SAFETY DATA SHEET

Company Name: Superior Stone Products, Inc.
Product Name: Superior Epoxies E-1000 - Part A - 1:1 Flowing
Issue Date: 12/8/05
Revision Date: 8/15/18
SDS Number: 200-25000

Section I –Product and Company Identification

Product Identifier: Superior Epoxies E-1000 - Part A - 1:1 Flowing
Product Description/Use: Epoxy Adhesive and Filler
Product Code: 25000
Chemical Family: Epoxy Resin

Company:
Superior Stone Products, Inc.
8580 Byron Commerce Drive
Byron Center, MI 49546
Phone: (616) 583-0171

24 Hour Emergency Telephone Number:
CHEMTREC 800-424-9300

Section II – Hazards Identification

GHS Hazard Classification(s):

Acute Toxicity: Category 4, Oral
Serious Eye Damage/Irritation: Category 2A
Chronic hazards to the aquatic environment: Category 2
Skin Corrosion/Irritation: Category 2
Skin Sensitization: Category 1

Symbols:

Signal Word(s): Warning

Hazard Statements:
H302: Harmful if swallowed.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H317: May cause allergic skin reaction.
H335: May cause respiratory irritation.
H411: Toxic to aquatic life with long lasting effects.

Precautionary Statements:
P201: Obtain special instruction before use.
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathe dust/fume/gas/mist/vapor/spray.
P264: Wash skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P272: Contaminated work clothing should not be allowed out of the workplace.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Hazards not otherwise classified: None known.

Section III – Composition/Information on Ingredients

Substance/Mixture: Mixture

Ingredient	Synonym(s)	% (By Weight)	CAS#	EINECS Nc.
Bisphenol A/Epicholorhydrin Based Epoxy Resin	N/A	85-95%	25068-38-6	500-033-5
Propylene Carbonate	4-Methyl-1,3-dioxolan-2-one; Cyclic propylene carbonate; Carbonic acid propylene ester; Cyclic 1,2-propylene carbonate; Propylene glycol cyclic carbonate; 1,2-Propanediol carbonate; 4-Methyl-2-oxo-1,3-dioxolane	<10%	108-32-7	203-572-1
Trimethylolpropane Triacrylate	TMPTA	<10%	15625-89-5	293-701-3

Section IV – First Aid Measures

If Swallowed: Rinse mouth. DO NOT INDUCE VOMITING. Call a POISON CENTER or doctor if you feel unwell.
Skin Contact: Remove immediately all contaminated clothing. Rinse skin with water.
If Inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER OR doctor/physician.
Eyes: Flush with copious amounts of water for at least 10 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Seek immediate medical aid.

Section V - Fire Fighting Measures

Suitable Extinguishing Media: Water Spray, foam, dry chemical, carbon dioxide or any extinguishing agent suitable for surrounding fire.
Unsuitable Extinguishing Media: None known.
Special Fire Fighting Procedures: Firefighters and others exposed to vapors or products of combustion should wear self-contained breathing apparatus and full protective clothing. Equipment should be thoroughly decontaminated after use.
Hazardous Products of Combustion: Decomposition products may include the following material: carbon oxides, acids aldehydes, and other organic compounds.

Section VI - Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures
For Non-Emergency Personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Do not touch or walk through spilled material. Provide adequate ventilation.
For Emergency Responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. See also the information for non-emergency personnel.
Methods and Materials for Containment and Cleaning Up
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.
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.

Section VII - Handling and Storage

Precautions for Safe Handling

Protective Measures: Put on appropriate personal protection 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. Do not breath vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined space unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible materials, kept tightly closed when not in use. Store and use away from heat, sparks open flame or any other ignition source. Empty containers retain product residue and can be hazardous. Do no reuse container.

Advice on General Occupational Health: 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. See also Section 8 for additional information on hygiene measures.

