

SYSTEMTHREE

Safety Data Sheets (SDS)

Updated: May 5, 2023

This file contains Safety Data Sheets for RotFix. This is a two-component system. It is imperative that you know whether you need information on the Resin or the Hardener.

Resin: Pages 2-10

Hardener: Pages 11-19

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

| | |
|---|--|
| Product name | Rot Fix Resin, Part A |
| SDS Number | 1500A00 |
| Product type | Epoxy polymer mixture |
| Recommended use of the chemical and restrictions on use | Rot repair resin component. |
| 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 | WARNING Skin Corrosion/Irritation - Category 2 Serious Eye Damage/Eye Irritation - Category 2 Skin Sensitization - Category 1 Specific Target Organ Toxicity (Single Exposure) [Respiratory tract irritation] – Category 3 |
| <u>GHS Label Elements</u> Hazard Pictograms |  |
| Hazard Statements/Classification of substance or mixture | H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. |
| Precautionary statements | |
| <u>Precautionary Statements</u> Prevention | P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P264 Wash hands thoroughly after handling. P272 Contaminated work clothing should not be allowed out of the workplace. |

| | |
|--|--|
| Response | <p>P280 Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>P304 + 340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P313 Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>P302+352+363 IF ON SKIN: Wash with soap and water. Take off contaminated clothing and wash before reuse.</p> <p>P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.</p> |
| Storage | P308 + P313 If exposed or concerned: Get medical attention. |
| Disposal | P401 Store at room temperature in a well-ventilated area. |
| | 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 (%) |
|---------------------------------|------------|-------------|
| Diglycidyl Ether of Bisphenol A | 25068-38-6 | 40 – 50 % |
| Alkyl Glycidyl Ether | 17557-23-2 | 35 – 45 % |
| Benzyl Alcohol | 100-51-6 | 1 – 10 % |
| Diglycidyl Ether of Bisphenol F | 28064-14-4 | 1 – 10% |

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

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|---------------------|---|
| 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. |
| Specific treatments | No specific treatment. |

5. Fire-Fighting Measures

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|---|--|
| Suitable extinguishing media | Alcohol-resistant foam, carbon dioxide (CO ₂), 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

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|--|--|
| 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 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. |
| 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

| | |
|---|---|
| Occupational Exposure Limits | Not 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 | Use appropriate containment to avoid environmental contamination. Do not allow spill to enter sewers or waterways. |
| Individual protection measures/Personal protective equipment | |
| Eye/face protection | 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. |
| Hand protection | Always wear impervious gloves: butyl rubber, nitrile rubber, Neoprene, PVC disposable gloves, |
| Skin protection | Wear clean, body-covering clothing to avoid skin contact. |
| Respiratory protection | 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. |
| 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 | Epoxy Resin |
| Appearance | Clear liquid |
| Physical State | Epoxy polymer mixture |
| Form | Liquid |
| Color | Water clear |
| Odor | Mild |
| Density (Specific Gravity) | 9.31 lb/gal (1.1-1.2) |
| Viscosity | 150 - 200 cps @ 25°C |
| pH | Not available |
| Melting point/freezing point | Not available |
| Initial boiling point and boiling range | Not available |
| Flash point | Not available |
| Evaporation rate | Slower than ether |
| Flammability (solid, gas) | Not available |
| Upper/lower flammability limit (by volume) | Not available |
| Material VOC | None |
| Vapor density | Heavier than air |
| Relative density | Not determined |
| Solubility in water | Negligible, in water |

| | |
|--|---------------|
| 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).

| Component | Result | Species | Dose | Exposure |
|---------------------------------|-----------------|---------|-------------------------|--------------|
| Diglycidyl Ether of Bisphenol A | LD50 Oral | Rat | 11,400 mg/kg | - |
| | LD50 Dermal | Rat | 2,000 mg/kg | - |
| Diglycidyl Ether of Bisphenol F | LD50 Oral | Rat | >2,000 mg/kg | - |
| | LD50 Dermal | Rat | >2,000 mg/kg | - |
| Alkyl Glycidyl Ether | LD50 Oral | Rat | 4,500 mg/kg | - |
| | LD50 Dermal | Rabbit | >2,000 mg/kg | - |
| Benzyl Alcohol | LD50 Oral | Rat | 1620 mg/kg | - |
| | LC50 Inhalation | Rat | >4178 mg/m ³ | 4 h, aerosol |

