



## SUBSTITUTION REQUEST

(After the Bidding/Negotiating Phase)

Project: \_\_\_\_\_ Substitution Request Number: \_\_\_\_\_  
\_\_\_\_\_  
From: \_\_\_\_\_  
To: \_\_\_\_\_ Date: \_\_\_\_\_  
\_\_\_\_\_  
A/E Project Number: \_\_\_\_\_  
Re: \_\_\_\_\_ Contract For: \_\_\_\_\_

Specification Title: \_\_\_\_\_ Description: \_\_\_\_\_  
Section: \_\_\_\_\_ Page: \_\_\_\_\_ Article/Paragraph: \_\_\_\_\_

Proposed Substitution: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_ Phone: \_\_\_\_\_  
Address: \_\_\_\_\_  
Trade Name: \_\_\_\_\_ Model No.: \_\_\_\_\_  
Installer: \_\_\_\_\_ Phone: \_\_\_\_\_  
Address: \_\_\_\_\_

History: ☐ New product ☐ 1-4 years old ☐ 5-10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

☐ Point-by-point comparative data attached — REQUIRED BY A/E

Reason for not providing specified item: \_\_\_\_\_  
\_\_\_\_\_

Similar Installation:

Project: \_\_\_\_\_ Architect: \_\_\_\_\_  
Address: \_\_\_\_\_ Owner: \_\_\_\_\_  
\_\_\_\_\_ Date Installed: \_\_\_\_\_

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain \_\_\_\_\_

Savings to Owner for accepting substitution: \_\_\_\_\_ (\$ \_\_\_\_\_).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] \_\_\_\_\_ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ \_\_\_\_\_

# SUBSTITUTION REQUEST

(After the Bidding/Negotiating Phase — Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: \_\_\_\_\_

Signed by: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Attachments: ☐

## A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E  
☐ Other:

# CST(DS)-Series (Traffic Grade Dbl Sided)

## Description

The Double-Sided Traffic-Grade Contour Seal (CST(DS)) is composed of a high density, open micro-cell polyurethane foam impregnated with a hydrophobic polymer sealing compound. It has been developed to meet the high performance needs of state and federal DOT projects.

The CST seals have constant internal forces built into each cell. These cells continuously push against each other and the sidewalls of an opening to provide a permanent, watertight seal eliminating costly water damage, as well as allowing for a greater degree of joint movement. The seal incorporates a factory applied traffic-grade silicone coating on each side of the foam seal.

The CST system provides a waterproof, dustproof, airtight, UV stable, chemically resistant, soundproof and insulated urethane primary seal. Once the CST is installed in the joint, the material expands depending on temperature, adapting to the width of the joint and the irregularities of the substrate provided such profile changes are not sudden or extreme.

Recommended for use in applications in the horizontal position, where there needs to be resistance to typical roadway traffic or chemicals found on roadways, bridges, garages, plaza decks and other areas that may be a concern.



## Physical Properties

**Table 1 – Physical properties of Custodian Contour Seal–Double Sided**

<i>Properties</i>	<i>Result</i>
Thermal Conductivity	0.05 W/m. °C
Thermal Resistance	ASTM C 518, 3/3, hr-°F-ft <sup>2</sup> /Btu
Temperature Stability Range	-40° F to 185° F
Tensile Strength	ASTM 3574, meets 21 psi min.
Ultimate Elongation	ASTM 3574, 125% +/- 20%
Resistance to Compression Set	ASTM 3574, Max. 2.5%
Shear Strength	Min. 8N/cm2
Mildew Resistant	Excellent
UV Resistant	Excellent

## Features and Benefits

- Can accommodate rapid rates of joint movement
- Supplied in a pre-compressed state for ease of installation
- Excellent compression recovery
- Permanently conforms to varying joint contours
- Allows for up to 100% ( $\pm 50\%$ ) movement from mean joint size
- Consistent depth of product
- Not based on asphaltic or bitumastic impregnation
- Resilient and flexible to -40°F (long term)
- Standard Color: Gray
- Sizes available in 1/4" increments
- **LEED Credits** - Up to two (2) LEED credits depending on the location of the project.