Conditions for Safe Storage, Including and Incompatibles: Store in accordance with local regulations. Store in a segregated and approved area. 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. Segregate from oxidizing materials. 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 no store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Refer to the product label and/or technical data sheet for further information.
Do not store in temperatures greater than 100°F.
Shelf Life: One (1) year when stored at room temperatures.

Section VIII - Exposure Controls/Personal Protection

Likely Routes of Exposure: Inhalation, Dermal, Ingestion.

Control Parameters

Occupational exposure Limits:

Ingredient Name	Exposure Limits
Trimethylopropane Triacrylate	**AIHA WEEL** TWA: 85 mg/m^3 - 8 hours

Engineering Controls: Use only with adequate ventilation to keep the airborne concentrations of this material below the recommended exposure standard. Engineering controls also need to keep gas vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental Exposure Controls: Emissions from ventilation of work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. .

Individual Protection Measures

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.

Eye/Face Protection: 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, gasses or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Hand Protection: 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body Protection: 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Other Skin Protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory Protection: Use a properly fitted, air-purifying of 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.

Section IX – Physical and Chemical Properties

Physical State: Viscous Liquid
Color: Clear
Odor: Odorless
Odor Threshold: No Data
pH: 6-8
Melting Point: 3.2°F/-16.0°C
Boiling Point: 396.3°F/<202.4°C
Flash Point: 438.8°F/266.0°C
Burning Time: Not Available
Burning Rate: Not Available
Evaporation Rate: Not Available
Flammability (solid, gas): Not Available
Lower and Upper Explosive (Flammable) Limits: Not Available
Vapor Pressure: $4.6x10^{-8}$ Pa @ 77°F/25°C
Vapor Density: Not Available (Air = 1)
Relative Density: 1.17 (Water = 1)
Solubility: 6.9 mg/l (at 20°C) - Insoluble
Partition Coefficient: n-Octanol/water : Log P = 3.242 +/- 0.324 (at 25°C and pH 7.1)
Log Kow = 2.821
Auto-Ignition temperature: Not Available
Decomposition Temperature: Not Available
SADT: Not Available
Viscosity: 11,500 - 13,500cps (25°C)
Molecular Weight: 368-400

Section X - Stability and Reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.
Chemical Stability: Material is stable at normal temperature and pressure.
Conditions to avoid: Avoid excessive heating. Avoid contact with strong oxidizing agent, heat, spark and flames.
Incompatibility (materials to avoid): Strong acids, amines, bases, and oxidizing agents.
Hazardous Decomposition: May product hazardous carbon oxides, chloro hydrogen.

Section XI - Toxicological Information

Acute Toxicity:

Product/Ingredient Name	Result	Species	Dose	Exposure
Bisphenol A/Epicholorhydrin Based Epoxy Resin	LD50 Oral	Rat	11,400 mg/kg	-
	LD50 Dermal	Rat	2,000 mg/kg	-
Tremethylolpropane Triacrylate	LD50 Oral	Rat	5,190 mg/kg	-
	LD50 Dermal	Rabbit	5,170 mg/kg	-

Irritation/Corrosion:

Product/Ingredient Name	Result	Species	Score	Dose	Observation
Bisphenol A/Epicholorhydrin Based Epoxy Resin	Skin - Erythmea/Eschar 404 Acute Dermal Irritation/Corrosion	Rabbit	1.5-2	-	-
	Skin - Edema 404 Acute Dermal Irritation/Corrosion	Rabbit	1.0-1.5	-	-
					-
	Eyes - 405 Acute Eye Irritation/Corrosion	Rabbit	0	-	-
					-
	Eyes - Redness of the Conjuntiva	Rabbit	0.7	-	
	Skin - Mild Irritant	Rabbit	-	24 hours	
	Skin - Severe Irritant	Rabbit	-	24 hours	
	Eyes - Mild Irritant	Rabbit	-	-	

Sensitization: Not available
Mutagenicity: Not available
Carcinogenicity: Not available
Reproductive Toxicity: No adverse reproductive effects were observed in an O.E.C.D test guideline no 416 GLP two-generation rat oral gavage study conducted up to a high dose level of 750 mg/kg/day that resulted in adult body weight decrements.
Teratogenicity: Not available

