



# 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)

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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:

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## 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: \_\_\_\_\_

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

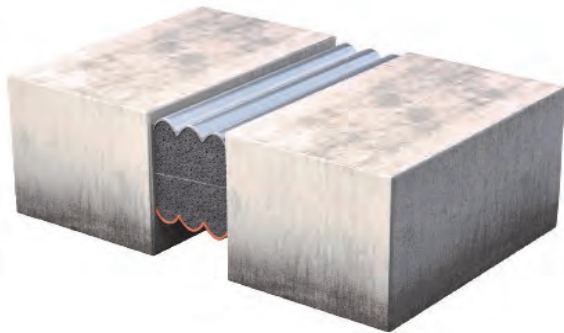
# CST (1FRH)

## Description

The CST(1FRH) (horizontal application) seal features a waterproof silicone face on each side of a fire-retardant impregnated foam sealant, without the need for an additional set of intumescent bellows. The CST(1FRH) is designed for expansion joints in decks and floors where watertightness, fire-rating and traffic durability are required. CST(1FRH) is a sound-attenuating, insulating, joint sealant intended for both retrofit and new horizontal expansion joints. No additional fire blankets, mineral wool, liquid sealants or cover plates are required, although the can be used with the joint system.

The CST(1FRH) provides a factory controlled, watertight, clean handling, UV stable, sound attenuating, energy efficient and fire-rated joint seal in a single, unified installation process. Depending on the application, CST(1FRH) can be supplied uncoated or coated on one or both sides. Uncoated material is to be used in enclosed applications only.

Available sizes range from 1/2" (12mm) to 4 1/2" (112mm), with sizes 1" and greater supplied in 1/4" increments. Depth of the seal is 2", 3" or 4" depending on listing. Listings with a 2" depth have a fire rating of 1 or 2 hours. Visit [www.ul.com](http://www.ul.com) for more information.



## Testing and Standards

- CST(1FRH) has been tested and certified under UL 2079. It meets the requirements of ASTM E1966, ASTM E119 and ASTM E1399. UL 2079, like ASTM E119, was developed to encompass the fire testing of ASTM E119 and movement cycling regime of ASTM E1399.
- It is also tested to ASTM E283, 330, 331 and 547 to confirm its sealing capabilities through its entire stated movement range. ASTM E90 testing has been completed to verify the sound attenuating properties of the system.

## Features and Benefits

- **Watertight:** Installed with tensionless bellows, which when installed with an optional silicone bead on the weather face, maintains a watertight seal.
- **Fire-Rated:** The fire-retardant-impregnated foam when properly installed, provides a 1 hour fire rating in accordance with UL-2079.
- **Sound Attenuation:** Minimizes sound transfer which can occur at expansion joints and wide openings.
- **Non-Invasive Anchoring:** There is no drilling or modification to the substrate required. This includes embedded pins, anchors, screws, bolts, tracks, rails, flanges or cover plates. The system is secured to the joint substrate by means of the internal recovery force of the foam, the epoxy adhesive, and the optional injected sealant beads at the joint face.
- **Movement Capability:** +/- 50% depending on UL listing.
- **Joint –Size Variation:** Additional product features include controlling uniform bellows appearance and the ability to handle variations in joint size through incremental sizing.
- **Factory Fabricated Transitions:** Continuity of seal through changes in plane and direction is essential to system performance.

\*\*Available in 0.25" increments up to 5" wide

PRODUCT	MIN. WIDTH IN (MM)	MID-RANGE** IN (MM)	MAX. WIDTH IN (MM)	TOTAL MOVEMENT IN (MM)
CST(1FRH)-050	0.25" (6.4)	0.50" (12.7)	0.75" (19.1)	0.50" (12.7)
CST(1FRH)-100	0.50" (12.7)	1.00" (25.4)	1.50" (38.1)	1.00" (25.4)
CST(1FRH)-150	0.75" (19.1)	1.50" (38.1)	2.25" (57.2)	1.50" (38.1)
CST(1FRH)-200	1.00" (25.4)	2.00" (50.8)	3.00" (76.2)	2.00" (50.8)
CST(1FRH)-250	1.25" (31.8)	2.50" (63.5)	3.75" (95.3)	2.50" (63.5)
CST(1FRH)-300	1.50" (38.1)	3.00" (76.2)	4.50" (114.3)	3.00" (76.2)
CST(1FRH)-350	1.75" (44.5)	3.50" (88.9)	5.25" (133.4)	3.50" (88.9)
CST(1FRH)-400	2.00" (50.8)	4.00" (101.6)	6.00" (152.4)	4.00" (101.6)
CST(1FRH)-450	2.25" (57.2)	4.50" (114.3)	6.25" (158.8)	4.50" (114.3)

