

SYSTEMTHREE

Safety Data Sheets (SDS)

Updated: January 1, 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

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

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

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 1 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
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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.
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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	UN2735	Amines, liquid, corrosive, n.o.s. (polyalkylamines, triethyleneamine)	Class 8 III	
TDG	UN2735	Amines, liquid, corrosive, n.o.s. (polyalkylamines, triethyleneamine)	Class 8 III	
IMO/IMDG	UN2735	Amines, liquid, corrosive, n.o.s. (polyalkylamines, triethyleneamine)	Class 8 III	
IATA	UN2735	Amines, liquid, corrosive, n.o.s. (polyalkylamines, triethyleneamine)	Class 8 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 manufactured with ozone depleting substances.

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

Product Name	Concentration %
Phenol	0 – 1

Pennsylvania – RTK

Phenol

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

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 January 22, 2020
Date of Last Revision September 26, 2019
Revision # 5.0
More Information 1-253-333-8118
Prepared by System Three Resins Inc.

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