Specific Target Organ Toxicity (Single Exposure):

Product/Ingredient Name	Category	Route of Exposure	Target Organs
Bisphenol A/Epicholorhydrin Based Epoxy Resin	Category 3	Inhalation	Respiratory Tract Irritation
Trimethylolpropane Triacrylate	Category 3	Inhalation	Respiratory Tract Irritation

Specific Target Organ Toxicity (Repeated Exposure):

Product/Ingredient Name	Category	Route of Exposure	Target Organs
Trimethylolpropane Triacrylate	Category 1	Dermal	Skin

Aspiration Hazard: Not available
Likely Routes of Exposure: Inhalation, Dermal, Ingestion.

Potential Acute Health Effects:

Eye Contact: Causes serious eye irritation.
Inhalation: May cause respiratory irritation.
Skin Contact: Causes skin irritation. May cause an alergic skin reaction.

Ingestion: Irritating to mouth, throat and stomach.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics:

Eye Contact: Adverse symptoms may include the following - Pain or Irritation. Watering. Redness.
Inhalation: Adverse symptoms may include the following - Respiratory tract irritation, coughing.
Skin Contact: Adverse symptoms may include the following - Irritation. Redness.
Ingestion: No specific data.

Delayed and Immediate Effects and also Chronic Effects from Short and Long Term Expousres:

Short Term Exposures:

Potential Immediate Effects: Not available.
Potential Delayed Effects: Not available.

Long Term Exposures:

Potential Immediate Effects: Not available.
Potential Delayed Effects: Not available.

Potential Chronic Health Effects: Not Available.

General: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental Effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.

Numerical Measures of Toxicity:

Acute Toxicity Estimates: Not available.

Section XII - Ecological Information

Toxicity:

Product/Ingredient Name	Result	Species	Exposure
Bisphenol A/Epicholorhydrin Based Epoxy Resin	Acute LC50 1.3 mg/l - 203 Fish, Acute Toxicity Test	Fish - Fish	96 hours
	Acute EC50 2.1 mg/l - 202 Daphnia sp. Acute Immobilization Test and Reproduction Test.	Aquatic invertebrates. Water Flea.	48 hours
	Acute NOEC 0.3 mg/l - 211 Daphnia Magna Reproduction Test	Aquatic invertebrates. Water Flea	21 days
	Acute LC50 11 mg/l	Aquatic plants - Algae	72 hours

Persistence and Degradability: Not Available

Bioaccumulative Potential:

Product/Ingredient Name	LogPow	BCF	Potential
Bisphenol A/Epicholorhydrin Based Epoxy Resin	2.64-3.78	3-31 31.00	low

Mobility in Soil:

Soil/water Partition Coefficient (Koc): Not available
Other Adverse Effects: No known significant effects or critical hazards.

Section XIII - Disposal Considerations

The information in this section contains generic advice and guidance. The list of identified uses in Section 1 should be consulted for any available use-specific information.

Disposal Methods: The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. Disposal 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 disposal. Attempt to use product completely in accordance with intended use. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is no feasible.

Special Precautions: This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Do no cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soul, water ways, drains and sewers.

Section XIV - Transportation Information

DOT (DEPARTMENT OF TRANSPORTATION)
Not Regulated
Please refer to DOT regulations for more info

Canada (TDG)
Not Regulated
Please refer to TDG Regulations for more info

International Air Transport Association (IATA)
Technical Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Liquid Epoxy Resin)
Hazard Class: 9
NA/UN Number: 3082
Packing Group: III
ERG Code: 9L
Marine Pollutant: Yes
Please refer to IATA regulations for more info.

International Maratime Organization (IMO)
Technical Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Liquid Epoxy Resin)
Hazard Class: 9
NA/UN Number: 3082
Packing Group: III
EmS: F-A, S-F
Marine Pollutant: Yes
Please refer to IMO regulations for more info.

