1. Product Identification

Product name: Submarine Resin, Part A
SDS Number: 1250A00
Product type: Epoxy polymer mixture
Recommended use of the chemical and restrictions on use: Directed at, but not limited to, the repair of similar and dissimilar materials.
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: CHEMTREC (U.S. and CANADA) 1-800-424-9300, CHEMTREC (Outside the U.S.) 1-703-527-0585

2. Hazard(s) Identification

Classification of substance or mixture/Signal Word: WARNING
- SKIN CORROSION/IRRITATION - Category 2
- SERIOUS EYE DAMAGE/IRRITATION - Category 2
- SKIN SENSITIZATION - Category 1
- SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] – Category 3
- ACUTE AQUATIC TOXICITY – Category 3
- CHRONIC AQUATIC TOXICITY – Category 3

GHS Label Elements
- Hazard Pictograms

Hazard Statements/Classification of substance or mixture
- H315 Causing skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.
- H402 Harmful to aquatic life.
- H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Precautionary Statements
- Prevention
  - P261 Avoid breathing dust/fume/vapors/spray.
  - P264 Wash hands thoroughly after handling.
  - P271 Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF ON SKIN: Wash with soap and water. Take off contaminated clothing and wash before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

IF SKIN IRRITATION OR RASH OCCURS: Get medical advice/attention.

IF EXPOSED OR CONCERNED: Get medical attention.

Take off contaminated clothing and wash it before reuse.

Storage

P401 Store at room temperature in a well-ventilated area.

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Content (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol A</td>
<td>25068-38-6</td>
<td>45 – 50%</td>
</tr>
<tr>
<td>Bisphenol A epoxy - CTBN rubber adduct</td>
<td>68610-41-3</td>
<td>5 – 10%</td>
</tr>
<tr>
<td>Diglycidyl Ether of Bisphenol F</td>
<td>28064-14-4</td>
<td>5 – 10%</td>
</tr>
</tbody>
</table>

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. 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

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Ingestion

Do not induce vomiting unless directed to do so by medical personnel. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately.

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.
### 5. Fire-Fighting Measures

| Suitable extinguishing media | Alcohol-resistant foam, carbon dioxide (CO₂), dry chemical, water fog. |
| 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 must be contained and prevented from being discharged to any waterway, sewer or drain. |
| Hazardous decomposition products | Decomposition products may include the following materials: Carbon dioxide, Carbon monoxide. |
| 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. |
| 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 | Do not allow run-off from firefighting to enter drains or water courses. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. |

### 6. Accidental Release Measures

| Personal precautions | Wear proper personal protective equipment (PPE). Avoid direct contact with material. Proper PPE includes: disposable gloves, eye protection and skin protection. |
| Emergency procedures | If materials 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 | Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. |
| 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. Collect spillage. |

### 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

Store epoxy products in temperature stable environment, out of the reach of pets or children. Securely fasten container lids and tops, and prevent products from sitting and below freezing temperatures.

### 8. Exposure Controls/Personal Protection

<table>
<thead>
<tr>
<th>Occupational Exposure Limits</th>
<th>None established.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate engineering controls</td>
<td>None established.</td>
</tr>
<tr>
<td>Environmental exposure controls</td>
<td>Use only with adequate ventilation. 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.</td>
</tr>
<tr>
<td>Individual protection measures/Personal protective equipment</td>
<td>Use appropriate containment to avoid environmental contamination. Do not allow spill to enter sewers or waterways.</td>
</tr>
<tr>
<td>Eye/face protection</td>
<td>Splash-proof goggles or safety spectacles with side shields are recommended. Always wear eye protection when sanding cured epoxy resins to avoid dust in eyes.</td>
</tr>
<tr>
<td>Hand protection</td>
<td>Always wear impervious gloves: butyl rubber, nitrile rubber, Neoprene, PVC disposable gloves,</td>
</tr>
<tr>
<td>Skin protection</td>
<td>Wear clean, body-covering clothing to avoid skin contact.</td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>Use a properly fitted, 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.</td>
</tr>
<tr>
<td>Special instructions for protection and hygiene</td>
<td>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.</td>
</tr>
</tbody>
</table>

### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Chemical family</th>
<th>Epoxy Resin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White paste</td>
</tr>
<tr>
<td>Physical State</td>
<td>Epoxy polymer mixture</td>
</tr>
<tr>
<td>Form</td>
<td>Paste</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild</td>
</tr>
<tr>
<td>Density (Specific Gravity)</td>
<td>12.18 lb/gal (1.46)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>140,000 – 150,000 CPS</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Slower than ether</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Upper/lower flammability limit (by volume)  Not applicable
Upper flammability limit (by volume)  Not applicable
Lower flammability limit (by volume)  Not applicable
Material VOC  None
Vapor density  Heavier than air
Relative density  Not available
Solubility in water  Negligible
Partition coefficient: n-octanol/water  Not available
Auto-ignition temperature  Not available
Decomposition temperature  Not available

10. Stability and Reactivity

Reactivity  No specific test data related to reactivity available for this product.
Chemical Stability  Stable under normal conditions.
Possibility of hazardous reactions  Hazardous polymerization will not occur.
Conditions to avoid  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.
Incompatible materials  Strong oxidizing and reducing agents. Lewis and mineral acids.
Hazardous decomposition products  Oxides of carbon, aldehydes, and acids.
Other hazards  None known.