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

| Component | Result | Species | Test | Exposure |
|---------------------------------|-------------------------------|---------|------|----------|
| Diglycidyl Ether of Bisphenol A | Moderate to severe irritation | Rabbit | Skin | 4 h |
| | Mild irritation | Rabbit | Eye | 24 h |
| Diglycidyl Ether of Bisphenol F | Mild irritant | Rabbit | Skin | - |
| | Mild irritant | Rabbit | Eye | - |
| Benzyl Alcohol | Irritant | Rabbit | Eye | - |

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.

| Component | Category | Route of exposure | Target organs |
|---------------------------------|------------|-------------------|------------------------------|
| Diglycidyl Ether of Bisphenol A | Category 3 | - | Respiratory tract irritation |
| Diglycidyl Ether of Bisphenol F | Category 3 | - | Respiratory tract irritation |
| Alkyl Glycidyl Ether | Category 3 | - | Respiratory tract irritation |

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 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

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.

| Component | Result | Species | Exposure |
|---------------------------------|-----------------------|---------------|----------|
| Diglycidyl Ether of Bisphenol A | Acute LC50 1.3 mg/l | Fish | 96 h |
| | Acute LC50 2.1 mg/l | Daphnia | 48 h |
| Diglycidyl Ether of Bisphenol F | Acute LC50 1.5 mg/l | Fish | 96 h |
| | Acute LC50 1.7 mg/l | Daphnia | 48 h |
| | Chronic NOEC 0.3 mg/l | Daphnia | 21 d |
| Benzyl Alcohol | Acute LC50 460 mg/l | Fish | 96 h |
| | Acute EC50 230 mg/l | Invertebrates | 48 h |
| | Chronic NOEC 310 mg/l | Algae | 72 h |

Persistence and degradability

No information on product itself.

Bioaccumulative Potential

No information on product itself.

| Component | LogPow | BCF | Potential |
|---------------------------------|-------------|-------------------|-----------|
| Diglycidyl Ether of Bisphenol A | 2.64 – 3.78 | 3 – 31 31.00 | low |
| Diglycidyl Ether of Bisphenol F | 3 | - | low |
| Benzyl Alcohol | 1.05 | 1.37 (calculated) | - |

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

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 | UN/NA number | Proper Shipping Name | Classes/*PG | Additional Information |
|------------------------|--------------|----------------------|-------------|------------------------|
| DOT | | Non-regulated | | |
| TDG | | Non-regulated | | |

| | | | |
|-----------------|--------|---|-------------|
| IMO/IMDG | UN3082 | Environmentally hazardous substance, liquid, n.o.s. (Bisphenol-A Epichlorohydrin Resin) | Class 9 III |
| IATA | UN3082 | Environmentally hazardous substance, liquid, n.o.s. (Bisphenol-A Epichlorohydrin Resin) | Class 9 III |

*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)
California Prop. 65**

None

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.

| Ingredient Name | Cancer | Reproductive | No significant risk level | Maximum acceptable dosage level |
|----------------------------|--------|--------------|---------------------------|---------------------------------|
| Oxirane, 2-(phenoxyethyl)- | Yes | No | 5 µg/day | No |
| Oxirane, 2-(chloromethyl)- | Yes | Yes | 9 µg/day | No |

EPA SARA 302 Extremely Hazardous Substances

None required

EPA SARA 302/304/311/312 Hazardous Chemicals

Acute Health Hazard

SARA 313

None required

**Form R – Reporting requirements
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

HMIS Rating

Health 2
Flammability 1
Physical Hazard 0

| | |
|------------------------------|--------------------------|
| Date of Preparation | January 22, 2020 |
| Date of Last Revision | September 26, 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.