Special Precautions for User: Transport within users premises: Always transport in closed containers that are upright and secure. Ensure that persons transporting the products know what to do in the event of an accident or spillage.

Section XV - Regulatory Information

United States Federal Regulations:

Sara Title III - Section 311/312

Criteria	Yes/No
Immediate (Acute) Health Effects:	Yes
Chronic (Delayed) Health Effects:	Yes
Fire Hazard:	No
Sudden Release of Pressure Hazard:	No
Reactivity:	No

State Regulations:

California Prop, 65: Warning: This product is not known to contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Canada:
Canadian WHMIS Classification: D2B
Ingredient Disclosure List: Propylene Carbonate (108-32-7)

Section XVI - Other Information

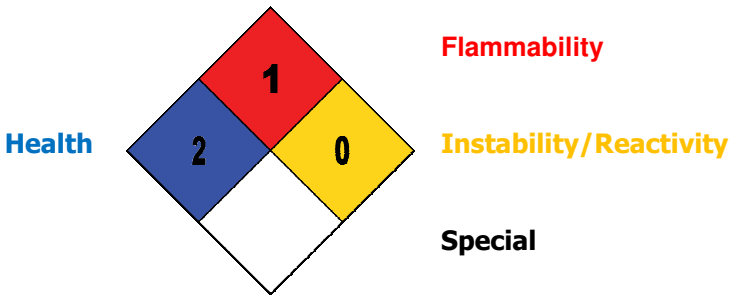
Hazardous Material Information System (United States):

Health	2
Flammability	1
Physical Hazards	0

Caution: HMIS® rating are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® rating are not required on SDSs under 29 CFR 19101200, 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.

National Fire Protection Association (United States):



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SAFETY DATA SHEET

Company Name: Superior Stone Products, Inc.
Product Name: Superior Epoxies E-1000 - Part B - 1:1 Flowing
Issue Date: 12/8/05
Revision Date: 8/15/18
SDS Number: 200-25010

Section I –Product and Company Identification

Product Identifier: Superior Epoxies E-1000 - Part B - 1:1 Flowing
Product Description/Use: Epoxy Adhesive and Filler
Product Code: 25010
Chemical Family: Epoxy Resin

Company:
Superior Stone Products, Inc.
8580 Byron Commerce Drive
Byron Center, MI 49546
Phone: (616) 583-0171

24 Hour Emergency Telephone Number:
CHEMTREC 800-424-9300

Section II – Hazards Identification

GHS Hazard Classification(s):

Acute Toxicity: Category 4, Dermal
Acute Toxicity: Category 4, Oral
Serious Eye Damage/Irritation: Category 1
Reproductive Toxicity: Category 2
Chronic Aquatic Toxicity: Category 1
Acute Toxicity: Category 4, Inhalation
Skin Corrosion/Irritation: Category 1B
Skin Sensitization: Category 1
Acute Aquatic Toxicity: Category 1
Specific Target Organ Toxicity - Single Exposure: Category 3

Symbols:

Signal Word(s): **Warning**

Hazard Statements:
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H317: May cause allergic skin reaction.
H318: Causes serious eye damage.
H330: Fatal if Inhaled
H335: May cause respiratory irritation.
H361 Suspected of damaging fertility or the unborn child.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements:
P201: Obtain special instruction before use.
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathe dust/fume/gas/mist/vapor/spray.
P264: Wash skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P272: Contaminated work clothing should not be allowed out of the workplace.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective as required.
P284: Wear respiratory protection.

Hazards not otherwise classified: None known.