PRODUCT	DEPTH OF SEAL IN (MM)	MIN. WIDTH IN (MM)	MID-RANGE IN (MM)	MAX. WIDTH IN (MM)	TOTAL MOVEMENT IN (MM)
CST(DS)-050	1.50" (38.1)	0.25" (6.4)	0.50" (12.7)	0.75" (19.1)	0.50" (12.7)
CST(DS)-100	2.00" (50.8)	0.50" (12.7)	1.00" (25.4)	1.50" (38.1)	1.00" (25.4)
CST(DS)-150	2.00" (50.8)	0.75" (19.1)	1.50" (38.1)	2.25" (57.2)	1.50" (38.1)
CST(DS)-200	3.00" (76.2)	1.00" (25.4)	2.00" (50.8)	3.00" (76.2)	2.00" (50.8)
CST(DS)-250	3.00" (76.2)	1.25" (31.8)	2.50" (63.5)	3.75" (95.3)	2.50" (63.5)
CST(DS)-300	3.00" (76.2)	1.50" (38.1)	3.00" (76.2)	4.50" (114.3)	3.00" (76.2)
CST(DS)-350	3.00" (76.2)	1.75" (44.5)	3.50" (88.9)	5.25" (133.4)	3.50" (88.9)
CST(DS)-400	3.00" (76.2)	2.00" (50.8)	4.00" (101.6)	6.00" (152.4)	4.00" (101.6)
CST(DS)-500	4.00" (101.6)	2.50" (63.5)	5.00" (127.0)	7.50" (190.5)	5.00" (127.0)
CST(DS)-600	4.00" (101.6)	3.00" (76.2)	6.00" (152.4)	9.00" (228.6)	6.00" (152.4)

# CST & CST(DS)-Series

## INSTALLATION INSTRUCTIONS

### Material Application

For use in **horizontal joints**. Double sided silicone coating available upon request.

### Recommended Tools

- Tape Measure
- Sharp Knife
- Miter Saw
- Duct Tape
- Clean Cloth
- Isopropyl Alcohol
- Caulking Tool
- Jiffy Mixer
- Margin Trowel
- Mineral Spirits
- 2 Empty, Clean Containers

### Material Sizing

1. Joints must be sized every 5-7 feet (1.524-2.137 meters) to ensure gap opening is uniform and depth is sufficient for the supplied material.



**NOTE:** Allow sufficient depth for the material to be recessed 1/8"–1/4" in the joint.

### Material Preparation

1. Store material at a minimum of 68°F (20°C) for a minimum of 24 hours prior to installation, regardless of temperature at location of installation.

**TIP:** Material will expand faster when hot and slower when cold. In cold temperatures, store material in a heated area 24 hours prior to installation. In hot temperatures, store material out of direct sunlight and not in an enclosed storage container where temperatures may exceed 100°F.

2. Store materials in a dry, enclosed area. Make sure materials are off the ground and out of direct sunlight.
3. Use a miter saw to make any cuts to the seal before removing the clear shrink packaging. All starting and ending pieces must be square to the termination point.

**WARNING:** Install the material directly after removing the shrink packaging to ensure the material does not expand past the joint opening.

4. Use a sharp knife to make any cuts after the clear shrink packaging and wooden boards have been removed.



**TIP:** Apply mineral spirits to the knife for a smoother cut.

## Joint Preparation

1. Verify that the joint is clean, sound, and will provide an appropriate surface for installation of the joint sealant.
  - a. Use compressed air to clean any loose debris from the joint.
  - b. Apply water or alcohol to a clean cloth and wipe the joint walls to the depth of the sealant materials plus 1”.
2. Verify that the joint is uniform and repair any spalls prior to installation.
3. Apply duct tape to both edges of the substrate face to prevent the epoxy from contacting the deck surface.
4. Check the material for appropriate length, width, and depth.
  - a. Supplied material should be pre-compressed to a size smaller than the intended joint opening.
  - b. Joint depth must allow for the material to be recessed ¼” from the substrate surface.

