

1. Product Identification

Product name	Mirrorcoat [®] Hardener, Part B
SDS Number	0500B00
Product type	Epoxy curing agent.
Recommended use of the chemical and restrictions on use	Directed at, but not limited to, the coating of wood and other horizontal substrates.
Restrictions	None known.
Manufacturer/Supplier information	
Company name	SYSTEM THREE RESINS, INC.
Address	3500 W. Valley Hwy, Suite Suite 105 Auburn, WA 98001-2436 United States
Telephone	1-253-333-8118
Website	www.systemthree.com
Email	support@systemthree.com
Emergency Contact	CHEMTREC (U.S. and CANADA) 1-800-424-9300 CHEMTREC (Outside the U.S.) 1-703-527-0585

2. Hazard(s) Identification

Classification of substance or mixture/Signal Word	DANGER Acute Toxicity [Oral] – Category 4 Skin Corrosion/Irritation – Category 1 Serious Eye Damage/Eye Irritation – Category 1 Skin Sensitization – Category 1 Reproductive Toxicity – Category 1 Specific Target Organ Toxicity (Repeated Exposure) [Central nervous system] – Category 2 Acute Aquatic Toxicity – Category 1 Chronic Aquatic Toxicity – Category 1
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GHS Label Elements
Hazard Pictograms

Hazard Statements/Classification of substance or mixture	H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H360 May damage fertility or the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life.
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H410 Very toxic 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 dusts/mists/vapors/spray.
P261 Avoid breathing vapor.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.

Response

P273 Avoid release to the environment.
P280 Wear protective gloves. Wear eye or face protection.
P301+330+331 IF SWALLOWED: Rinse mouth. Do not induce vomiting.
P303+361+353 IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + 340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+313 IF exposed or concerned: Get medical advice/attention.
P310 Immediately call a POISON CENTER/doctor.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P333+313 If skin irritation or rash occurs: Get medical advice/attention.

Storage

P362+364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Disposal

P401 Store at room temperature in a well-ventilated area.
P405 Store locked up.
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 (%)
Polyoxypropylenediamine	9046-10-0	40 – 50%
Nonyl Phenol	84852-15-3	30 – 40%
1,3-cyclohexanedimethanamine	2579-20-6	15 – 20%
n-Aminoethylpiperazine	140-31-8	1 – 5%

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 material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watch bands.

Eye contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for

at least 15 minutes. Suitable emergency eye wash facility should be available in work area. Get medical attention immediately if irritation persists.

Ingestion

Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Inhalation

Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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, dry chemical, water fog or carbon dioxide (CO₂).

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

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.

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).

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

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

Special instructions for protection and hygiene

selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Discard contaminated leather articles. Remove contaminated clothing. Wash at the end of each work shift and before eating smoking or using the toilet. Provide readily accessible eye wash stations and safety showers.

9. Physical and Chemical Properties

Chemical family	Amine curing agent
Appearance	Clear liquid
Physical State	
Form	Liquid
Color	Slightly yellow
Odor	Mild
Density (Specific Gravity)	7.99 lb/gal (0.96)
Viscosity	110 - 120 cps @ 25°C
pH	Alkaline
Melting point/freezing point	Data not available
Initial boiling point and boiling range	Data not available
Flash point	230°F, Pensky-Martens Closed Cup
Evaporation rate	Slower than ether
Flammability (solid, gas)	Data not available
Upper/lower flammability limit (by volume)	Data not available
Material VOC	None
Vapor density	Heavier than air
Relative density	Not determined
Solubility in water	Data not available
Partition coefficient: n-octanol/water	Data not available
Auto-ignition temperature	Data not available
Decomposition temperature	Data not available

10. Stability and Reactivity

Reactivity	None
Chemical Stability	Stable
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 agents and strong acids.
Hazardous decomposition products	Ammonia, oxides of carbon, aldehydes, ketones, and nitrogen oxides.

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
Polyoxypropylenediamine	LD50 Oral	Rat	2,885 mg/kg	-
	LD50 Dermal	Rabbit	2,979 mg/kg	-
	LC50 Inhalation	Rat	>0.74 mg/l	8 h
Nonyl Phenol	LD50 Dermal	Rabbit	2,000 mg/kg	-
	LD50 Oral	Rat	930 mg/kg	-
1,3-cyclohexanedimethanamine	LD50 Oral	Rat	700 mg/kg (male) 780 mg/kg (female)	-
	LD50 Dermal	Rabbit	1700 mg/kg	-
n-Aminoethylpiperazine	LD Oral	Rat	>1,000 mg/kg	-
	LD50 Dermal	Rabbit	866 mg/kg	-

Irritation/Corrosion (components)

Classifies as Skin corrosion Category 1 per positive Corrositex Dermal testing.
Classifies as Serious eye damage Category 1 per GHS calculations of additivity.

