

Type 3 Flooring System		
Proper Name	Use within System	Name on General MSDS List
101 Resin (SR 101 and SH101)	Body matrix for Aggregate build coat(s)	SR 101 and SH101
Resin 405	Chemical Resistant Epoxy Hardener	CRH 405
Estes Quartz	Color Quartz Broadcast Aggregate	Sand
Silica Flour	Used as a thixatropo	Silica
50 Mesh sand	Mix Aggregate	Lake Sand

SeamTek® Type 3 Flooring (Healthcare)

1. Product Description

SeamTek® Epoxy Quartz Flooring incorporates specifically formulated resin components as the matrix of the quartz systems. In the case of quartz flooring, resin SR-101 and hardener SH 101 are the backbone of the system. Type 3 is intended to be 3/16" thick.

SR 101 is a 100% solids epoxy resin with low VOC and very low odor. SR-101 has been specifically formulated with excellent air release and material flow so as to make it easy to handle. The hardener component is SH-101 which is formulated to enhance air release, provide excellent wear properties and for ease of troweling either in neat form or in combination with color quartz or graded aggregate.

SR-101 has been designed to be used with a variety of hardeners to achieve the desired effect. In the LSP Quartz Flooring systems SR-101 is combined with CRH-405 to provide a chemical resistant seal coat material superior to other epoxy mixes. CRH-405 yields a seal coat that is uncharacteristically clear for a chemical resistant seal coat hardener.

SeamTek® Type 3 is installed @ 3/16" thickness to account for thermal shock @ 180 degrees F in applicable facilities.

Color

Resins are amber clear. Floor color is provided from the color quartz used in the system. (see color chart)

Surface Preparation

Surfaces should be cleaned of oil, grease and dirt. If applied over a smooth, glossy surface, the

surface should be grit blasted or ground with a coarse diamond cup to create a surface profile for optimum adhesion. When applying new coatings over previously sealed surfaces, a spot test should be made to check for lifting or incompatibility with the old coating. It is extremely important that this surface is free of all moisture prior to coating application or blistering of flooring may occur.

Limitations:

All flooring systems should be checked for chemical resistance against the specific chemicals used in your facility to assure their resistance. Quartz floors are hard and rigid and should not be used to bridge moving cracks. The concrete substrate should also be checked for moisture vapor migration to assure the compatibility with the existing conditions. Do not install in situations where the emission rate exceeds 3 pounds per 1000 sq ft per 24 hours (ASTM F)

Applicable Standards

LSP SeamTek clear epoxy resins have been tested in accordance with American Society for Testing and Materials (ASTM) methods.

Mixing

Caution, containers used to measure SeamTek epoxy resin and Harder must be marked appropriately and only used to measure the indicated component. Container used to mix both resin and hardener must be cleaned or changed after mixing each batch to avoid residual material affecting viscosity and cure rates.

Measure both parts by volume 2 to 1 into plastic marked containers. Pour resin and hardener into a separate container and agitate using a jiffy paddle and low speed drill (400-600 rpm). Agitate for 2 minutes, and then scrape sides of container and mix for an additional minute. Avoid generating air bubbles and foam. Consider mixing small batches to reduce potential waste. To avoid exothermic reaction in mixing container, do not let mixed components sit in container. Immediately, either pour the mixed epoxy binder resin onto the floor to be coated or thoroughly mix with aggregate and then pour onto floor. Spread or finish material according to Manufacturers instructions.

3. Warranty

LSP Quartz Floor Systems are installed by LSP Associate Contractors and are available with the LSP Single Source Limited Warranty for Labor and Material. This Product Data Sheet is for your information and is neither a contract nor a product warranty.

4. Maintenance

LSP SeamTek Systems are hard seamless surfaces that will provide years of life with little maintenance. For more detailed maintenance instructions, please request LSP Floor Maintenance Instructions. Periodic inspections by your LSP Associate Contractor are recommended to discuss ways to extend the life of the floor care.

