**Acute Health Hazard (components)** No comprehensive data (ingestion, inhalation, dermal) on mixture (product).

Component	Result	Species	Dose	Exposure
Pentaerythritol-tris(1-(aziridinyl) propionate)	LD50 Oral	Rat	2000 mg/kg	-
Diethylene glycol monoethyl ether acetate	LD50 Oral	Rat	11,000 mg/kg	-
	LD50 Oral	Guinea pig	3,930 mg/kg	-
	LD50 Oral	Rabbit	4,400 mg/kg	-

**Irritation/Corrosion (components)** No information on product itself.

Component	Result	Species	Test	Exposure
Pentaerythritol-tris(1-(aziridinyl) propionate)	Skin – Erythema/Eschar	Rabbit	-	4 h
	Eyes – Cornea opacity	Rabbit	-	24 – 72 h

	Eyes – Iris lesion	Rabbit	-	24 – 72 h
	Eyes – Redness of the conjunctivae	Rabbit	-	24 – 72 h
	Eyes- Edema of the conjunctivae	Rabbit	-	24 – 72 h
Diethylene glycol monoethyl ether acetate	Skin – slight	Rabbit	-	48 h
	Skin – slight	Human	-	48 h

**Sensitization** No information on product itself.

**Mutagenicity** No information on product itself.

**Carcinogenicity** No information on product itself.

**Reproductive Toxicity** No information on product itself.

**Teratogenicity** No information on product itself.

**Specific target organ toxicity (single exposure)** No information on product itself.

**Specific target organ toxicity (repeated exposure)** No information on product itself.

Component	Category	Route of exposure	Target organs
Pentaerythritol-tris(1-(aziridinyl) propionate)	Category 2	Oral	Not determined

**Aspiration hazard** No information on product itself.

**Potential acute health effects**

**Eye Contact** Causes serious eye damage.

**Inhalation** May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

**Skin Contact** May cause an allergic skin reaction.

**Ingestion** May cause burns to mouth, throat, and stomach.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Eye Contact** Adverse symptoms may include the following:  
Pain  
Watering  
Redness

**Inhalation** No data available.

**Skin Contact** Adverse symptoms may include the following:  
Pain or Irritation  
Redness  
Blistering

**Ingestion** Adverse symptoms may include the following:  
Stomach pains

**Delayed and immediate effects and also chronic effects from short and long term exposure** No information on product itself.

**Potential chronic health effects** No information on product itself.

**General** May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

<b>Carcinogenicity</b>	No significant effects or critical hazards.
<b>Mutagenicity</b>	Component suspected of causing genetic defects.
<b>Teratogenicity</b>	May damage the unborn child.
<b>Developmental effects</b>	No significant effects or critical hazards.
<b>Fertility effects</b>	No significant effects or critical hazards.

**Numerical measures of toxicity** Data not available.

**Acute toxicity estimates (ATEmix)**

Route	ATE value
Oral	N/A
Dermal	N/A
Inhalation (vapors)	N/A

## 12. Ecological Information

**Ecotoxicity** No information on product itself.

Component	Result	Species	Exposure
Pentaerythritol-tris(1-(aziridinyl) propionate)	Acute EC50 3.8 mg/m Fresh water	Algae	72 h
	Acute EC50 5.5 mg/l Fresh water	Algae	72 h
	Acute EC50 81 mg/l Fresh water	Daphnia- Daphnia Magna	48 h
	Acute EC50 >1000 mg/l Fresh water	Micro organism	3 h
	Acute LC50 >100 mg/l Fresh water	Fish- Cyprinus carpio	96 h
	Acute NOEC .92 mg/l Fresh water	Algae	72 h
	Acute NOEC .92 mg/l Fresh water	Algae	72 h
	Acute NOEC 22 mg/l Fresh water	Daphnia- Daphnia Magna	48 h
Acute NOEC 100 mg/l Fresh water	Fish- Cyprinus carpio	96 h	
Diethylene glycol monoethyl ether acetate	Acute LC50 10,000 mg/l	Fathead minnow	96 h

**Persistence and degradability** No information on product itself.

Component	Test	Period	Result
Pentaerythritol-tris(1-(aziridinyl) propionate)	OECD 301B Ready Biodegradability- CO <sub>2</sub> Evolution Test	29 days	1%

**Bioaccumulative Potential** No information on product itself.

Component	LogPow	BCF	Potential
Pentaerythritol-tris(1-(aziridinyl) propionate)	-1.4	-	Low
Diethylene glycol monoethyl ether acetate	-	-	-

**Mobility in Soil** No information on product itself.

**Soil/water partition coefficient (KOC)** Not available.

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



## 13. Disposal Considerations

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### Waste from residues/ unused products

The generation of waste should be avoided wherever possible. Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus product via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

### Contaminated packaging

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

## 14. Transport Information

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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		Not regulated		
TDG		Not regulated		
IMO/IMDG		Not regulated		
IATA		Not regulated		

\*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

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### 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)

None known.

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

Product Name	Concentration %
Aziridine, 2-methyl-	0.0001

#### Pennsylvania – RTK

None known.

#### California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient Name	Cancer	Reproductive
2-methylaziridine	Yes.	No.

#### EPA SARA 302 Extremely Hazardous Substances

None known.

EPA SARA 302/304/311/312 Hazardous Chemicals	None known.
SARA 313	None.
Form R – Reporting requirements	
CERCLA Hazardous substances	None.
United States inventory (TSCA 8b)	All components are listed or exempted.

**CANADA**

WHMIS (Canada)	None.
Canadian NPRI	None required.
CEPA Toxic substances	None required.

**INTERNATIONAL REGULATIONS**

International Lists	<p><b>Australia inventory (AICS):</b> All components are listed or exempted.</p> <p><b>Canada inventory:</b> All components are listed or exempted.</p> <p><b>Korea inventory:</b> All components are listed or exempted.</p> <p><b>Japan inventory:</b> All components are listed or exempted.</p> <p><b>China inventory (IECSC):</b> All components are listed or exempted.</p> <p><b>New Zealand inventory (NZIoC):</b> All components are listed or exempted.</p> <p><b>Philippines inventory (PICCS):</b> All components are listed or exempted.</p> <p><b>Taiwan inventory (CSNN):</b> All components are listed or exempted.</p>
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## 16. Other Information, Including Date of Preparation or Last Revision

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**HMIS Rating**

Health	3
Flammability	1
Physical Hazard	0

Date of Preparation	March 2, 2021
Date of Last Revision	January 13, 2020
Revision #	5.0
More Information	1-253-333-8118
Prepared by	System Three Resins Inc.

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