# CST(1FRH)-Series

## INSTALLATION INSTRUCTIONS

### Material Application

For use in **horizontal joints**.

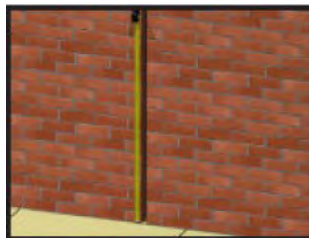
### Recommended Tools

- Tape Measure
- Sharp Knife
- Miter Saw
- Painters & Duct Tape
- Clean Cloth
- Isopropyl Alcohol
- Caulking Tool
- Jiffy Mixer
- Wood Wedges
- 2 Empty Clean Containers
- Margin Trowel

### Material Sizing

1. Check the material for appropriate length, width and depth.
2. Material sizing is based on the mean temperature field-measured joint widths. Supplied material should be pre-compressed to a size smaller than the intended opening.
3. Verify width of material supplied against the mean joint width. Joint depth must allow for the installed material to be recessed 1/8" - 1/4".

**WARNING:** Do not remove outer shrink wrapping from the FR Expansion Joint stick until you have read and understand the full instructions for proper installation. Failure to follow these directions may degrade fire endurance performance or make the material unsuitable (expanding before installed) for installation.



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

### Preparation of Joint Substrate

#### Concrete:

- Verify that the joint is clean, sound and will provide an appropriate surface for the installation of the joint sealant. Verify that the joint is uniform and that any spalls are repaired using proper materials and methods to ensure maintenance of the fire-rated wall assembly. Joint faces must be parallel.
- Joints must have a depth greater than or equal to the full depth of the material supplied plus 1/2" (6mm).
- Confirm joint substrate is dry and ready for the epoxy adhesive.

#### Metal:

- Confirm that the metal is clean and ready for the epoxy adhesive. Solvent-wipe the substrate just prior to applying epoxy.

**IMPORTANT:** Ensure that there is no rust or loose paint on metal substrates before the epoxy is applied.

This material has been tested to UL/ULC 2079 standards. Authorities having jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Listed or Classified products. The published information cannot always address every construction nuance encountered in the field. When field issues arise, it is recommended to contact the product manufacturer. Users of the fire resistance assemblies are advised to consult the general Guide information for each product category and each group of assemblies. The Guide information includes specifics concerning alternate materials and alternate methods of construction. Only products which bear the UL's Mark are considered as Classified, Listed or Recognized.



## Preparation of Joint Substrate

### Gypsum (see detail in Appendix A)

- See UL for listed fire rated wall assemblies that yield the endurance rating equal to the installed FR expansion joint.
- For joints 3-1/4" and larger, use either 3/8" Hardiebacker® by James Hardie or PermaBase® Cement Board by National Gypsum Company, instead of 5/8" Gypsum Type X at joint face (depicted in solid gray in the detail in Appendix A).
- Adjust finish course of gypsum so it is flush with the cement board as shown.

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## Epoxy Preparation

**\*\*Use blue painter's tape or other suitable tape to protect the exposed joint face.\*\***

1. Epoxy adhesive may be used in the >40°F (5°C) to 95°F (35°C) temperature range.
2. Mix part A and part B separately. Transfer the entire contents of Part B (hardener) into the contents of Part A (base).

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

3. Mix the material thoroughly with a low speed drill (300 rpm) and mixing paddle. Scrape the walls and bottom of the container to ensure uniform and complete mixing with no streaks.

**IMPORTANT:** DO NOT thin the epoxy.

### 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. Mix only the required amount of the epoxy that will be used within 20-30 minutes to prevent the epoxy from curing prematurely.