Section III – Composition/Information on Ingredients

Substance/Mixture: Mixture

Ingredient	Synonym(s)	% (By Weight)	CAS#	EINECS Nc.
Nonylphenol	Branched p-nonylphenol, C9 branched alkyl phenol	<35%	84852-15-3	284-325-5
Aminoethylpiperazine	1-(2-Aminoethyl)piperazine, 1-Piperazineethanamine, Piperazine, 1-(2-aminoethyl)-	>40%	140-31-8	205-411-0
DETA. reaction products with ethylene oxide	Diethylenetriamin, oxirane polymer	<5%	28063-82-3	N/A
Tri(dimethylaminomethyl)phenol	Tris-2,4,6-(dimethylaminomethyl)phenol, AC-30, DMP-30, Actiron NX 3	<3%	90-72-2	202-013-9

Section IV – First Aid Measures

If Swallowed: Do NOT induce vomiting. Rinse mouth with water. If a person vomits when lying on their back, place them in the recovery position. Never give anything by mouth to an unconscious person. Prevent aspiration of vomit. Turn victim's head to the side. Consult a physician.
Skin Contact: Remove immediately all contaminated clothing and any extra material. Rinse skin with water. Maintain continuous irrigation until medical care can be received.
If Inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER OR doctor/physician.
Eyes: Flush with copious amounts of water, occasionally lifting the upper and lower eyelids until medical attention is received. Check for and remove any contact lenses. Seek immediate medical aid.

Section V - Fire Fighting Measures

Suitable Extinguishing Media: Alcohol resistant foam, dry chemical, carbon dioxide, dry sand, limestone powder.
Unsuitable Extinguishing Media: None known.
Special Fire Fighting Procedures: Firefighters and others exposed to vapors or products of combustion should wear self-contained breathing apparatus and full protective clothing. Equipment should be thoroughly decontaminated after use. Downwind personnel must be evacuated.
Hazardous Products of Combustion: May generate ammonia gas. May generate toxic nitrogen oxide gases. Use of water may result in the formation of very toxic aqueous solution. do not allow run-off from fire fighting to enter drain or water courses. Incomplete combustion may form carbon dioxide. Burning produces noxious and toxic fumes.

Section VI - Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures
For Non-Emergency Personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Do not touch or walk through spilled material. Provide adequate ventilation.
For Emergency Responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. See also the information for non-emergency personnel.
Methods and Materials for Containment and Cleaning Up
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.
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.

Section VII - Handling and Storage

Precautions for Safe Handling

Protective Measures: Put on appropriate personal protection 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. Do not breath vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined space unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible materials, kept tightly closed when not in use. Store and use away from heat, sparks open flame or any other ignition source. Empty containers retain product residue and can be hazardous. Do no reuse container.

Advice on General Occupational Health: 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. See also Section 8 for additional information on hygiene measures.

Conditions for Safe Storage, Including and Incompatibles: Store in accordance with local regulations. Store in a segregated and approved area. 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. Segregate from oxidizing materials. 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 no store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Refer to the product label and/or technical data sheet for further information.
Do not store in temperatures greater than 100^{o}F.
Shelf Life: One (1) year when stored at room temperatures.

Section VIII - Exposure Controls/Personal Protection

Likely Routes of Exposure: Inhalation, Dermal, Ingestion.

Control Parameters

Occupational exposure Limits:

Ingredient Name	Exposure Limits
N/A	N/A

Engineering Controls: Use only with adequate ventilation to keep the airborne concentrations of this material below the recommended exposure standard. Engineering controls also need to keep gas vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental Exposure Controls: Emissions from ventilation of work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. .

Individual Protection Measures

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.

Eye/Face Protection: 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, gasses or dusts. If contact is possible, the

following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
Hand Protection: 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body Protection: 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Other Skin Protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory Protection: Use a properly fitted, air-purifying of 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.

Section IX – Physical and Chemical Properties

Physical State: Viscous Liquid
Color: Light yellow/amber (darkens with age)
Odor: Amine Like
Odor Threshold: Not Available
pH: Alkaline
Melting Point: Not Available
Boiling Point: >392°F/>200°C
Flash Point: 267°F/130°C
Burning Time: Not Available
Burning Rate: Not Available
Evaporation Rate: Not Available
Flammability (solid, gas): Not Applicable
Lower and Upper Explosive (Flammable) Limits: Not Applicable
Vapor Pressure: <1 mmHg at @ 70°F/25°C
Vapor Density: Not Available (Air = 1)
Relative Density: 1.07 (Water = 1)
Solubility: Slightly soluble
Partition Coefficient: n-Octanol/water : Not Available.
Auto-Ignition temperature: Not Available
Decomposition Temperature: Not Available
SADT: Not Available
Viscosity: Not Available