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## Epoxy Preparation

1. Mix Part A and Part B separately.
2. Transfer the entire contents of Part A (resin) and then Part B (hardener) into a clean, empty container. Mix the material thoroughly with a low speed (approx. 300 rpm) drill or jiffy mixer.

**WARNING:** Part B must always be added Part A, and mixed in a 1:1 ratio.

3. Mix until the black and white is evenly blended leaving no streaks of either color.
4. Transfer the mixture to another clean container to avoid any leftover residue from streaking the final mixture.

**TIP:** Mix only the required amount of epoxy that will be used within a 30 minute timeframe to prevent the epoxy from curing prematurely.

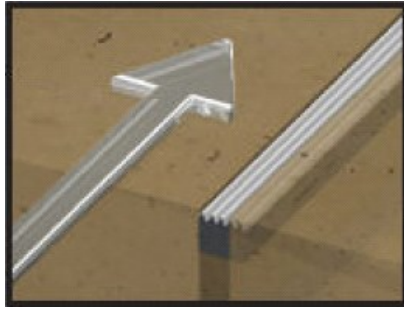
### EPOXY TIPS:

1. The epoxy will not cure when the temperature is below 40°F.
2. For every +17°F the epoxy cures twice as fast.
3. For every -17°F the epoxy cures twice as slow.
4. Greater volume = less time to cure.
5. Smaller volume = more time to cure.
6. A technique to increase the pot life of the epoxy is to split up the mixed material into smaller units.



## Sealant Installation

1. Begin installation at one end of the joint and work to the opposite end using butt seams.

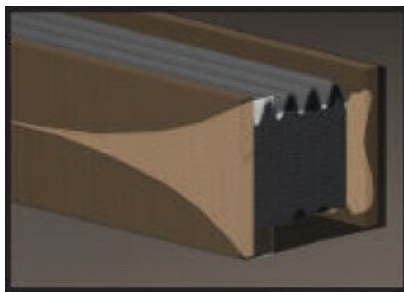


2. When fully prepared to install, apply a 1/16" – 1/8" coating of the epoxy mixture to both joint walls using a 1" margin trowel to a depth of the sealant material plus 1/2".
  - a. The epoxy must still be wet upon installation of the seal. The working time for the epoxy is approximately 30 minutes depending on the temperature.
  - b. If the epoxy hardens on the surface of the substrate before installation, another coat of epoxy can be applied within 8 hours. After 8 hours, the substrate surface must be abraded to eliminate the amine blush that occurs during final cure.



**WARNING:** Pay attention to the direction of insertion marked on the packaging.

3. Cut the shrink packaging along the edge of the masonite strapping.

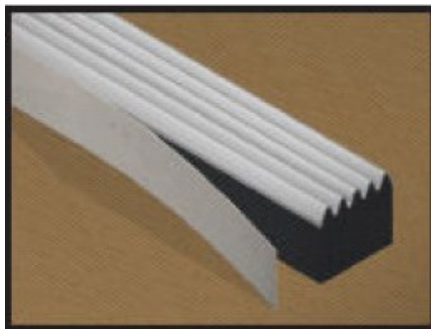


**WARNING:** Be prepared to install the material immediately once the packaging is removed to prevent the material from expanding past the joint width.

4. Verify that the material is cut square at both ends for proper seams. All pieces must be square to the termination point.

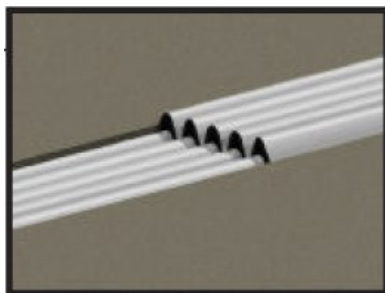
## Sealant Installation

5. Remove the white release liner on both sides of the seal.



**WARNING:** Make sure not to pull, twist, or stretch the material in the process of installation to avoid tearing the white release liner.

