1. Product Identification

Product name: Phase Two Hardener, Part B
SDS Number: 0300B00
Product type: Epoxy Hardener
Recommended use of the chemical and restrictions on use: Recommended for, but not limited to, the matrix component for molding composite parts.
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
Skin Corrosion/Irritation – Category 1
Serious Eye Damage/Irritation – Category 1
Skin Sensitization – Category 1
Toxic to Reproduction [Fertility, Unborn child] – Category 2
Acute Aquatic Toxicity – Category 3
Chronic Aquatic Toxicity – Category 3

GHS Label Elements
Hazard Pictograms

Hazard Statements/Classification of substance or mixture
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H361 Suspected of damaging fertility or the unborn child.
H402 Harmful to aquatic life.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
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 dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
3. Composition/Information On Ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Content (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyoxypropylene diamine</td>
<td>9046-10-0</td>
<td>50 – 60%</td>
</tr>
<tr>
<td>Amine Adduct Blend</td>
<td>Trade Secret</td>
<td>40 – 45%</td>
</tr>
<tr>
<td>Tetramethyl-5-decyne-4,7-diol,2,4,7,9-</td>
<td>126-86-3</td>
<td>1 – 5%</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**
Immediately remove contaminated clothing, and any extraneous chemical, if possible to do so without delay. Flush immediately with copious amounts of water. Initiate and maintain continuous irrigation until the patient receives medical care. If medical care is not promptly available, continue to irrigate for one hour. Cover wound with sterile dressing.

**Eye contact**
Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.

**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. 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. Do not induce vomiting without medical advice. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. 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.
Inhalation

Move to fresh air.

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

**Notes to physician**
Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

**Specific treatments**
No specific treatment.

### 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**
May generate ammonia gas. May generate toxic nitrogen oxide gases. Use of water may result in the formation of very toxic aqueous solutions. Do not allow run-off from firefighting to enter drains or water courses. Incomplete combustion may form carbon monoxide. Downwind personnel must be evacuated. Burning produces noxious and toxic fumes.

**Hazardous decomposition products**
Decomposition products may include the following materials:
- Carbon dioxide
- Carbon monoxide
- Nitrogen oxides

**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**
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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Wear proper protective clothing, gloves and eye/face protection.

**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**
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.
### 7. Handling and Storage

#### Precautions for safe handling
Put on appropriate personal protective equipment. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid contact with skin and eyes. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. When using, do not eat, drink or smoke. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

#### Precautions/Recommendations for safe/proper storage
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 and food and drink. Store locked up. 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.

### 8. Exposure Controls/Personal Protection

#### Occupational Exposure Limits
None established.

#### Appropriate engineering controls
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.

#### 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. Do not allow spill to enter sewers or waterways.

#### Individual protection measures/Personal protective equipment

<table>
<thead>
<tr>
<th>Protection Type</th>
<th>Protection Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye/face protection</strong></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><strong>Hand protection</strong></td>
<td>Always wear impervious gloves: butyl rubber, nitrile rubber, Neoprene, PVC disposable gloves,</td>
</tr>
<tr>
<td><strong>Skin protection</strong></td>
<td>Wear clean, body-covering clothing to avoid skin contact.</td>
</tr>
<tr>
<td><strong>Respiratory protection</strong></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>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical family</td>
<td>Amine Curing Agent</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear Liquid</td>
</tr>
<tr>
<td>Physical State</td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Pourable liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Light amber</td>
</tr>
<tr>
<td>Odor</td>
<td>Ammonia-like odor</td>
</tr>
<tr>
<td>Density (Specific Gravity)</td>
<td>8.33 lb/gal (1.0)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>55 – 65 CPS @77°F (25°C)</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 available</td>
</tr>
<tr>
<td>Upper/lower flammability limit (by volume)</td>
<td>Not available</td>
</tr>
<tr>
<td>Upper flammability limit (by volume)</td>
<td>Not available</td>
</tr>
<tr>
<td>Lower flammability limit (by volume)</td>
<td>Not available</td>
</tr>
<tr>
<td>Material VOC</td>
<td>None</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Heavier than air</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Negligible</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Chemical Stability</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>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 a large mass as the ensuing exotherm may result in heat and smoke.</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Strong oxidizing agents and mineral acids.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Oxides of carbon, nitrogen.</td>
</tr>
</tbody>
</table>
Other hazards

None known.

11. Toxicological Information

Acute Health Hazard (components)

<table>
<thead>
<tr>
<th>Component</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyoxypolyamine</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2,885.3 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation</td>
<td>Rat</td>
<td>&gt;0.74 mg/l</td>
<td>8 h</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>2,979.7 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion (components)

<table>
<thead>
<tr>
<th>Component</th>
<th>Result</th>
<th>Species</th>
<th>Test</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyoxypolyamine</td>
<td>Skin Corrosive</td>
<td>Rabbit</td>
<td>-</td>
<td>1-4 h</td>
</tr>
<tr>
<td></td>
<td>Eye Corrosive</td>
<td>Rabbit</td>
<td>OECD Test Guideline 405</td>
<td>-</td>
</tr>
</tbody>
</table>

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.