1. Product Identification

| | |
|--|--|
| Product name | Rot Fix Hardener, Part B |
| SDS Number | 1500B00 |
| Product type | Amine curing agent. |
| Recommended use of the chemical and restrictions on use | Rot repair hardener component. |
| 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 2 SERIOUS EYE DAMAGE/EYE IRRITATION – Category 1 RESPIRATORY SENSITIZER – Category 1 SKIN SENSITIZATION – Category 1 GERM CELL MUTAGENICITY – Category 2 REPRODUCTIVE TOXICITY – Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Eyes, mucous membrane] – Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) [Respiratory tract irritation] – Category 2 |
|---|--|

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. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H341 Suspected of causing genetic defects. H361 Suspected of damaging fertility or the unborn child. H370 Causes damage to organs. |
|---|--|

H373 May cause 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.
P260 Do not breathe fumes/vapors.
P261 Avoid breathing fumes/vapors.
P264 Wash hands and exposed skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated clothing should not be allowed out of the workplace.
P280 Wear eye protection/face protection. Wear protective gloves.
P284 [In case of inadequate ventilation] wear respiratory protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361+ P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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 + P313 IF exposed or concerned: Get medical advice/attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P310 Immediately call a POISON CENTER/doctor.
P405 Store locked up.
P501 Disposal of contents/container to be specified in accordance with regulations.

Response

Storage

Disposal

Hazards not otherwise classified (HNOC)

None known.

3. Composition/Information On Ingredients

| Chemical Name | CAS Number | Content (%) |
|--|-------------|-------------|
| Modified polyethylene polyamine adduct | Proprietary | 35% |
| Reaction products of TETA with phenol/formaldehyde | 32610-77-8 | 24% |
| Benzyl Alcohol | 100-51-6 | 25% |
| Triethylenetetramine (TETA) | 112-24-3 | 5% |
| Phenol | 108-95-2 | 2% |
| Diethylenetriamine | 111-40-0 | 5% |
| Tetraethylenepentamine | 112-57-2 | 2% |
| 4,4'-Isopropylidenediphenol | 80-05-7 | 2% |

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

Wash off immediately with plenty of water for at least 20 minutes. Immediately remove contaminated clothing, and any extraneous chemical, if

possible to do so without delay. Take off contaminated clothing and shoes immediately.

Eye contact

Rinse immediately with plenty of water also under the eyelids for at least 20 minutes. Remove contact lenses.

Ingestion

If a person vomits when lying on his back, place him in the recovery position. Prevent aspiration of vomit. Turn victim's head to the side.

Inhalation

If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Move to fresh air.

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

Notes to physician

Application of corticosteroid cream has been effective in treating skin irritation.

Specific treatments

No specific treatment.

5. Fire-Fighting Measures

Suitable extinguishing media

Alcohol-resistant foam, carbon dioxide (CO₂), dry chemical, dry sand, limestone powder.

Unsuitable extinguishing media

None known.

Specific hazards arising from the chemical

May generate ammonia gas. May generate toxic nitrogen oxide gases. 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

Use self-contained breathing apparatus and chemically protective clothing. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.

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.

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). Construct a dike to prevent spreading.

7. Handling and Storage

| | |
|--|--|
| Precautions for safe handling | Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations. Avoid contact with eyes. Use only in well-ventilated areas. Avoid breathing vapors and/or aerosols. Put on appropriate personal protective equipment (see Section 8). When using, do not eat, drink or smoke. |
| Precautions/Recommendations for safe/proper storage | Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks. Do not store near acids. Keep containers tightly closed in a dry, cool and well-ventilated place. |

8. Exposure Controls/Personal Protection

| | |
|---|---|
| Occupational Exposure Limits | None established. |
| Appropriate engineering controls | Provide readily accessible eye wash stations and safety showers. Provide natural ventilation adequate to ensure concentrations are kept below exposure limits. |
| Environmental exposure controls | Do not allow spill to enter sewers or waterways. |
| Individual protection measures/Personal protective equipment | |
| Eye/face protection | 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. |
| Hand protection | Always wear impervious gloves: butyl rubber, nitrile rubber, Neoprene, PVC disposable gloves. |
| Skin protection | Wear clean, body-covering clothing to avoid skin contact. |
| Respiratory protection | 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. |
| Special instructions for protection and hygiene | Discard contaminated leather articles. Provide readily accessible eye wash stations and safety showers. Wash hands at the end of each work shift and before eating, smoking or using the toilet. |

