

**1. Product Identification**

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<b>Product name</b>	T-88 Adhesive Hardener, Part B
<b>SDS Number</b>	1100B00
<b>Product type</b>	Polyamide Mixture
<b>Recommended use of the chemical and restrictions on use</b>	Directed at, but not limited to, the adhesion of similar and dissimilar substrates.
<b>Restrictions</b>	None known.
<b>Manufacturer/Supplier information</b>	
<b>Company name</b>	SYSTEM THREE RESINS, INC.
<b>Address</b>	3500 W. Valley Hwy, Suite Suite 105 Auburn, WA 98001-2436 United States
<b>Telephone</b>	1-253-333-8118
<b>Website</b>	www.systemthree.com
<b>Email</b>	support-08@systemthree.com
<b>Emergency Contact</b>	CHEMTREC (U.S. and CANADA) 1-800-424-9300 CHEMTREC (Outside the U.S.) 1-703-527-0585

**2. Hazard(s) Identification**

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<b>Classification of substance or mixture/Signal Word</b>	DANGER Skin Corrosion/Irritation – Category 2 Serious Eye Damage/Eye Irritation – Category 1 Skin Sensitization – Category 1 Toxic to Reproduction [Fertility, Unborn child] – Category 2 Specific Target Organ Toxicity (Single Exposure) [eyes] – Category 1 Specific Target Organ Toxicity (Single Exposure) [Respiratory tract irritation] – Category 3 Specific Target Organ Toxicity (Repeated Exposure) [skin, respiratory tract, kidneys, liver] – Category 1 Aquatic Hazard (Acute) – Category 1 Aquatic Hazard (Long-term) – Category 1
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**GHS Label Elements**  
Hazard Pictograms

<b>Hazard Statements/Classification of substance or mixture</b>	H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H335 May cause respiratory irritation. H361 Suspected of damaging fertility or the unborn child. H370 Causes damage to organs: (eyes)
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- H372 Causes damage to organs through prolonged or repeated exposure: (skin, respiratory tract, kidneys, liver)  
 H400 Very toxic to aquatic life.  
 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 vapor.  
 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 well-ventilated area.  
 P272 Contaminated work clothing should not be allowed out of the workplace.  
 P273 Avoid release to the environment.

**Response**

- P280 Wear protective gloves. Wear eye or face 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.  
 P310 Immediately call a POISON CENTER or physician.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.  
 P342 + P311 If experiencing respiratory symptoms: Call a POISON Center or physician.

**Storage**

- P362 + P354 Take off contaminated clothing and wash it before reuse.  
 P391 Collect spillage.  
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
 P405 Store locked up.

**Disposal**

- P501 Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazards not otherwise classified (HNOC)**

None Available.

**3. Composition/Information On Ingredients**

Chemical Name	CAS Number	Content (%)
Polyamide Polymer Mixture	Proprietary	70 – 80%
Nonyl Phenol	84852-15-3	10 – 15%
Tris-2,4,6-(dimethylaminomethyl)phenol	90-72-2	1 – 10%
Triethylenetetramine	112-24-3	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**

Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical

attention. If necessary, call a poison center or physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse.

**Eye contact**

Flush with water for 15 minutes holding eye lids open. Check for and remove any contact lenses. Get medical attention. If necessary, call a poison center or physician.

**Ingestion**

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting 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. Get medical attention. If necessary, call a poison center or physician. 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 collar, tie, belt, or waistband.

**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**

In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Specific treatments**

Treat symptoms as they appear.

## 5. Fire-Fighting Measures

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**Suitable extinguishing media**

Alcohol resistant foam, carbon dioxide, dry chemical, dry sand, limestone powder.

**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. Ammonia gas may be liberated at high temperatures. In case of incomplete combustion an increased formation of oxides of nitrogen (NO<sub>x</sub>) is to be expected.

**Hazardous decomposition products**

Carbon oxides, 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**

Use personal protective equipment. Wear self-contained breathing apparatus.

**Further information**

None known.

## 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 spill at source, dike area to prevent spreading, pump liquid to salvage tank or drum. Remaining liquid may be taken up on clay, diatomaceous earth, sawdust or other absorbent, and shoveled into disposal container.

**Environmental precautions**

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

## 7. Handling and Storage

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**Precautions for safe handling**

Always wear protective, disposable gloves when handling epoxy hardeners to prevent exposure. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

**Precautions/Recommendations for safe/proper storage**

Store epoxy hardeners 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

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**Occupational Exposure Limits**

None established.

**Appropriate engineering controls**

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local 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 glasses with side shields are recommended. Always wear eye protection when sanding cured epoxy to avoid dust in eyes.

**Hand protection**

Always wear impervious gloves, neoprene, vinyl or rubber.

**Skin protection**

Wear clean, body-covering clothing to avoid skin contact.

**Respiratory protection**

Use a NIOSH-approved respiratory device when sanding cured epoxy to prevent dust in lungs.