Material Components/Ratios and Spread Rates

Type 3 is an epoxy flooring systems designed to be 3/16" thick. It is called a slurry/broadcast system; the resins and ratios are as follows:

- 1) Cove base mix: **SR101 and SH101 in 2:1** mix ratio as above. Mix 1 ½ quarts (three pints) of mixed liquid with 11 quarts of quartz or 50 mesh sand.
- 2) 1st Broadcast: Mix **SR101 and SH101** at a **2:1** ratio as above. Mix the resin with the slurry aggregate as follows:
1 gallon mixed resin : 4 pounds silica:
10 pounds of 50 mesh sand, mix the batch to a pancake batter consistency and trowel out @ 36 – 40 sq ft/gal

- 3) 2nd broadcast: neat resin **SR and SH 101 in a 2:1** ratio and spread @ 72 sq ft/gal spread rate
- 4) Seal coat: Trowel neat **resin SR101 and hardener CRH405** in a 2:1 ratio at a spread rate of 72 sq ft/gal
- 5) Depending on the desired skid resistance there may be a second seal coat mixed as #6 above with a spread rate of 300+ sq ft/gal

SECTION 1 Product and Company Information

PRODUCT NAME: SeamTek® Chemical Resistant Hardener, CRH405 Chemtrec
GENERIC NAME: Epoxy Hardener 24 Hour Emergency Number 1-800-424-9300
Information Number: 1-800-666-6216
DISTRIBUTOR: LSP Performance Resins
 124 Speer Road
 Chestertown, MD 21620
 Comments: To the best of our knowledge, this Material Safety Data Sheet conforms to the requirements of US OSHA 29 CFR1910.1200, 91/155/ECC and Canadian Hazardous Products Act

SECTION 2 Hazards Identification

Emergency Overview OSHA Hazardous Target Organ Effect: Skin Sensitizer, Irritant Target Organs: Respiratory, eyes, Skin Physical Appearance: Viscous liquid Immediate Concerns: Skin Irritation		Potential Health Effects Skin: Will cause irritation and dermatitis, repeated overexposure will cause dermatitis and sensitization. Sensitized persons may experience rapid irritation of skin upon exposure. Inhalation and Ingestion: Irritation to system
Carcinogenicity: Not listed by NTP Not Listed by IARC Not Listed by OSHA	Reproductive Toxicity Reproductive Effects : Not Available Teratogenic Effects: Not Available	Signs and Symptoms of Overexposure: Irritation of Skin Medical Conditions Aggravated: Allergy, Skin Disorders

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

Health		Environmental	Physical
Acute Toxicity, Oral	Category 5	Not Classified	Not Classified
Skin Irritant	Category 2		
Serious Eye Damage	Category 1		
Skin Sensitization	Category 1		

Pictogram:



Signal Word Danger

Hazard Statements	Precautionary Statements
H303 May be harmful if swallowed	P280 Wear protective gloves/protective clothing/eye protection/face protection P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
H315 Causes skin irritation	
H317 May cause an allergic skin reaction	
H318 Causes serious eye damage	

SECTION 3 Composition / Information on Ingredients

Chemical Name	CAS	Wt%
Modified cycloaliphatic polyamines	Trade secret	
Benzyl alcohol	100-51-6	

SECTION 4 First Aid Measures

EYE CONTACT: Get medical attention immediately. Immediately flush eyes gently with large amounts of water, holding lids open for at least 20-30 minutes, retracting eyelids often. Check for, and remove contact lenses.

SKIN CONTACT: Get medical attention immediately. Flush contaminated skin with plenty of WATER. Do NOT wash with solvents. Wash contaminated clothing thoroughly with water before removing it or wear gloves. Continue to rinse for at least 10 minutes. May cause irritation and allergic reaction. Seek medical advice if irritation develops or persists.

INHALATION: Move exposed person to fresh air. Get medical attention immediately. If it is suspected that fumes are still present, the rescuer should wear an appropriate make of self contained breathing apparatus. Keep person warm and at rest. If not breathing or breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing air to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway

INGESTION: Get medical attention immediately. Wash out mouth with water. Move exposed person to fresh air. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Advice to physicians: Symptomatic and supportive therapy as needed. May aggravate skin conditions.

SECTION 5 Fire Fighting Measures

Conditions of Flammability

Not flammable or combustible

Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions – Carbon Oxides

Fire Fighting Instructions

Do not enter fire area without proper protection. Wear self contained breathing apparatus (pressure-demand MSHA/NIOSH) approved or equivalent. See Section 10 - decomposition products possible. Fight fire from safe distance/protected location. Heat/impurities may increase temperature/build pressure/rupture closed containers, spreading fire, increasing risk of burns/injuries. Use water spray/fog for cooling.