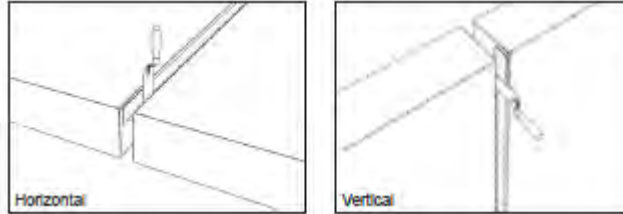
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## Epoxy Application to Substrate

**WARNING:** Epoxy will harden more quickly when left in the pot. Apply mixed epoxy onto the joint face as soon as possible.

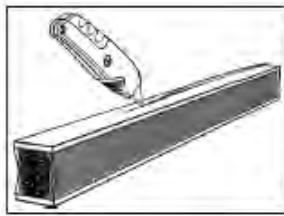
**IMPORTANT:** The epoxy must still be uncured and tacky when installing the FR Expansion Joint sealant into the joint.



1. If the epoxy cures before installing the FR Expansion Joint, new epoxy can be reapplied within 2 hours.
2. After 2 hours, the substrate must be abraded to eliminate the amine blush that occurs during the final cure.

**IMPORTANT:** While others are applying the epoxy to the joint faces, others must prepare the FR Expansion Joint. The foam should be kept under compression in the original packaging.

3. Cut the plastic packing by cutting on the hardboard and remove hardboard and inner release liner. DO NOT cut along the silicone face.



**NOTE:** If stick sizes larger than the standard 5' LF is ordered (XL marking after product name), do NOT cut shrink packaging completely off. Cut open 5' LF sections at a time and install material working your way down. This will prevent the foam from expanding past the joint opening size.

**IMPORTANT:** After cutting the shrink wrap, work quickly to avoid material expanding beyond a usable size.

## Wipe Release Agent off Silicone Facing

(not required for uncoated materials– proceed to next step)

- Silicone facing may be coated in the factory with a release agent. Prior to installation, this agent must be wiped off in order for the finish bead to adhere along the edge of the FR Expansion Joint.
- To remove the agent, lightly, quickly and thoroughly wipe the cured silicone facing with a lint-free rag, dampened with water. Repeat cleansing for all FR Expansion Joints as they are installed.



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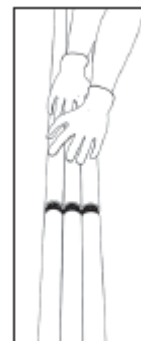
## Material Installation

1. After verifying that the epoxy on the joint substrate has not cured, install the FR Expansion Joint into the gap, starting from the bottom/end.
2. Apply a bead of the UL Approved Sealant to the base of the FR Expansion Joint and smooth to an even 1/16" (2mm) thickness.
3. Apply the supplied silicone along the top end edge of the installed silicone bellows (see example 1 below).
4. Apply the supplied UL Approved Sealant as shown to the end of the installed FR Expansion Joint (see example 2 below).
5. Flatten the supplied UL Approved Sealant on the end of the installed FR Expansion Joint to an even 1/16" (2mm) thickness (see example 3 below).
6. When the FR Expansion Joint material has expanded to a secure fit, it will support itself while the epoxy cures.
7. Starting from the bottom/end, insert the next FR Expansion Joint into the opening while securely pushing the two joint sections together to ensure there are no voids at the union joints. If a void is apparent, fill it with the supplied UL Approved Sealant.

**IMPORTANT:** UL Approved Sealant must be applied to top, bottom and all terminations and splices. This should always be done while the FR Expansion Joint is installed in the joint opening.



8. Work in one direction towards the previously installed length or end of joint, making sure not to stretch the material.
9. Insert the uncoated bottom end of the stick into the joint and line it up with the previously installed stick. Coat the top end of the next stick with the supplied UL Approved Sealant as explained above. Securely compress the two pieces together. Ensure there are no voids at joint unions.



This material has been tested to UL/ULC 2079 standards. Authorities having jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Listed or Classified products. The published information cannot always address every construction nuance encountered in the field. When field issues arise, it is recommended to contact the product manufacturer. Users of the fire resistance assemblies are advised to consult the general Guide information for each product category and each group of assemblies. The Guide information includes specifics concerning alternate materials and alternate methods of construction. Only products which bear the UL's Mark are considered as Classified, Listed or Recognized.