**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

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**Chemical family**

Polyamide

**Appearance**

Amber colored liquid

**Physical State**

**Form**

Liquid

**Color**

Amber

**Odor**

Mild ammonia

**Density (Specific Gravity)**

0.95 – 0.97

<b>Viscosity</b>	25,000 – 30,000 CPS @77°F
<b>pH</b>	Not available
<b>Melting point/freezing point</b>	Not available
<b>Initial boiling point and boiling range</b>	Not applicable
<b>Flash point</b>	Not available
<b>Evaporation rate</b>	Slower than ether
<b>Flammability (solid, gas)</b>	Not available
<b>Upper/lower flammability limit (by volume)</b>	Not available
<b>Upper flammability limit (by volume)</b>	Not available
<b>Lower flammability limit (by volume)</b>	Not available
<b>Material VOC</b>	None
<b>Vapor density</b>	Heavier than air
<b>Relative density</b>	Not available
<b>Solubility in water</b>	Negligible, in water
<b>Partition coefficient: n-octanol/water</b>	Not available
<b>Auto-ignition temperature</b>	Not available
<b>Decomposition temperature</b>	Not available

## 10. Stability and Reactivity

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<b>Reactivity</b>	Stable under normal conditions.
<b>Chemical Stability</b>	Stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	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 produce heat, smoke and hazardous decomposition products.
<b>Incompatible materials</b>	Organic and mineral acids. Reactive metals (e.g. sodium, calcium, zinc, etc). Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Materials reactive with hydroxyl compounds. Oxidizing agents, amines, bases and reducing agents. Nitrous acid and other nitrosating agents. CAUTION! N-nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations.
<b>Hazardous decomposition products</b>	Organic acid vapors, nitric acid, ammonia, nitrogen and carbon oxides, nitrosamine and aldehydes. Nitrogen oxide can react with water vapors to form corrosive nitric acid.
<b>Other hazards</b>	None known.

## 11. Toxicological Information

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

Component	Result	Species	Dose	Exposure
Nonyl Phenol	LD50 Dermal	Rabbit	2,031 mg/kg	-
	LD50 Oral	Rat	1,412 mg/kg	-

Tris-2,4,6-(dimethylaminomethyl)phenol	LD50 Oral	Rat	2,169 mg/kg	-
Triethylenetetramine	LD50 Oral	Rat	2,500 mg/kg	-

**Irritation/Corrosion (components)**

Classifies as non-corrosive per negative Corrositex Dermal Testing. Classifies as Serious eye damage Category 1 per GHS calculations of additivity.

Component	Result	Species	Test	Exposure
Tris-2,4,6-(dimethylaminomethyl)phenol	Skin – Corrosive	Rabbit	In vitro test	-
	Eyes – Severe Irritant	Rabbit	-	-
Triethylenetetramine	Eyes – Moderate irritant	Rabbit	-	24 hrs
	Skin – Severe irritant	Rabbit	-	24 hrs
	Eyes – Severe irritant	Rabbit	-	-

**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
Polyamide Polymer Mixture	Category 3		Respiratory tract irritation
Triethylenetetramine	Category 1		Eyes

**Specific target organ toxicity (repeated exposure)**

No information on product itself.

Component	Category	Route of exposure	Target organs
Polyamide Polymer Mixture	Category 2		Skin
Triethylenetetramine	Category 1		Respiratory tract
	Category 2		Skin, Liver, Kidneys

**Aspiration hazard**

No information on product itself.

**Potential acute health effects**

**Eye Contact**

Causes serious eye damage.

**Inhalation**

May cause respiratory irritation. May cause allergic skin reaction. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

**Skin Contact**

Causes severe burns. 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  
 Reduced fetal weight  
 Increase in fetal deaths  
 Skeletal malformations

**Skin Contact**

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

**Ingestion**

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

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

**Potential chronic health effects**

**General**

Causes damage to organs through prolonged or repeated exposure: 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	3,435.7 mg/kg
Dermal	N/A
Inhalation (vapors)	N/A

**12. Ecological Information**

**Ecotoxicity**

Component	Results	Species	Exposure
Nonyl Phenol	Acute EC50 – 950 mg/l	Bacteria	3 h static
	Acute EC50 – 0.085 mg/l	Daphnia	48 h static
	Acute LC50 – 0.05 mg/l	Fish	96 h static
Triethylenetetramine	Acute LC50 – 33,900 µg/l Fresh water	Aquatic invertebrates. Water flea	48 h
	Acute EC50 – 3,700 µg/l Fresh water	Aquatic plants – Green algae	96 h

**Persistence and degradability**

No information on product itself.

### Bioaccumulative Potential

Component	LogPow	BCF	Potential
Nonyl Phenol	-1.48	-	low
Triethylenetetramine	-1.66 - -1.4	-	low

### 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. 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		Not regulated		
TDG		Not regulated		
IMO/IMDG	UN3082	Environmentally hazardous substances, liquid, n.o.s. (Nonyl Phenol)	Class 9 III	Marine Pollutant
IATA (Cargo)	UN3082	Environmentally hazardous substances, liquid, n.o.s. (Nonyl Phenol)	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.
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## 15. Regulatory Information

### UNITED STATES

U.S. Federal Regulations	<b>United States – TSCA 12(b) – Chemical export notification:</b> None Required. <b>United States – TSCA 5(a)2 – Final significant new use rules:</b> Not Listed. <b>United States – TSCA 5(a)2 – Proposed significant new use rules:</b> Not Listed. <b>United States – TSCA 5(e) – Substance consent order:</b> Not listed.
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### 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 contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

**EPA SARA 302 Extremely Hazardous Substances**

None.

**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**

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**

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**HMIS Rating**

<b>Health 2</b>
<b>Flammability 1</b>
<b>Physical Hazard 0</b>

**Date of Preparation**

April 5, 2017

**Date of Last Revision**

October 23, 2015

**Revision #**

2.0

**More Information**

1-253-333-8118

**Prepared by**

N. Kim, 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.