SECTION 6 Accidental Release Measures

Personal Precautions

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. 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 spill material and runoff and contact with soil, waterways, drains and sewers. Notify authorities of any releases to sewers, soils, waterways or air.

Methods and Materials for Containment and Cleaning Up

Stop the leak if it can be done without risk. Move containers from the spill area. Prevent entry into sewers, water ways or soils. Contain and collect spillage with non-combustible, absorbent material such as sand, earth, vermiculite or diatomaceous earth. Place in container for disposal according to local regulations via a licensed waste disposal contractor. Contaminated absorbent materials may pose the same hazards as the spilled product. See section 1 for emergency contact information and section 13 for waste disposal.

SECTION 7 Handling and Storage

Precautions for Safe Handling Can cause skin and eye irritation and allergic skin reaction.

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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. 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.

Conditions for Safe 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 8 Exposure Controls / Personal Protection

EXPOSURE GUIDELINES

Hazardous Component	PEL	STEL	TLV	Other
Modified cycloaliphatic polyamines	NE	NE	NE	NE
Benzyl alcohol	NE	NE	NE	NE

ENGINEERING CONTROLS Use local exhaust ventilation to maintain airborne concentrations below exposure limits. Respiratory protection may be required in addition to general room ventilation.

PERSONAL PROTECTIVE EQUIPMENT Use a properly fitted, air-purifying or air supplied 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.

EYE PROTECTION Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles or vapor. Contact lenses should not be worn.

SKIN AND BODY PROTECTION When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn. Gloves should be impervious neoprene or rubber. Use of barrier cream is recommended. Clean equipment thoroughly after each use. Discard contaminated leather shoes and canvas sneakers.

OTHER HYGENIC PRACTICES Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

OTHER WORK PRACTICES Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9 Physical and Chemical Properties

Appearance	
Form	Liquid
Color	Light amber
pH	Not available
Melting/Freezing Temperature	40 C/ 104 F
Boiling Point	336 C/ 637 F
Flash Point	> 95 C/ 200 F
Ignition Temperature	Not available
Autoignition Temperature	Not available
Lower explosive limit; na	Upper explosive limit: na
Vapor Pressure	<0.1 mm Hg
Vapor Density (air=1)	Not available
Specific Gravity (water=1 @39.2F)	>1.01
Evaporation Rate (Bac=1)	None
Odor	amine
Odor threshold	Not available

SECTION 10 Stability and Reactivity

Chemical Stability

Stable under recommended storage conditions

Possibility of Hazardous Reactions

No data available

Conditions to Avoid

Avoid strong acids, bases in bulk and elevated temperatures

Materials to Avoid

Reactive or incompatible with: acids, oxidizers, amines

Hazardous Decomposition Products

Decomposition products formed under fire conditions may include: Carbon oxides, Nitrogen oxides, Aldehydes.

SECTION 11 Toxicological Information

Acute Toxicity

Oral LD50	Rat > 4000 mg/kg.
Dermal LD50	Rabbit 20,000 mg/kg
Inhalation LC50	No data available

Carcinogenicity

IARC: No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC

Skin Corrosion/Irritation

Skin	Irritant
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ACGIH: No component of this product presents at levels greater than or equal to 0.1% is identified as carcinogen or potential carcinogen by ACGIH

Serious Eye Damage/Eye Irritation

Eye	Irritant
Eyes	Rabbit
Severe eye irritation – 24 H	

NTP: No component of this product presents at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP

Respiratory or Skin Sensitization

May cause skin or respiratory sensitization

Mutagenicity

Mouse	Skin
Carcinogenic by RTECS Criteria	
liver, ovarian, thyroid	

SECTION 12 Ecological Information

Aquatic Ecotoxicity

No data available

Biodegradability

Persistent	Not readily biodegradable
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Mobility in soil

No data available

SECTION 13 Disposal Considerations

Waste Disposal

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residuals. 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.

SECTION 14 Transport Information

DOT (US)
Not Regulated

IMDG
Not Regulated

TDG
Not Regulated

SECTION 15 Regulatory Information

TSCA INVENTORY STATUS
All components are listed or exempt

OSHA HAZARDS

Skin Sensitizer	Irritant	
Corrosive Material		

HMIS Classification		NFPA Rating	
Health Hazard;	3		3
Flammability	1		0
Physical Hazards	0		0

SARA TITLE III: Section 311/312 Hazard Class
Acute Health Hazard, Chronic Health Hazard

SARA TITLE III: Section 313 (40CFR370)
This product does not contain a chemical which is listed in Section 313 at or above the de minimus concentrations

CERCLA Information (40CFR302.4)
This material contains no hazardous or extremely hazardous substances at or above the de minimus concentrations as defined by CERCLA or SARA Title III, and release is therefore not reportable.