9. Physical and Chemical Properties

| | |
|-----------------------------------|---------------------------|
| Chemical family | Amine curing agent |
| Appearance | Dark liquid |
| Physical State | |
| Form | Liquid |
| Color | Red-orange |
| Odor | Characteristic amine odor |
| Density (Specific Gravity) | 0.97 |
| Viscosity | 300 – 400 CPS @25°C |

| | |
|---|-------------------|
| pH | N/A |
| Melting point/freezing point | N/A |
| Initial boiling point and boiling range | N/A |
| Flash point | N/A |
| Evaporation rate | Slower than ether |
| Upper/lower flammability limit (by volume) | N/A |
| Material VOC | None |
| Vapor density | Heavier than air |
| Relative density | N/A |
| Solubility in water | Negligible |
| Partition coefficient: n-octanol/water | N/A |

10. Stability and Reactivity

| | |
|---|---|
| Reactivity | Stable under normal conditions. |
| Chemical Stability | Stable. |
| Possibility of hazardous reactions | Under normal conditions of storage and use, hazardous reactions 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 a large mass as the ensuing exothermic reaction may result in heat and smoke. |
| Incompatible materials | Strong oxidizing agents, mineral acids. |
| Hazardous decomposition products | Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition. Decomposition of this product may emit oxides of carbon and nitrogen. |
| Other hazards | None known. |

11. Toxicological Information

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

| Component | Result | Species | Dose | Exposure |
|-----------------------------|-----------------------|---------|-------------------------|--------------|
| 4,4'-Isopropylidenediphenol | Acute LD50 Oral | Rat | 3,250 mg/kg | - |
| | Acute LD50 Dermal | Rabbit | 3,000 mg/kg | - |
| Benzyl Alcohol | Acute LD50 Oral | Rat | 1620 mg/kg | - |
| | Acute LC50 Inhalation | Rat | >4178 mg/m ³ | 4 h, aerosol |
| Diethylenetriamine | Acute LD50 Oral | Rat | 1,080 mg/kg | - |
| | Acute LD50 Dermal | Rabbit | 675 mg/kg | - |
| Phenol | Acute LD50 Inhalation | Rat | >900 mg/m ³ | - |
| | Acute LD50 Oral | Rat | 340 to 540 mg/kg | - |
| | Acute LD50 Dermal | Rat | 660 mg/kg | - |
| Tetraethylenepentamine | Acute LD50 Oral | Rat | 3,990 mg/kg | - |

| | | | | |
|----------------------|-------------------|--------|-------------|---|
| Triethylenetetramine | Acute LD50 Oral | Rat | 2,500 mg/kg | - |
| | Acute LD50 Dermal | Rabbit | 550 mg/kg | - |

Irritation/Corrosion (components) No data is available for the product itself.

| Component | Result | Species | Test | Exposure |
|------------------------|------------------------|---------|------|----------|
| Benzyl Alcohol | Non-irritant | Rabbit | Skin | - |
| | Irritant | Rabbit | Eyes | - |
| Diethylenetriamine | Moderate irritant | Rabbit | Skin | - |
| Phenol | Corrosive | Rabbit | Skin | - |
| | Corrosive | Rabbit | Eyes | - |
| Tetraethylenepentamine | Corrosive | Rabbit | Skin | - |
| | Severe eye irritation | - | Eyes | - |
| Triethylenetetramine | Severe skin irritation | - | Skin | - |
| | Severe eye irritation | - | Eyes | - |

Sensitization May cause sensitization by skin contact.

Mutagenicity No data is available on the product itself.

Carcinogenicity No data is available on the product itself.

Reproductive Toxicity No data is available on the product itself.

Teratogenicity No data is available on the product itself.

Specific target organ toxicity (single exposure) No data is available on the product itself.

| Component | Category | Route of Exposure | Target Organs |
|--|----------|-------------------|------------------------------|
| Modified polyethylene polyamine adduct | 3 | - | Respiratory tract irritation |
| 4,4'-Isopropylidenediphenol | 3 | - | Respiratory tract irritation |
| | 2 | - | CNS |
| Diethylenetriamine | 2 | - | Eyes, CNS |
| Tetraethylenepentamine | 1 | - | Eyes, Mucous membrane |

Specific target organ toxicity (repeated exposure) No data is available on the product itself.

| Component | Category | Route of Exposure | Target Organs |
|--|----------|-------------------|-----------------------------|
| Modified polyethylene polyamine adduct | 1 | - | Skin |
| 4,4'-Isopropylidenediphenol | 2 | - | Bladder, kidneys, liver |
| Diethylenetriamine | 1 | - | Kidneys, liver, lungs, skin |
| Tetraethylenepentamine | 1 | - | Skin, respiratory tract |
| | 2 | - | Kidneys, liver |

Aspiration hazard No data is available on the product itself.

