SAFETY DATA SHEET

1. Product Identification

Product Name	WR-LPU Crosslinker
SDS Number	18XXX
Product Type	Polyaziridine Solution
Recommended Use Of The Chemical And Restrictions On Use	Marine topside paint
Restrictions	None known
Manufacturer/Supplier Information	
Company Name	SYSTEM THREE RESINS, INC.
Address	3500 W. Valley Hwy, Suite Suite 105 Auburn, WA 98991-2436 United States
Telephone	1-253-333-8118
Website	www.systemthree.com
Email	support-08@systemthree.com
Emergency Contact	CHEMTREC (U.S. and CANADA) 1-800-424-9300 CHEMTREC (Outside the U.S.) 1-703-527-0585

2. Hazard(s) Identification

Signal Word Danger

Classification of the substance or mixture

: SERIOUS EYE DAMAGE / EYE IRRITANTION - Category 1
SKIN SENSITIZATION - Category 1
GERM CELL MUTAGENICITY – Category 2
SPECIFIC TARGEWT ORGAN TOXICITY (REPEATED EXPOSURE) : ORAL – Category 2

: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Label Elements
Hazard Pictograms

Hazard Statements

: H302 Harmful if swallowed.
: H317 May cause an allergic skin reaction.
: H318 Causes serious eye damage.
: H319 Causes serious eye irritation.
: H341 Suspected of causing genetic defects.
: H373 May cause damage to organs through prolonged or repeated exposure if swallowed. (Kidneys)

Precautionary Statements

Prevention

: P201 Obtain special instructions before use.
: P202 Do not handle until all safety precautions have been read and understood.
: P260 Do not breathe vapor.
: 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.
: P273 Avoid release to the environment.
: P280 Wear protective gloves: < 1 hour (breakthrough time): butyl rubber (0.5mm). Wear eye or face protection.
: P281 Use personal protective equipment as required.

Response

: P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.
: P302 + P352 + P363 If on skin: Wash with plenty of water. Wash contaminated clothing before reuse.
: P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easily to do. Continue rinsing. Immediately call a POISON CENTER of physician.
: P308 + P313 If exposed or concerned: Get medical attention.
: P314 Get medical attention if you feel unwell.
: P333 + P313 If skin irritated or rash occurs: Get medical attention.
: P391 Collect spillage.

Disposal

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

3. Composition/Information On Ingredients

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

Any concentration shown as a range is to protect confidentiality.

4. First-Aid Measures

Description of first aid measures

Eye Contact

: 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.

Inhalation

: 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, of 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.

Ingestion

: 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.

Skin Contact : 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.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate fitted NIOSH respirator or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Most important symptoms and effects, both acute and delayed

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.

Skin contact : May cause an allergic skin reaction.

Ingestion : Harmful if swallowed. May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

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

Inhalation : No specific data

Skin contact : Adverse symptoms may include the following:
Pain or irritation
Redness
Blistering may occur

Ingestion : Adverse symptoms may include the following:
Stomach pains

Indications 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 treatment : No specific treatment

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear a properly fitted NIOSH respirator or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

5. Fire-Fighting Measures

Suitable extinguishing media (small fires) : Use dry chemical or carbon dioxide (CO2).

Suitable extinguishing media (large fires) : Use water, foam or dry chemical powder.

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. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : In case of fire, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, (dense) black smoke, aldehydes, organic acids, nitrogen oxides (NO, NO^2, etc.), ammonia (NH^3), amines.

Special protective actions for fire-fighters : Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

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. Full protective clothing must be worn in case of fire.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personal : 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 spilt material. Do not breathe vapor or mist. Provide adequate ventilation. Wear a properly fitted NIOSH respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See information in “for non-emergency personal”.

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

Methods and materials for containment/cleanup : Stop spill at source without risk, dike area to prevent spreading. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, clay, diatomaceous earth or other absorbent). Allow

for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container. Repeat application of absorbent material until all liquid has been removed from the surface. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

7. Handling And Storage

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 history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear a properly fitted NIOSH 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 dangerous. Do not reuse container.

Advice on general occupational hygiene : 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.

Conditions for safe storage, including any incompatibilities : 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

Control parameters

Occupational exposure limits

None

Appropriate engineering controls : 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 contaminates below any recommended or statutory limits.

Environment 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

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.

Eye/face protection : 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, gases, or dusts. If contact is possible, the following protection should be born, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If hazards exist, a full-face respirator may be required instead.

Hand protection : 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. < 1 hour (breakthrough time) : butyl rubber (.5mm)

Body protection : Personal protection 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.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted NIOSH respirator or air-purifying or air-fed respirator complying with an approved standard if a 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.