California Proposition 65 Information:
This product contains, no listed substances known to the state of California to cause cancer and/or reproductive toxicity.

SECTION 16 Other Information

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information in this MSDS was obtained from sources, which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable. This MSDS has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or results to be obtained from the user thereof. LSP Performance Resins assumes no responsibility for personal injury or property damage to vendees, such as vendees or users assume all risks associated with the use of the material.

LSP PERFORMANCE RESINS 800.638.9874	124 Speer Road FAX 410.778.3625	Chestertown, MD 21620 web www.lspinc.com
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BEST SAND CORPORATION

Material Safety Data Sheet

Date: July 28, 2006

Supersedes: February 15, 2006

SECTION 1 : PRODUCT IDENTIFICATION

Trade Name as Labeled: Silica, **Lake or Bank Sand**, All Grades

Chemical Name and Formula: Silica, mainly in the form of quartz (crystalline silica); SiO₂

Manufacturer:
Best Sand Corporation
P.O. Box 87
Chardon, OH 44024
Phone: (440) 285-3132

Emergency Telephone Number: (800) 281-9876

“This Best Sand Corporation product is not intended for and is strictly prohibited for sandblasting.”

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical	CAS Number	% by Weight
Crystalline Silica (Quartz)	14808-60-7	87-99.9

Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C, it can change to a form of crystalline silica known as trydimite, and if crystalline silica (quartz) is heated to more than 1470°C, it can change to a form of crystalline silica known as cristobalite. The OSHA PEL for crystalline silica as trydimite and cristobalite is one-half of the OSHA PEL for crystalline silica (quartz).

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: The material is white or tan colored free-flowing sand. High airborne levels of dust may cause irritation to eyes and upper respiratory tract. Crystalline silica is an IARC Group 1 carcinogen. Contact with powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, may cause fire. It dissolves in hydrofluoric acid and may produce a corrosive gas (silicon tetrafluoride).

Acute Health Effects:

Inhalation: Excessive exposure to high concentrations of dust may cause irritation to the eyes, skin, and mucous membranes of the upper respiratory tract.

Eye: Dusts may cause irritation to the eye. Scratching of cornea can occur if eye is rubbed.

Ingestion: Ingestion of harmful amounts of this product as distributed is unlikely due to its solid insoluble form. Ingestion of excessive amounts of dust may cause nausea or vomiting.

Chronic Health Effects:

Chronic inhalation of respirable crystalline silica may cause silicosis; a fibrosis (scarring) of the lungs. Silicosis may be progressive; it may lead to disability and death. Crystalline silica inhaled from occupational sources is classified as carcinogenic to humans. There is some evidence that inhalation of respirable crystalline silica or silicosis is associated with an increased incidence of scleroderma (an immune system disorder manifested by

fibrosis of the lungs, skin, and other internal organs), and kidney disease. Silicosis is also reported to increase the risk of tuberculosis. Generally, there are no signs or symptoms of exposure to crystalline silica. The condition of individuals with lung disease (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) can be aggravated by exposure. *See Section 11, Toxicological Information, for additional detail on potential adverse health effects.*

SECTION 4: FIRST AID MEASURES

Inhalation: If there is a gross inhalation of crystalline silica, remove the person immediately to fresh air. Consult a physician as necessary.

Ingestion: Ingestion may cause gastrointestinal discomfort. Dilute by drinking large quantities of water. If discomfort persists, consult a physician.

Eye Contact: Immediately wash eyes with large amounts of water. If irritation or redness persists consult a physician.

Skin Contact: Wash with soap and water. If irritation persists consult a physician.

SECTION 5: FIRE FIGHTING MEASURES

Crystalline silica (quartz) is not flammable, combustible, or explosive.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release: Use personal protective equipment recommended in Section 8. Clean up using dustless methods (water or vacuum) to minimize generation and distribution of respirable silica particles. Avoid using compressed air. Collect material in appropriate containers for recovery and recycling or disposal.

Waste Disposal: See Section 12.