Section X - Stability and Reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.
Chemical Stability: Material is stable at normal temperature and pressure.
Conditions to avoid: No data available.
Incompatibility (materials to avoid): Strong oxidizing agents, sodium hypochlorite, organic acids, mineral acids, materials reactive with hydroxyl compounds. nitrous acid and other nitrosating agents. CAUTION: N-Nitrosaminesm many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous, acid, nitrites or

atmospheres with high nitrous oxide concentrations. Reaction wiht peroxides may result in violent decomposition of peroxide possible creating an explosion.
Hazardous Decomposition: Nitric acid, ammonia, nitrogen oxides (NOx) Carbon monoxide, carbon dioxide, aldehydes, flammable hydrocarbon fragments. Nitrogen oxide can react with water vapors to form corrosive nitric acid.

Section XI - Toxicological Information

Acute Toxicity:

Product/Ingredient Name	Result	Species	Dose	Exposure
Product Components	LD50 - Oral (estimated)	Rat	1,412 mg/kg	-
	LD50 - Dermal (estimated)	Rabbit	>880 mg/kg	-

Irritation/Corrosion:

Product/Ingredient Name	Result	Species	Score	Dose	Observation
Product Components	Skin - OECD 404 - Causes burns	Rabbit	-	-	-
	Eyes - OECD 405 - Corrosive	Rabbit	-	-	-

Sensitization: Dermal sensitization to this product has been seen in some humans. The results of a test on guinea pigs showed components of this substance to be a weak sesitizer.
Mutagenicity: Not available
Carcinogenicity: Not available
Reproductive Toxicity:

Product/Ingredient Name	Species	Result
Nonylphenol	Rat - Oral	Effect on Newborn: Growth Statistics (e.g. reduced weight gain). Effects on Newborn: Physical. Suspected human reproductive toxicant.

Teratogenicity: Not available
Specific Target Organ Toxicity (Single Exposure): Not available
Specific Target Organ Toxicity (Repeated Exposure):
Aspiration Hazard: Not available
Likely Routes of Exposure: Inhalation, Dermal, Ingestion.
Potential Acute Health Effects:

Eye Contact: Causes eye burns. May cause blindness.
Inhalation: Can cause severe eye, skin and respiratory tract burns. Can be highly toxic by inhalation.
Skin Contact: Toxic in contact with skin. Causes skin burns.
Ingestion: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics:

Repeated and/or prolonged exposure to low concentrations of vapors and/or aerosols may cause: sore throat, asthma, eye disease, kidney disorders, liver disorders, skin disorders and allergies.

Delayed and Immediate Effects and also Chronic Effects from Short and Long Term Exposures:

Short Term Exposures:

Potential Immediate Effects: Not available.
Potential Delayed Effects: Not available.

Long Term Exposures:

Potential Immediate Effects: Not available.
Potential Delayed Effects: Not available.

Potential Chronic Health Effects: Not Available.

General: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.
Developmental Effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.

Numerical Measures of Toxicity:

Acute Toxicity Estimates: Not available.

Additional Information- Nonylphenol: Repeated dose toxicity - Rat - male and female - No observed adverse effect level - 10 mg/kg - Lowest observed adverse effect level - 50 mg/kg.

RTECS: Not Available.

Cough, shortness of breath. headache, nausea, vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section XII - Ecological Information

Toxicity:

Product/Ingredient Name	Result	Species	Exposure
Nonylphenol	LC50 - Flow though test - 0.209 mg/l	Fish - Lepomis macrochirus	96 hour
	EC50 - Semi-static test - 0.0844 mg/l	Daphnia magna (Water Flea)	48 hour
	EC50 - Static test - 0.33 mg/l	Selenastrum capriconutum (green algae)	72 hour

Persistence and Degradability: Not Available

Bioaccumulative Potential:

Product/Ingredient Name	$LogP_{ow}$	BCF	Potential
Nonylphenol	-	740	Primephales promelas (fathead minnow) - 28 days

Mobility in Soil:

Soil/water Partition Coefficient (Koc): Not available
Other Adverse Effects: No known significant effects or critical hazards.