6. Initially, position seal 1/8" above the deck surface. Once the material is partially expanded in the joint, it can then be installed to 1/4" below the surface of the joint using a putty knife or margin trowel.
  - a. Wedges can be used to aid installation. Remove the wedges once the material begins to expand and before the epoxy cures.




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## Seams

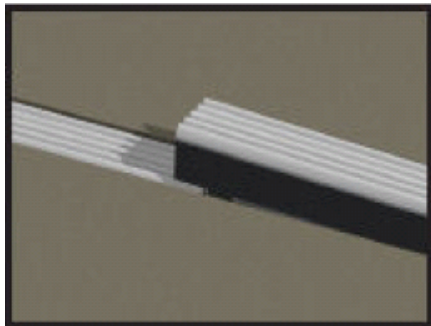
1. Verify that the new piece of material is cut square and not at an angle to the previous installed piece.
2. Apply flexible sealant to the butt end of the new piece of material.

**WARNING:** Do not apply flexible seal to the faces of the seal that are in contact with epoxy.

**TIP:** If crew size permits and two lengths of material can be prepared, the ends to be seamed can be held above the deck surface and the mitered pieces can be pushed down into the joint together.

## Seams

3. Overlap extra material (approx. 1/2" -1") at seams and splices to ensure that the seam is in compression after installation.



4. Butt seam all 'T' and '+' intersections.

**NOTE:** After installation, if there are any mitered joints with a hole or void, use the supplied flexible seal to fill and seal the joint.

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## Finish

1. Remove any excess flexible seal or epoxy left on the surface of the material substrate.

**WARNING:** Do not allow the flexible seal or epoxy to cure before removal.

2. Remove the duct tape from the joint surface.



# SPECIFICATION

## CST(DS) Series Foam Seal System

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Division 07900

### **PART 1 – GENERAL**

#### **1.01 Summary**

- A. The work shall consist of furnishing and installing expansion joints in accordance with the details shown on the plans and the requirements of the specifications. The joints are proprietary designs utilizing polyurethane foam impregnated with a waterproof polymer.
- B. Related Work
  - Precast concrete
  - Cast-in-place concrete
  - Sealants and caulking

#### **1.02 Submittals**

- A. Template Drawings - Submit typical expansion joint cross-section(s) indicating pertinent dimensioning of opening, profile recess and adjacent construction.

#### **1.03 Product Delivery, Storage and Handling**

- A. Deliver products in each manufacturer's original, intact, labeled containers and store under cover in a dry location until installed. Store off the ground, protect from weather and construction activities.

#### **1.04 Acceptable Manufacturer**

- A. All joints shall be as designed and manufactured by EMS, Inc., 13311 Main Road, Akron, New York 14001.
- B. Alternate manufacturers and their products will be considered, provided they meet the design concept and are produced of materials that are equal to or superior to those called for in the base product specification.
- C. Any proposed alternate systems must be submitted and receive approval 21 days prior to the bid. All post bid submittals will not be considered. This submission shall be in accordance with MATERIALS AND SUBSTITUTIONS.

Any manufacturer wishing to submit for prior approval must provide the following:

1. A working 6" sample of the proposed system with a letter describing how system is considered superior to the specified system.
2. A project proposal drawing that illustrates the recommended alternate system installed in the horizontal construction that is specific to the project. Typical catalog cut sections will not be considered.

3. Any substitution products not adhering to all specification requirements within will not be considered.

## **1.05 Quality Assurance**

- A. Manufacturer: Shall have a minimum of ten (10) years of experience specializing in the design and manufacture of expansion joint systems.