SECTION 7: HANDLING AND STORAGE

Handling: Handle the product in accordance with good industrial hygiene and safety practices. Refer to Section 8 for additional information on personal protective equipment. See American Society of Testing and Materials (ASTM) Standard Practice E 1132-99a, "*Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica.*" Do not breathe dust. Use proper work practices and adequate ventilation with dust collection to maintain airborne levels of crystalline silica to below the PEL. *Use of this product may generate elevated levels of crystalline silica dust that may not be visible to the unaided eye.* If the airborne exposure levels to crystalline silica cannot be maintained below the PEL, wear a respirator (see Section 8) when handling, storing, or disposing of this product.

Storage: Avoid breakage of bagged material or spills of bulk material. *Note:* Quartz is incompatible with oxidizers such as hydrofluoric acid, fluorine, chlorine trifluoride, or oxygen difluoride (see Section 10).

The OSHA Hazard Communication Standard 29 CFR 1910.1200 and state and local worker or community "Right to Know" laws and regulations should be strictly followed. *Warn your employees (and your customer users in case of resale) by posting and other means of the hazards and the required OSHA precautions to be used. Provide training about the OSHA precautions.*

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Local Exhaust: Use sufficient local exhaust to reduce the level of respirable crystalline silica to below the PEL. See ACGIH "Industrial Ventilation, A Manual of Recommended Practice" (latest edition). Minimize the collection (build-up) of dust on walls, floors, equipment, and other horizontal surfaces.

Eye Protection: Use safety glasses, goggles, or face shield (as appropriate) under circumstances where particles could cause injury to the eye.

Skin Protection: Good personal hygiene practices should be followed including cleansing of exposed skin with soap and water, and laundering soiled work clothing.

Respiratory Protection: Use a NIOSH-approved air purifying or supplied-air respirator where airborne concentrations of crystalline silica (quartz) are expected to exceed exposure limits (see table below). Appropriate respiratory protection for respirable crystalline silica is based on the airborne exposure concentration and duration of exposure for the particular use of the respirator. A respiratory protection program in accordance with OSHA Standard 29 CFR 1910.134 must be implemented whenever workplace conditions warrant use of a respirator. ANSI Standard Z88.2 (recent revision) "American National Standard for Respiratory Protection." should also be considered. All tight-fitting respirators must be fit-tested either qualitatively or quantitatively for each respirator user. NIOSH recommends the use of respiratory protection when effective engineering controls are not feasible, or while they are being installed to control workplace exposures to crystalline silica.

AIRBORNE CRYSTALLINE SILICA CONCENTRATION	MINIMUM RESPIRATORY PROTECTION
Up to 0.5 mg/m ³	Any air-purifying respirator with a high efficiency particulate air (HEPA) filter.
Up to 1.25 mg/m ³	Any powered, air-purifying, full-facepiece respirator with a HEPA filter. Any supplied-air respirator operated in a continuous-flow mode.
Up to 2.5 mg/m ³	Any powered, air-purifying, full-facepiece respirator with a HEPA filter. Any powered, air-purifying respirator with a tight-fitting facepiece and a HEPA filter.
Up to 25 mg/m ³	Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.
Emergency or Planned Entry into Unknown Concentrations or Immediately Dangerous to Life or Health (IDLH) Conditions	Up to 500 mg/m ³ : Any self-contained breathing apparatus with a full-facepiece and is operated in pressure-demand mode or other positive pressure mode. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.
Escape	Any air-purifying, full-facepiece respirator with a HEPA filter. Any appropriate escape-type, self-contained breathing apparatus.
Use only NIOSH-approved respiratory protection. See 29 CFR §1910.134 and 42 CFR §84. See also ANSI standard Z88.2 (latest revision) "American National Standard for Respiratory Protection."	

Exposure Guidelines:

Chemical	Percentage (by wt.)	Exposure Guidelines						Unit
		OSHA		NIOSH		ACGIH		
		TWA	STEL	TWA	STEL	TWA	STEL	
Crystalline Silica (Quartz)	87-99.9	$\frac{10 \text{ mg/m}^3}{\% \text{ SiO}_2 + 2}$ ^a	N.E.	0.05 ^a	N.E.	0.025	N.E.	mg/m ³

N.E. = Not Established. a = respirable dust.
 OSHA Permissible Exposure Limits (PEL) and ACGIH Threshold Limit Values (TLV) are an 8-hour time-weighted average (TWA) concentration during a 40-hour workweek. NIOSH Recommended Exposure Limits (REL) is for up to a 10-hour workday during a 40-hour workweek.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Vapor Density (Air = 1): Not applicable.