Section XIII - Disposal Considerations

The information in this section contains generic advice and guidance. The list of identified uses in Section 1 should be consulted for any available use-specific information.

Disposal Methods: The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. Disposal 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 disposal. Attempt to use product completely in accordance with intended use. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is no feasible.

Special Precautions: This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Do no cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soul, water ways, drains and sewers.

Section XIV - Transportation Information

DOT (DEPARTMENT OF TRANSPORTATION)
Technical Name: Amines, liquid, corrosive, N.O.S
(Nonyl Phenol, Heterocyclic amine
Hazard Class: 8
NA/UN Number: 2735
Packing Group: II
Marine Pollutant: Yes
Please refer to DOT regulations for more info

Canada (TDG)
Technical Name: Amines, liquid, corrosive, N.O.S
(Nonyl Phenol, Heterocyclic amine.
Hazard Class: 8
NA/UN Number: 2735
Packing Group: II
Marine Pollutant: Yes
Please refer to TDG Regulations for more info

International Air Transport Association (IATA)
Technical Name: Amines, liquid, corrosive, N.O.S
(Nonyl Phenol, Heterocyclic amine
Hazard Class: 8
NA/UN Number: 2735
Packing Group: II
ERG Code: 8L
Marine Pollutant: Yes
Please refer to IATA regulations for more info.

International Maratime Organization (IMO)
Technical Name: Amines, liquid, corrosive, N.O.S
(Nonyl Phenol, Heterocyclic amine.
Hazard Class: 8
NA/UN Number: 2735
Packing Group: II
EmS: F-A, S-B
Marine Pollutant: Yes
Please refer to IMO regulations for more info.

Special Precautions for User: Transport within users premises: Always transport in closed containers that are upright and secure. Ensure that persons transporting the products know what to do in the event of an accident or spillage.

Section XV - Regulatory Information

United States Federal Regulations:

Sara Title III - Section 311/312

Criteria	Yes/No
Immediate (Acute) Health Effects:	Yes
Chronic (Delayed) Health Effects:	No
Fire Hazard:	No
Sudden Release of Pressure Hazard:	No
Reactivity:	No

State Regulations:

California Prop. 65: This product is not known to contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Pennsylvania Right to Know: The following components are listed: 4-nonylphenol, branched (84852-15-3)
New Jersey Right to Know: The following components are listed: 4-nonylphenol, branched (84852-15-3)

Canada:

Canadian WHMIS Classification:
D1, D2A, D2B, E

Canadian Disclosure List:
N-Aminoethylpiperazine (140-31-8)
Nonlyphenol (84852-15-3)

Section XVI - Other Information

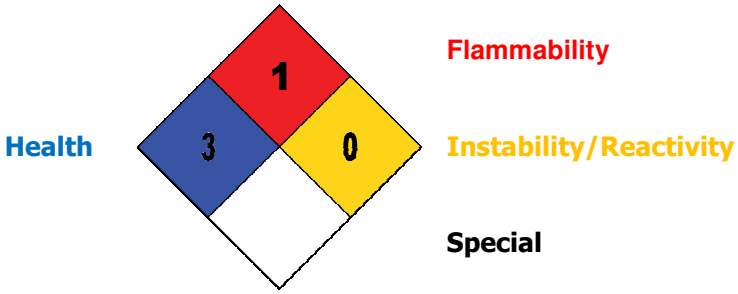
Hazardous Material Information System (United States):

Health	3
Flammability	1
Physical Hazards	0

Caution: HMIS® rating are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® rating are not required on SDSs under 29 CFR 19101200, 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.

National Fire Protection Association (United States):



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