11. Toxicological Information

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol A</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>11,400 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>2,000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Bisphenol A epoxy – CTBN rubber adduct</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;2,000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD Dermal</td>
<td>Rabbit</td>
<td>&gt;2,000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Diglycidyl Ether of Bisphenol F</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;2,000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;2,000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Result</th>
<th>Species</th>
<th>Test</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol A</td>
<td>Moderate to severe irritation</td>
<td>Rabbit</td>
<td>Skin</td>
<td>4 h</td>
</tr>
<tr>
<td></td>
<td>Mild irritation</td>
<td>Rabbit</td>
<td>Eye</td>
<td>24 h</td>
</tr>
<tr>
<td>Diglycidyl Ether of Bisphenol F</td>
<td>Mild irritant</td>
<td>Rabbit</td>
<td>Skin</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Mild irritant</td>
<td>Rabbit</td>
<td>Eye</td>
<td>-</td>
</tr>
</tbody>
</table>
### Sensitization

No information on the product itself.

<table>
<thead>
<tr>
<th>Component</th>
<th>Result</th>
<th>Species</th>
<th>Test</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol F</td>
<td>Sensitizing</td>
<td>Guinea Pig</td>
<td>Skin</td>
<td>-</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Component</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol A</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (repeated exposure)

No information on the product itself.

### Aspiration hazard

No information on the product itself.

### Potential acute health effects

#### Eye Contact

Causes serious eye irritation.

#### Inhalation

May cause respiratory irritation.

#### Skin Contact

Causes skin irritation. May cause an allergic skin reaction.

#### Ingestion

Irritating 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

Adverse symptoms may include the following:

- Respiratory tract irritation
- Coughing

#### Skin Contact

Adverse symptoms may include the following:

- Irritation
- Redness

#### Ingestion

No specific data.

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

Not available.

### Potential chronic health effects

#### General

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

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.

### Numerical measures of toxicity

No information available.
12. Ecological Information

**Ecotoxicity**

<table>
<thead>
<tr>
<th>Component</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol A</td>
<td>Acute LC50 1.3 mg/l</td>
<td>Fish</td>
<td>96 h</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 2.1 mg/l</td>
<td>Daphnia</td>
<td>48 h</td>
</tr>
<tr>
<td>Bisphenol A epoxy – CTBN rubber adduct</td>
<td>Acute LC50 1-100 mg/l</td>
<td>Fish</td>
<td>96 h</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 1-100 mg/l</td>
<td>Invertebrates</td>
<td>48 h</td>
</tr>
<tr>
<td>Diglycidyl Ether of Bisphenol F</td>
<td>Acute LC50 1.5 mg/l</td>
<td>Fish</td>
<td>96 h</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 1.7 mg/l</td>
<td>Daphnia</td>
<td>48 h</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.3 mg/l</td>
<td>Daphnia</td>
<td>21 d</td>
</tr>
</tbody>
</table>

**Persistence and degradability**

<table>
<thead>
<tr>
<th>Component</th>
<th>Test</th>
<th>Period</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol A</td>
<td>OECD 302B</td>
<td>28 d</td>
<td>12%</td>
</tr>
<tr>
<td>Diglycidyl Ether of Bisphenol F</td>
<td>OECD 301F Derived</td>
<td>28 d</td>
<td>5%</td>
</tr>
</tbody>
</table>

**Bioaccumulative Potential**

<table>
<thead>
<tr>
<th>Component</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol A</td>
<td>2.64 – 3.78</td>
<td>3 – 31</td>
<td>Low</td>
</tr>
<tr>
<td>Diglycidyl Ether of Bisphenol F</td>
<td>3.242</td>
<td>31</td>
<td>Low</td>
</tr>
</tbody>
</table>

**Mobility in Soil**

**Soil/water partition coefficient (KOC)**

<table>
<thead>
<tr>
<th>Component</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diglycidyl Ether of Bisphenol A</td>
<td>2.64 – 3.78</td>
<td>3 – 31</td>
<td>Low</td>
</tr>
<tr>
<td>Diglycidyl Ether of Bisphenol F</td>
<td>3.242</td>
<td>31</td>
<td>Low</td>
</tr>
</tbody>
</table>

**Other adverse effects**

No known significant effects or critical hazards.

13. Disposal Considerations

**Waste from residues/ unused products**

The generation of waste should be avoided or minimized wherever possible. 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. Product should not be allowed to enter drains, water courses or the soil; dispose of this material and its containers in a safe way. 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

**DOT**
Non-regulated

**TDG**
Non-regulated

**IMO/IMDG**
UN3082
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL-A EPICHLOROHYDRIN RESIN)

**IATA**
UN3082
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL-A EPICHLOROHYDRIN RESIN)

*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)**
None.

**Pennsylvania – RTK**
None.

**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.

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>Cancer</th>
<th>Reproductive</th>
<th>No significant risk level</th>
<th>Maximum acceptable dosage level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxirane, 2-(phenoxymethyl)-</td>
<td>Yes</td>
<td>No</td>
<td>5 µg/day</td>
<td>No</td>
</tr>
<tr>
<td>Oxirane, 2-(chloromethyl)-</td>
<td>Yes</td>
<td>Yes</td>
<td>9 µg/day</td>
<td>No</td>
</tr>
</tbody>
</table>

**EPA SARA 302/304/311/312 Hazardous Chemicals**
- **Form R – Reporting requirements:** None Required
- **United States inventory (TSCA 8b):** All components are listed or exempted.

**CANADA**

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

**Canadian NPRI**
None Required

**CEPA Toxic substances**
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

<table>
<thead>
<tr>
<th>HMIS Rating</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2</td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
</tr>
</tbody>
</table>

**Date of Preparation**  September 27, 2019

**Date of Last Revision**  September 17, 2018

**Revision #**  3.0

**More Information**  1-253-333-8118

**Prepared by**  System Three Resins Inc.

The information contained herein is based on the data available to us and is believed to be correct. However, System Three Resins, Inc. makes no warranty, expressed or implied, regarding the accuracy of these data or the results to be obtained from the use thereof. System Three assumes no responsibility for injury from the use of the product described herein.