## **PART 2 - PRODUCT**

### **2.01 General**

- A. Provide flexible profile manufactured from open-cell polyurethane foam impregnated with a hydrophobic polymer sealing compound. The system also includes a double sided factory applied traffic grade silicone coating designed to provide protection against moisture and water intrusion on horizontal surfaces. Profile shall be capable of providing a minimum of plus or minus 50% building movement and accommodate moderate variations in width of opening, complex directional change transitions, and resist ultraviolet degradation. Profile shall be installed without use of adhesives or invasive anchor systems.

Provide Foam Seal, Model CST (DS) as manufactured by EMS, Inc. and as indicated on drawings for horizontal expansion joint locations.

### **2.02 Materials**

- A. Seal - Profile shall be pre-formed and manufactured from polyurethane impregnated with a waterproof polymer sealing compound. The profile shall meet the requirements of the properties listed in the table below.

<b>Physical Properties</b>	<b>Test Method</b>	<b>Results</b>
Density		10 lb/ft <sup>3</sup>
Thermal Conductivity		0.05 W/m.°C
Temperature Stability Range		-40°F to 212°F
Tensile Strength	ASTM 3574	Meets 21 psi min.
Ultimate Elongation	ASTM 3574	125% ±20%
Resistance to Compression Set	ASTM 3574	Max 2.5%
Shear Strength		Min. 8N/cm <sup>2</sup>
Mildew Resistance		Excellent
Thermal Resistance	ASTM C518	3.3 hr-°F-ft <sup>2</sup> /Btu
UV Resistance		Excellent

### **2.03 Fabrication**

- A. Seal profile shall be shipped in nominal five-foot standard lengths in manufacturer's standard shipping carton. Seals shall be cut to length on jobsite where required for straight lengths or directional change transitions utilizing appropriate tools, saws and miter boxes. All cuts shall be accurately measured and completed in a neat and workmanlike manner to ensure quality work.

### **2.04 Finishes**

- A. Seals - Standard color offering: Gray

## **PART 3 - EXECUTION**

### **3.01 Installation**

- A. Where indicated and noted on the contract drawings, install seal profiles in a neat workmanlike manner. All surfaces to receive seals shall be free from dirt, water, frost, and any loose foreign debris that may be detrimental to effective joint sealing.
- B. Installation contractor shall verify that seal profile is to be installed in the proper width opening for the appropriate temperature at time of installation. Variations in width or incorrect opening that may affect proper installation and product performance shall be brought to the attention of the architect and product manufacturer prior to installation.
- C. Install seal profiles in strict accordance with the manufacturer's typical details and installation procedure in conjunction with the advice of their qualified representative.

### **3.02 Clean and Protect**

- A. Protect seal profile during construction. After work has been completed in adjacent areas, clean exposed surfaces with a mild cleaner that will not harm or attack the silicone coating.

**END OF SECTION**

**\*MATERIAL SAFETY DATA SHEET\*****SECTION I – MATERIAL IDENTIFICATION**

MATERIAL NAME: Foam Seal Two-Part Epoxy (Part A)

MANUFACTURER: Erie Metal Specialties, Inc.  
13311 Main Road  
Akron, NY 14001SUPPLIER: Erie Metal Specialties, Inc.  
13311 Main Road  
Akron, NY 14001EMERGENCY PHONE:  
CHEM-TREC: (800) 424-9300

(716) 542-3991

**SECTION II – COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Name</u>	<u>CAS Number</u>
Aromatic Hydrocarbon Blend	Trade Secret
Modified Epoxy Resin	Trade Secret
Nonyl Phenol	84852-15-3

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.

**SECTION III – HAZARDS IDENTIFICATION**

OSHA/HCS STATUS This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**POTENTIAL ACUTE HEALT EFFECTS**

Inhalation	May cause respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May cause skin irritation. May cause sensitization by skin contact.