Component	Result	Species	Test	Exposure
Polyoxypropylenediamine	Skin-Corrosive	-	-	1-4 h
	Eyes-Corrosive	Rabbit	405 OECD Test Guideline	-
1,3-cyclohexanedimethanamine	Skin-Corrosive	Rabbit	-	3 min
n-Aminoethylpiperazine	Eyes-Moderate irritant	Rabbit	-	24 h
	Skin-Severe irritant	Rabbit	-	24 h

Sensitization

No data is available for this product.

Component	Test	Route of exposure	Species	Result
n-Aminoethylpiperazine	OECD 406 Skin Sensitization	Skin	Guinea pig	Sensitizing

Mutagenicity

No data is available for this product.

Carcinogenicity

No data is available for this product.

Reproductive Toxicity

A component has been shown to cause reproductive/teratogenic effects in laboratory animals (Phenol).

Teratogenicity

A component has been shown to cause reproductive/teratogenic effects in laboratory animals (Phenol).

Specific target organ toxicity (single exposure)

No data is available for this product.

Specific target organ toxicity (repeated exposure)

No data is available for this product.

Aspiration hazard

No data is available for this product.

Potential acute health effects

Eye Contact

Causes serious eye damage.

Inhalation May cause damage to organs through prolonged or repeated exposure.
Skin Contact Causes severe skin burns. May cause an allergic skin reaction.
Ingestion Harmful if swallowed. May cause burns to mouth, throat, and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

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

Inhalation Adverse symptoms may include the following:
Coughing

Skin Contact Adverse symptoms may include the following:
Pain or irritation
Redness
Blistering may occur
Reduced fetal weight
Increase in fetal deaths

Ingestion Adverse symptoms may include the following:
Stomach pains
Reduced fetal weight
Increase in fetal deaths

Delayed and immediate effects and also chronic effects from short and long term exposure No data is available for this product.

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 Suspected of damaging the unborn child.
Developmental effects No known significant effects or critical hazards.
Fertility effects Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates (ATEmix)

Route	ATE value
Oral	1847.8 mg/kg
Dermal	2119.7 mg/kg
Inhalation (vapors)	N/A

12. Ecological Information

Ecotoxicity

No information on the product itself.

Component	Test	Species	Result	Exposure
Polyoxypropylenediamine	Acute EC50: OECD 203 Fish, Acute Toxicity Test	Fish	>15 mg/l	96 h Semi-static
	Acute EC50: OECD 203 Fish, Acute Toxicity Test	Fish	772.14 mg/l	96 h Static

	Chronic NOEC: OECD 201 Alga, Growth Inhibition Test	Algae	0.32 mg/l	72 h Static
Nonyl Phenol	LC50	Fish	0.209 mg/l	96 h
	EC50	Daphnia	0.0844 mg/l	48 h
1,3-cyclohexanedimethanamine	EC50	Daphnia	33.1 mg/l	48 h
	LC50	Golden orfe	130 mg/l	96 h
n-Aminoethylpiperazine	Acute EC50: OECD 201 Alga, Growth Inhibition Test	Algae	>1,000 mg/l	72 h

Persistence and degradability No information on the product itself.

Component	Test	Period	Result
Polyoxypropylenediamine	OECD 301B Ready Biodegradability – CO2 Evolution Test	28 days	0%
Nonyl Phenol	OECD 301B	35 d	48.2%
1,3-cyclohexanedimethanamine	OECD 301B	28 days	29%
n-Aminoethylpiperazine	OECD 301F Ready Biodegradability – Manometric Respirometry Test	28 days	0%

Bioaccumulative Potential No information on the product itself.

Component	LogPow	BCF	Potential
Polyoxypropylenediamine	1.34	-	low
Nonyl Phenol	5.4	740	high
1,3-cyclohexanedimethanamine	0.783	3.16 (calculated)	-
n-Aminoethylpiperazine	-1.48	-	low

Mobility in Soil

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

Other adverse effects No know 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	UN2735	Amines, liquid, corrosive, n.o.s. (1,3-cyclohexanedimethanamine, Nonyl Phenol)	Class 8 II	
TDG	UN2735	Amines, liquid, corrosive, n.o.s. (1,3-cyclohexanedimethanamine, Nonyl Phenol)	Class 8 II	
IMO/IMDG	UN2735	Amines, liquid, corrosive, n.o.s. (1,3-cyclohexanedimethanamine, Nonyl Phenol)	Class 8 II	Marine pollutant
IATA (Cargo)	UN2735	Amines, liquid, corrosive, n.o.s. (1,3-cyclohexanedimethanamine, Nonyl Phenol)	Class 8 II	

*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 5E – 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)

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 required.

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

CERCLA Hazardous substances

Component	%	Section 304 CERCLA Hazardous Substance	CERCLA Reportable Quantity (Lbs)	Product Reportable Quantity (Lbs)
Phenol	1	Listed	1000	100000
Propylene oxide			100	

United States inventory (TSCA 8b)

All components are listed or exempted.

CANADA

WHMIS (Canada)

Class D-2B, E: Corrosive 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 3
Flammability 1
Physical Hazard 0

Date of Preparation	February 11, 2019
Date of Last Revision	November 15, 2018
Revision #	6.0
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.