Potential acute health effects

Eye Contact Causes serious eye damage.

Inhalation May cause respiratory irritation.

Skin Contact Causes severe skin burns.

Ingestion

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

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

No data is available on the product itself.

Inhalation

No data is available on the product itself.

Skin Contact

No data is available on the product itself.

Ingestion

No data is available on the product itself.

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

No data is available on the product itself.

Potential chronic health effects**General**

Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity

No significant effects or critical hazards.

Mutagenicity

A component in this product indicate mutagenic activity.

Teratogenicity

No significant effects or critical hazards.

Developmental effects

No significant effects or critical hazards.

Fertility effects

No significant effects or critical hazards.

Numerical measures of toxicity**Acute toxicity estimates (ATEmix)**

Not available.

12. Ecological Information

Ecotoxicity

No data is available on the product itself.

| Component | Test | Exposure | Species | Result |
|----------------------|------|----------|---------------|------------|
| Benzyl Alcohol | LC50 | 96 h | Fish | 460 mg/l |
| | EC50 | 48 h | Invertebrates | 230 mg/l |
| | EC50 | 72 h | Algae | 770 mg/l |
| Phenol | EC50 | 48 h | Daphnia | 4 – 7 mg/l |
| Triethylenetetramine | EC50 | 72 h | Algae | 2.5 mg/l |
| | EC50 | 48 h | Water flea | 31.1 mg/l |

Persistence and degradability

No data is available on the product itself.

Bioaccumulative Potential

No data is available on the product itself.

| Component | LogPow | BCF | Potential |
|-----------------------------|--------|------------------|-----------|
| 4,4'-Isopropylidenediphenol | 3.4 | 73 | low |
| Benzyl Alcohol | 1.05 | 1.3 (calculated) | - |
| Diethylenetriamine | -1.3 | 0.65 2.80 | low |
| Phenol | - | - | low |

Mobility in Soil

No data is available on the product itself.

Soil/water partition coefficient (KOC)

No data is available on the product itself.

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. Dispose of surplus and non-recyclable products 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

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

UNITED STATES

| U.S. Federal Regulations | <p>United States – TSCA 12(b) – Chemical export notification: None Required.</p> <p>United States – TSCA 5(a)2 – Final significant new use rules: Not Listed.</p> <p>United States – TSCA 5(a)2 – Proposed significant new use rules: Not Listed.</p> <p>United States – TSCA 5(e) – Substance consent order: Not listed.</p> | | | | |
|---|---|--------------|-----------------|--------|-------|
| 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) | <table border="1"> <thead> <tr> <th>Product Name</th> <th>Concentration %</th> </tr> </thead> <tbody> <tr> <td>Phenol</td> <td>0 – 1</td> </tr> </tbody> </table> | Product Name | Concentration % | Phenol | 0 – 1 |
| Product Name | Concentration % | | | | |
| Phenol | 0 – 1 | | | | |
| Pennsylvania – RTK | Phenol | | | | |
| California Prop. 65 | None required. | | | | |
| EPA SARA 302 Extremely Hazardous Substances | None known | | | | |
| EPA SARA 302/304/311/312 Hazardous Chemicals | Acute Health Hazard, Chronic Health Hazard | | | | |

SARA 313
Form R – Reporting requirements

| Product Name | | Concentration % | | |
|--------------|---|---|---|--|
| Phenol | | 0 – 1 | | |
| Component | % | Section 304 CERCLA Hazardous Substance | CERCLA Reportable Quantity (Lbs) | Product Reportable Quantity (Lbs) |
| Phenol | 1 | Listed | | |

CERCLA Hazardous substances

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
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 | 3 |
| Flammability | 1 |
| Physical Hazard | 0 |

Date of Preparation May 5, 2023
Date of Last Revision March 2, 2023
Revision # 7.0
More Information 1-253-333-8118
Prepared by System Three Resins Inc.

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