## Material Installation

**NOTE:** In cold temperature installations, provide as much ambient heat as possible around installed FR Expansion Joint to accelerate recovery.

10. Remove excess silicone left on the surface or material substrate. Be sure not to fill in the valleys of the bellows as this will constrain movement.
11. Remove any excess epoxy from the face of material using a clean, dry rag.
12. Install a bead along the edge of the joint and tool the silicone firmly to bond with the substrates and cured silicone facing, and to ensure a proper bond and seamless appearance.
13. Where the FR Expansion Joint meets at butt joints, tool the excess silicone that squeezes out from the top and between the bellows.

**IMPORTANT:** Silicone left between the fold or valleys of the bellows may constrain its movement—using a utility knife or caulking tool, remove excess sealant and smooth excess into the bellows.

**NOTE:** Silicone sealant is **ONLY** applied to the weather side of the foam. No sealant required on the other side.

**IMPORTANT:** Any FR Expansion Joint that terminates with an exposed end and not terminating into another stick or structural termination should be coated on the exposed foam end using the UL Approved Sealant. This will ensure the FR Expansion Joint is properly terminated. Only coat the FR Expansion Joint termination after it is installed in the joint or by applying the UL Approved Sealant to the terminating substrate.

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## Fireproofing and UL Listing Information

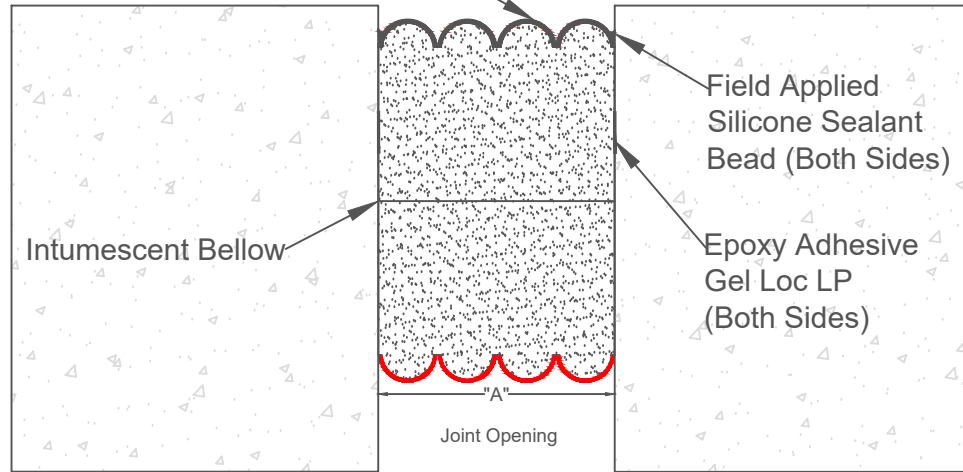
Following these installation instructions will ensure that the FR Expansion Joint is installed as tested and meets UL 2079 standards. Failure to follow these installation instructions as described may result in the installed joint not complying with the UL Listing, as designed and tested, and therefore has potential life safety risks.

This material has been tested to UL/ULC 2079 standards. Authorities having jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Listed or Classified products. The published information cannot always address every construction nuance encountered in the field. When field issues arise, it is recommended to contact the product manufacturer. Users of the fire resistance assemblies are advised to consult the general Guide information for each product category and each group of assemblies. The Guide information includes specifics concerning alternate materials and alternate methods of construction. Only products which bear the UL's Mark are considered as Classified, Listed or Recognized.





Factory Applied U.V. Resistant Traffic Grade Silicone



Field Applied Silicone Sealant Bead (Both Sides)

Epoxy Adhesive Gel Loc LP (Both Sides)

Intumescent Bellow

"A"  
Joint Opening

\* Sizes 1" and greater available in 0.25" increments and up to 5".  
Contact EMS for additional information.