**See toxicological information (Section 11)****SECTION IV – FIRST AID MEASURES**

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Check for and remove any contact lenses. Get medical attention.
Skin contact	Wash skin thoroughly with soap and water or use recognized skin cleanser. 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. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse.
Inhalation	Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Maintain an open airway. In the event of any complaints or symptoms, avoid further exposure.
Ingestion	Get medical attention immediately. Wash out mouth with water. Move exposed person to fresh air. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Notes to physician	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## **SECTION V - FIRE FIGHTING MEASURES**

Flammability of the product	In a fire or if heated, a pressure increase will occur and the container may burst.
Extinguishing media	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.
Special exposure hazards	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.
Hazardous combustion products	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds
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.

## **SECTION VI – 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. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
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).
Large spill	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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 (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
Small spill	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## **SECTION VII – HANDLING AND STORAGE**

Handling	Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. 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.
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 (see section 10) and food and drink. 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.

## **SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Consult local authorities for acceptable exposure limits.**

Engineering measures	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.
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
<u>Personal protection</u>	
Respiratory	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.
Eyes	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
Skin	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

## **SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES**

Physical state	Liquid
Flash point	Closed cup: >104.4°C (>219.9°F)
Color	Straw
Odor	Aromatic
Density	~1.14 g/cm <sup>3</sup>
VOC	35 g/l (A+B Combined)

## **SECTION X – STABILITY AND REACTIVITY**

Stability	The product is stable.
Conditions to avoid	Avoid exposure- obtain special instructions before use. Do not swallow.
Materials to avoid	No specific data
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	Hazardous polymerization may occur under certain conditions of storage or use. Exotherm when curing in mass

## **SECTION XI – TOXICOLOGICAL INFORMATION**

### **Potential chronic health effects**

Chronic effects	Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
Carcinogenicity	Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.

### **Acute toxicity**

Conclusion/Summary	Not available.
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## **SECTION XII – ECOLOGICAL INFORMATION**

Environmental effects	No known significant effects or critical hazards
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**SECTION XIII – DISPOSAL CONSIDERATIONS**
**Waste disposal**

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Disposal should be in accordance with applicable regional, national and local laws and regulations.**

**Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.**

**SECTION XIV – TRANSPORT INFORMATION**

REGULATORY INFORMATION	UN NUMBER	PROPER SHIPPING NAME	CLASSES	PACKING GROUP	ADDITIONAL INFORMATION
DOT Classification	Not regulated.		-	-	-
TDG Classification	Not regulated.		-	-	-
ADR/RID Class	Not regulated.		-	-	-
IMDG Class	Not regulated.		-	-	-
IATA-DGR Class	Not regulated.		-	-	-

**SECTION XV – REGULATORY INFORMATION**
**U.S. Federal regulations**

United States inventory (TSCA 8b): All components are listed or exempted.  
SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: nonylphenol  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: nonylphenol:  
Immediate (acute) health hazard  
Clean Water Act (CWA) 307: phenol; solvent naphtha (petroleum), heavy arom.; naphthalene  
Clean Water Act (CWA) 311: phenol; solvent naphtha (petroleum), heavy arom.; naphthalene  
Clean Air Act (CAA) 112 accidental release prevention: epichlorhydrin  
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.  
Clean Air Act (CAA) 112 regulated toxic substances: epichlorhydrin

**SARA 313**
**Form R – Reporting Requirements**
**Product Name**
**CAS number**
**Concentration**

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations**
**Massachusetts Substances**

The following components are listed:

**NONYLPHENOL**

**New Jersey Hazardous Substances**

The following components are listed:

**ALKYL PHENOL, n.o.s.**

**New York Acutely Hazardous Substances**

The following components are listed: **Naphthalene**

**Pennsylvania RTK Hazardous Substances**

The following components are listed:

**PHENOL, NONYL-; NAPHTHALENE**

United States inventory (TSCA 8b) All components are listed or exempted.

**SECTION XVI – OTHER INFORMATION**

Hazardous Material Information System (U.S.A.)