9. Physical And Chemical Properties

Chemical family : Polyaziridine Solution
Physical State : Liquid
Color : Clear
Odor : Mild
Odor threshold : No data available
Density (Specific gravity) : 9.34 lbs./gal (1.12 g/cm³)
Viscosity : 25 cps @ 25°C
pH : No data available
Melting point/freezing point : No data available
Evaporation rate : No data available
Material VOC : 370 grams/liter
Vapor density : Heavier than air
Solubility : Data not available

Decomposition temperature : Data not available

10.Stability And Reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.
Chemical stability : Stable under normal conditions of use and storage.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid : No specific data.
Materials to avoid : Acids, strong oxidizing materials.
Hazardous decomposition products : No specific data.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Ingredient	Result	Species	Dose	Exposure	Hazard Statement Code(s)
Pentaerythritol-tris(1-(aziridinyl) propionate)	LD50 Oral	Rat-Female	2000 mg/kg	-	H302
Diethylene glycol monoethyl ether acetate	LD50 Oral LD50 Oral LD50 Oral	Rat Guinea pig Rabbit	11,000 mg/kg 3,930 mg/kg 4,400 mg/kg	- - -	- - -

Irritation/corrosion

Ingredient	Result	Species	Score	Exposure	Observation	Hazard Statement Code(s)
Pentaerythritol-tris(1-(aziridinyl) propionate)	Skin-Erythema/Eschar	Rabbit	.7	4 hours .5g	-	H315
	Eyes-Cornea opacity Eyes- Iris lesion Eyes- Redness of the conjunctivae	Rabbit Rabbit Rabbit	3.4 1.1 2.8	.1 ml .1 ml .1 ml	24-72 hours 24-72 hours 24-72 hours	H318
	Eyes- Edema of the conjunctivae	Rabbit	4	.1 ml	24-72 hours	
Diethylene glycol monoethyl ether acetate	Slight Slight	Human Rabbit	- -	- -	48 hours 48 hours	H315

Carcinogenicity
No data available.

Reproductive toxicity
No data available.

Teratogenicity
No data available.

Specific target organ toxicity (single exposure)
No data available

Specific target organ toxicity (repeated exposure)

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

Diethylene glycol monoethyl ether acetate
No data available

Aspiration hazard
No data available.

Information on likely routes of exposure
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 may occur.

Ingestion : Adverse symptoms may include the following: stomach pains

12. Ecological Information

Toxicity

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

Persistence and degradability

Ingredient	Test	Result	Dose	Inoculum
Pentaerythritol-tris(1-(aziridinyl) propionate)	OECD 301B Ready Biodegradability- CO_2 Evolution Test	1% - 29 days	-	-
Diethylene glycol monoethyl ether acetate	-	-	-	-

No data available				

Bioaccumulative potential			
Ingredient	**LogPow**	**BCF**	**Potential**
Pentaerythritol-tris(1-(aziridinyl) propionate)	-1.4	-	low
Diethylene glycol monoethyl ether acetate No data available	-	-	-

Mobility in soil	
Soil / water partition coefficient	: No data available.
Other adverse effects	: No known significant effects or critical hazards.

13. Disposal Considerations

Waste Disposal Method

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.

Empty Container Precautions

Empty containers retain product residue; observe all precautions for product. Do not cut container with torch or any type of cutting instrument because highly toxic vapors and gases are formed. Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without thorough commercial cleaning and reconditioning.

14. Transport Information

	DOT Classification	**TDG Classification**	**Mexico Classification**	**ADR/RID**	**IMDG**	**IATA**
UN Number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-	-
Transport hazard class(s)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.

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

U.S. Federal regulations : **United States Inventory (TSCA 8b):** All components are listed or exempted.

	Ingredient name	**CAS #**	**%**
Clean Air Act Section 112(b) Hazardous Air Pollutants	Pentaerythritol-tris(1-(aziridinyl) propionate)	64265-57-2	50-60%
Clean Air Act Section 602	: Not listed.		

Class I Substances	
Clean Air Act Section 602 Class II Substances	: Not listed.
DEA List I Chemicals (Precursor Chemicals)	: Not listed.
DEA List II Chemicals (Essential Chemicals)	: Not listed.

DEA List II Chemicals	: Not listed
SARA 311/312 Classification	: Immediate (acute) health hazard. Delayed (chronic) health hazard.

State regulations

Massachusetts : None of the components are listed
New York : None of the components are listed
New Jersey : None of the components are listed
Pennsylvania : None of the components are listed

California Prop. 65

Warning: This product contains a chemical know to the State of California to cause cancer.

Ingredient	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Pentaerythritol-tris(1-(aziridinyl) propionate)	Yes	No	Yes	No

International regulations

Canada inventory : All components are listed or exempt.
Chemical Weapons Convention List Schedule I, II & III Chemicals : Not listed

16. Other Information, Including Date Of Preparation Or Last Revision

HMIS Rating

Health	**3***
Flammability	**1**
Physical Hazard	**0**

Date Prepared: **January 6, 2016**

Prepared By: **R. Wirtz**

Previous Revision: **None**

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