**CST(1FRH-50)-SERIES**  
Horizontal Slab to Slab

STANDARD SEAL COLOR:  
CONCRETE GRAY

**FLOOR-TO-FLOOR/WALL TRAFFIC GRADE APPLICATION**

MOVEMENT: +/- 50% NOMINAL JOINT WIDTH

STOCK LENGTHS: 6'-6"

FIRE RATING: 1 HOUR

PRODUCT	"A" Min. Width IN (MM)	"A" Mid Range IN (MM)	"A" Max. Width IN (MM)	Total Movement IN (MM)
CST(1FRH-50)-050	0.25" (6.4)	0.50" (12.7)	0.75" (19.1)	0.50" (12.7)
CST(1FRH-50)-100	0.50" (12.7)	1.00" (25.4)	1.50" (38.1)	1.00" (25.4)
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CST(1FRH-50)-300	1.50" (38.1)	3.00" (76.2)	4.50" (114.3)	3.00" (76.2)

NO.	Description	Date	By

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13311 Main Road \* Akron \* New York \* 14001  
Phone: (716) 542-3991 \* Fax: (716) 542-3996 \* E-mail: sales@eriemetal.com

PROJECT: N/A

TITLE: CST(1FRH-50)-Series Horizontal Slab to Slab

Detailed by:	Date:
BAF	07/20/16
Checked by:	Date:
SLP	07/22/16
Scale:	EMS Job #:
NTS	N/A
Sheet No.:	Drawing No.:
1 of 1	CST(FR)-1

**\*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**

<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 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

**Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.**

**The customer is responsible for determining the PPE code for this material.**

**The information contained in this Material Safety Data Sheet applies only to the actual Erie Metal Specialties, Inc. (“EMS”) product identified and described herein. This information is not intended to address, nor does it address the use or application of the identified EMS product in combination with any other material, product or process. All of the information set forth herein is based on technical data regarding the identified product that EMS believes to be reliable as of the date hereof. Prior to each use of any EMS product, the user must always read and follow the warnings and instructions on the product's current Technical Data Sheet, product label and Material Safety Data Sheet for each EMS product, which are available at web site and/or telephone number listed in Section 1 of this MSDS.**

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**

<u>Product name</u> Quartz (SiO <sub>2</sub> )	<u>Exposure limits</u> <b>OSHA PEL Z3 (United States, 9/2005). Notes: 10/(SiO<sub>2</sub>+2)</b> TWA: 10 mg/m <sup>3</sup> 8 hour(s). Form: Respirable <b>OSHA PEL Z3 (United States, 9/2005). Notes: 250/(%SiO<sub>2</sub>+5)</b> TWA: 250 mppcf 8 hour(s). Form: Respirable <b>OSHA PEL 1989 (United States, 3/1989). Notes: as quartz</b> TWA: 0.1 mg/m <sup>3</sup> , (as quartz) 8 hour(s). Form: Respirable dust <b>ACGIH TLV (United States, 1/2011).</b> TWA: 0.025 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction <b>NIOSH REL (United States, 6/2009).</b> TWA: 0.05 mg/m <sup>3</sup> 10 hour(s). Form: respirable dust <b>OSHA PEL Z3 (United States, 9/2005). Notes: 30/(%SiO<sub>2</sub>+2)</b> TWA: 30 mg/m <sup>3</sup> 8 hour(s). Form: Total dust.
<b>Engineering measures</b>	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.
<b>Hygiene measures</b>	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.
<u>Personal protection</u> <b>Respiratory</b>	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.
<b>Hands</b>	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.
<b>Eyes</b>	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.
<b>Skin</b>	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	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	<table> <tbody> <tr> <td>Massachusetts Substances</td> <td>The following components are listed: BENZYL ALCOHOL</td> </tr> <tr> <td>New Jersey Hazardous Substances</td> <td>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-</td> </tr> <tr> <td>New York Acutely Hazardous Substances</td> <td>The following components are listed: Naphthalene</td> </tr> <tr> <td>Pennsylvania RTK Hazardous Substances</td> <td>The following components are listed: QUARTZ (SiO<sub>2</sub>); TITANIUM OXIDE (TiO<sub>2</sub>); BENZENEMETHANOL; PARTICULATE POLYCYCLIC AROMATIC HYDROCARBONS; NAPHTHALENE</td> </tr> </tbody> </table>	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
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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

**Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.**

**The customer is responsible for determining the PPE code for this material.**

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

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