Health	2
Flammability	1
Physical Hazards	0
Personal Protective Equipment	C

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ISSUE DATE:.....12/01/12

PREPARED BY: Erie Metal Specialties, Inc.  
13311 Main Road  
Akron, NY 14001



**\*MATERIAL SAFETY DATA SHEET\*****SECTION I – MATERIAL IDENTIFICATION**

MATERIAL NAME: Foam Seal Two-Part Epoxy (Part B)

MANUFACTURER: Erie Metal Specialties, Inc.  
13311 Main Road  
Akron, NY 14001SUPPLIER: Erie Metal Specialties, Inc.  
13311 Main Road  
Akron, NY 14001EMERGENCY PHONE:  
CHEM-TREC: (800) 424-9300

(716) 542-3991

**SECTION II – COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Name</u>	<u>CAS Number</u>
Aromatic Hydrocarbon Blend	Mixture
Benzyl Alcohol	100-51-6
Nonylphenol	84852-15-3
Proprietary blend of aliphatic and cycloaliphatic amines	Trade Secret
Silica, quartz	14808-60-7

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.

**SECTION III – HAZARDS IDENTIFICATION**

OSHA/HCS STATUS      This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**POTENTIAL ACUTE HEALT EFFECTS**

Inhalation	Irritating to respiratory system.
Ingestion	Harmful if swallowed. Corrosive to the digestive tract. Causes burns
Skin	Corrosive to the skin. May cause sensitization by skin contact.
Eyes	Corrosive to eyes. Causes irreversible damage to eyes.

**See toxicological information (Section 11)****SECTION IV – FIRST AID MEASURES**

Eye contact	Get medical attention immediately. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician. Immediately flush eyes with plenty of water for at least 15 minutes.
Skin contact	Get medical attention immediately. Wash skin thoroughly with soap and water or use recognized skin cleanser. 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. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse.
Inhalation	Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Maintain an open airway. 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.
Ingestion	Get medical attention immediately. Wash out mouth with water. Move exposed person to fresh air. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person.

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.

## **SECTION V - FIRE FIGHTING MEASURES**

<u>Flammability of the product</u>	In a fire or if heated, a pressure increase will occur and the container may burst.
<u>Extinguishing media</u>	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.
Special exposure hazards	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.
Hazardous combustion products	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides metal oxide/oxides
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.

## **SECTION VI – 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. Put on appropriate personal protective equipment (see Section 8).
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).
Large spill	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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 (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
Small spill	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## **SECTION VII – HANDLING AND STORAGE**

Handling	Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. 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.
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**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 (see section 10) and food and drink. 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.

**SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION**
Product name

Quartz (SiO<sub>2</sub>)

Exposure limits
**OSHA PEL Z3 (United States, 9/2005). Notes: 10/(SiO<sub>2</sub>+2)**

TWA: 10 mg/m<sup>3</sup> 8 hour(s). Form: Respirable

**OSHA PEL Z3 (United States, 9/2005). Notes: 250/(%SiO<sub>2</sub>+5)**

TWA: 250 mppcf 8 hour(s). Form: Respirable

**OSHA PEL 1989 (United States, 3/1989). Notes: as quartz**

TWA: 0.1 mg/m<sup>3</sup>, (as quartz) 8 hour(s). Form: Respirable dust

**ACGIH TLV (United States, 1/2011).**

TWA: 0.025 mg/m<sup>3</sup> 8 hour(s). Form: Respirable fraction

**NIOSH REL (United States, 6/2009).**

TWA: 0.05 mg/m<sup>3</sup> 10 hour(s). Form: respirable dust

**OSHA PEL Z3 (United States, 9/2005). Notes: 30/(%SiO<sub>2</sub>+2)**

TWA: 30 mg/m<sup>3</sup> 8 hour(s). Form: Total dust.

**Engineering measures**

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.

**Hygiene measures**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection
**Respiratory**

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.

**Hands**

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Eyes**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

**Skin**

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES**
**Physical state**

Liquid

**Flash point**

Closed cup: &gt;104.4°C (&gt;219.9°F)

**Color**

Gray

**Odor**

Amine-like

**Density**

~1.7 g/cm<sup>3</sup> [20°C (68°F)]

**VOC**

35 g/l (A+B Combined)

## **SECTION X – STABILITY AND REACTIVITY**

Stability	The product is stable.
Conditions to avoid	No specific data
Materials to avoid	No specific data
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.