Specific target organ toxicity (single exposure)

No information on product itself.

Specific target organ toxicity (repeated exposure)

No information on product itself.

Aspiration hazard

No information on product itself.

Potential acute health effects

Eye Contact
Causes serious eye damage.

Inhalation
No data available.

Skin Contact
Causes severe burns. May cause an allergic skin reaction.

Ingestion
Harmful if swallowed. Contains Ethylene Glycol which may cause birth defects. May cause central nervous system effects, such as headache, nausea, vomiting, abdominal pain, dizziness, confusion, breathing difficulties. Severe cases of overexposure can result in respiratory failure. Exposure to large amounts of ethylene glycol can damage kidneys, heart, and nervous system.

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

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

Acute toxicity estimates (ATEmix)
Not available.

12. Ecological Information

Ecotoxicity
No information on product itself.

<table>
<thead>
<tr>
<th>Component</th>
<th>Test</th>
<th>Species</th>
<th>Result</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyoxypolyene diamine</td>
<td>Acute EC50: OECD 203 Fish, Acute Toxicity Test</td>
<td>Fish</td>
<td>&gt;15 mg/l</td>
<td>96 h Semi-static</td>
</tr>
<tr>
<td></td>
<td>Acute EC50: OECD 203 Fish, Acute Toxicity Test</td>
<td>Fish</td>
<td>772.14 mg/l</td>
<td>96 h Static</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC: OECD 201 Alga, Growth Inhibition Test</td>
<td>Algae</td>
<td>0.32 mg/l</td>
<td>72 h Static</td>
</tr>
<tr>
<td>Tetramethyl-5-decyno-4,7-diol,2,4,7,9-</td>
<td>Acute LC50</td>
<td>Fish</td>
<td>42 mg/l</td>
<td>24 h</td>
</tr>
<tr>
<td></td>
<td>Acute EC50</td>
<td>Daphnia magna</td>
<td>91 mg/l</td>
<td>48 h</td>
</tr>
<tr>
<td></td>
<td>Acute EC50</td>
<td>Algae</td>
<td>82 mg/l</td>
<td>72 h</td>
</tr>
</tbody>
</table>

Persistence and degradability
No information on product itself.

<table>
<thead>
<tr>
<th>Component</th>
<th>Test</th>
<th>Period</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyoxypolyene diamine</td>
<td>OECD 301B Ready Biodegradability – CO2 Evolution Test</td>
<td>28 days</td>
<td>0%</td>
</tr>
</tbody>
</table>

Bioaccumulative Potential
No information on product itself.

<table>
<thead>
<tr>
<th>Component</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyoxypolyene diamine</td>
<td>1.34</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

Mobility in Soil

Soil/water partition coefficient (KOC)
No information on product itself.

Other adverse effects
No known significant effects or critical hazards.

13. Disposal Considerations
Waste from residues/ unused products

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.

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>UN/NA number</th>
<th>Proper Shipping Name</th>
<th>Classes/*PG</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT</td>
<td>UN2735</td>
<td>Amines, liquid, corrosive, n.o.s. (polyoxypropylene diamine)</td>
<td>Class 8 III</td>
<td></td>
</tr>
<tr>
<td>TDG</td>
<td>UN2735</td>
<td>Amines, liquid, corrosive, n.o.s. (polyoxypropylene diamine)</td>
<td>Class 8 III</td>
<td></td>
</tr>
<tr>
<td>IMO/IMDG</td>
<td>UN2735</td>
<td>Amines, liquid, corrosive, n.o.s. (polyoxypropylene diamine)</td>
<td>Class 8 III</td>
<td></td>
</tr>
<tr>
<td>IATA</td>
<td>UN2735</td>
<td>Amines, liquid, corrosive, n.o.s. (polyoxypropylene diamine)</td>
<td>Class 8 III</td>
<td></td>
</tr>
</tbody>
</table>

*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 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 a chemical known in the State of California to cause cancer. WARNING! This product contains a chemical known in 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>
</tr>
</thead>
<tbody>
<tr>
<td>Methyloxirane</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Methyl iso-butyl ketone</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

EPA SARA 302 Extremely Hazardous Substances

None.

EPA SARA 302/304/311/312 Hazardous Chemicals

Acute Health Hazard, Chronic Health Hazard
<table>
<thead>
<tr>
<th>Product Name</th>
<th>Concentration %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td></td>
</tr>
</tbody>
</table>

**CERCLA Hazardous substances**

<table>
<thead>
<tr>
<th>Component</th>
<th>%</th>
<th>Section 304 CERCLA Hazardous Substance</th>
<th>CERCLA Reportable Quantity (Lbs)</th>
<th>Product Reportable Quantity (Lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene oxide</td>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**United States inventory (TSCA 8b)**

All components are listed or exempted.

**CANADA**

**WHMIS (Canada)**

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

Class E: Corrosive material.

**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**

**HMIS Rating**

- Health 3
- Flammability 1
- Physical Hazard 0

**Date of Preparation**

January 15, 2020

**Date of Last Revision**

September 12, 2019

**Revision #**

4.0

**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.