## **SECTION XI – TOXICOLOGICAL INFORMATION**

### **Potential chronic health effects**

Chronic effects      Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity      Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.

Developmental effects      Contains material which can cause developmental abnormalities

Fertility effects      Contains material which may impair female fertility, based on animal data.

### **Acute toxicity**

Conclusion/Summary      Not available.

### **Carcinogenicity**

#### **Classification**

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Quartz (SiO <sub>2</sub> )	-	-	-	-	Proven.	-

## **SECTION XII – ECOLOGICAL INFORMATION**

Environmental effects      No known significant effects or critical hazards

## **SECTION XIII – DISPOSAL CONSIDERATIONS**

Waste disposal      The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Disposal should be in accordance with applicable regional, national and local laws and regulations.**

**Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.**

**SECTION XIV – TRANSPORT INFORMATION**

REGULATORY INFORMATION	UN NUMBER	PROPER SHIPPING NAME	CLASSES	PACKING GROUP	ADDITIONAL INFORMATION
DOT Classification	UN 3267	Corrosive liquid, basic, organic, n.o.s. (aliphatic and cycloaliphatic amines)	8	III	-
TDG Classification	UN 3267	Corrosive liquid, basic, organic, n.o.s. (aliphatic and cycloaliphatic amines)	8	III	-
ADR/RID Class	UN 3267	Corrosive liquid, basic, organic, n.o.s. (aliphatic and cycloaliphatic amines)	8	III	-
IMDG Class	UN 3267	Corrosive liquid, basic, organic, n.o.s. (aliphatic and cycloaliphatic amines)	8	III	<b>Emergency schedules (EmS)</b> F-A, S-B
IATA-DGR Class	UN 3267	Corrosive liquid, basic, organic, n.o.s. (aliphatic and cycloaliphatic amines)	8	III	-

**SECTION XV – REGULATORY INFORMATION**

## U.S. Federal regulations

United States inventory (TSCA 8b): All components are listed or exempted.  
SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: 3-aminomethyl-3,5,5-trimethylcyclohexylamine; 4-tert-butylphenol; benzyl alcohol; calcium carbonate; Quartz (SiO<sub>2</sub>)  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Immediate (acute) health hazard Delayed (chronic) health hazard  
Clean Water Act (CWA) 307: 2-methylnaphthalene; 1-methylnaphthalene; naphthalene  
Clean Water Act (CWA) 311: naphthalene  
Clean Air Act (CAA) 112 accidental release prevention: No products were found.

## State regulations

## Massachusetts Substances

The following components are listed:  
BENZYL ALCOHOL

## New Jersey Hazardous Substances

The following components are listed:  
SILICA, QUARTZ; QUARTZ (SiO<sub>2</sub>); TITANIUM DIOXIDE; TITANIUM OXIDE (TiO<sub>2</sub>); 2-METHYL NAPHTHALENE; NAPHTHALENE, 2-METHYL-; NAPHTHALENE; MOTH FLAKES;  
ISOPHORONEDIAMINE;  
CYCLOHEXANEMETHANAMINE, 5-AMINO-1,3,3-TRIMETHYL-

## New York Acutely Hazardous Substances

The following components are listed: Naphthalene

## Pennsylvania RTK Hazardous Substances

The following components are listed:  
QUARTZ (SiO<sub>2</sub>); TITANIUM OXIDE (TiO<sub>2</sub>); BENZENEMETHANOL; PARTICULATE  
POLYCYCLIC AROMATIC HYDROCARBONS;  
NAPHTHALENE

California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

United States inventory (TSCA 8b) All components are listed or exempted.

**SECTION XVI – OTHER INFORMATION**

Hazardous Material Information System (U.S.A.)

Health	3
Flammability	1
Physical Hazards	0
Personal Protective Equipment	D

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