Specific Gravity (Water = 1): 2.65

Solubility in Water: Insoluble in water.

Vapor Pressure: 10mm @ 1730°C

Melting Point: 1710° C

Boiling Point: 2230° C

Evaporation Rate (Butyl Acetate = 1): None.

Appearance and Color: White to tan; odorless.

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under normal handling and storage conditions.

Hazardous Polymerization: Cannot occur.

Chemical Incompatibility (Materials to Avoid): Contact with powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, may cause fires.

Hazardous Decomposition Products: Crystalline silica will dissolve in hydrofluoric acid and produce a corrosive gas (silicon tetrafluoride).

SECTION 11 : TOXICOLOGICAL INFORMATION

Silicosis: The major concern is silicosis, caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute.

Chronic or Ordinary Silicosis (often referred to as Simple Silicosis) is the most common form of silicosis, and can occur after many years of exposure to relatively low concentrations of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis. Lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter characterize simple silicosis, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough and sputum production. Complicated silicosis or PMF may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pulmonale).

Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five years of the initial exposure. The progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid.

Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis can be fatal.

Cancer:

IARC: The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans (Group 1)*." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates..." (1997).

NTP: The National Toxicology Program (NTP), in its Ninth Annual Report on Carcinogens, classified "silica, crystalline (respirable)" as a known human carcinogen.

OSHA: Crystalline silica (quartz) is not regulated as a human carcinogen by the Occupational Safety and Health Administration (OSHA) as a carcinogen.

There have been many articles published on the carcinogenicity of crystalline silica, which the reader should consult for additional information. The following are examples of recently published articles:

"*Crystalline Silica and Lung Cancer: The Problem of Conflicting Evidence*", Indoor Built Environ, Volume 8, pp. 121-126 (1998);

"*Crystalline Silica and the Risk of Lung Cancer on the Potteries*", Occup. Environ. Med., Volume 55, pp. 779-785 (1998);

"*Is Silicosis Required for Silica-Associated Lung Cancer?*" American Journal of Industrial Medicine, Volume 37, pp. 252- 259 (2000);

"*Silica, Silicosis, and Lung Cancer: A Risk Assessment*", *American Journal of Industrial Medicine*, Volume 38, pp. 8-18 (2000);

"*Silica, Silicosis, and Lung Cancer: A Response to a Recent Working Group Report*", *Journal of Occupational and Environmental Medicine*, Volume 42, pp. 704-720 (2000).

"*NIOSH Hazard Review: Health Effects of Occupational Exposure to Respirable Crystalline Silica*. DDHS (NIOSH) Publication No. 2002-129 (2002).

Autoimmune Diseases: There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of several autoimmune disorders, -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys. For a review of the subject, the following may be consulted:

"*Occupational Exposure to Crystalline Silica and Autoimmune Disease*", *Environmental Health Perspectives*, Volume 107, Supplement 5, pp. 793-802 (1999);

"*Occupational Scleroderma*", *Current Opinion in Rheumatology*, Volume 11, pp. 490-494 (1999).

Tuberculosis: Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to persons with tuberculosis. The following may be consulted for further information:

Occupational Lung Disorders, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994);

"*Risk of pulmonary tuberculosis relative to silicosis and exposure to silica dust in South African gold miners*," *Occup. Environ. Med.*, Volume 55, pp.496-502 (1998).

Kidney Disease: There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of kidney diseases, including end stage renal disease. For additional information on the subject, the following may be consulted:

"*Kidney Disease and Silicosis*", *Nephron*, Volume 85, pp. 14-19 (2000).

SECTION 1 2: DISPOSAL CONSIDERATIONS

General: Disposal of the material should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements. The material should be covered to minimize generation of airborne dust.

RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 *et seq.*

The above applies to materials as sold by Best Sand Corporation. The material may be contaminated during use, and it is the responsibility of the user to assess the appropriate disposal of the used material.

SECTION 1 3: TRANSPORT INFORMATION

Crystalline silica (quartz) is not a hazardous material for purposes of transportation under the U. S. Department of Transportation Table of Hazardous Materials, 49 CFR §172.101.

SECTION 1 4: REGULATORY INFORMATION

United States (Federal and State):

TSCA: Crystalline silica (quartz) is on the EPA Toxic Substance Control Act (TSCA) Section 8(b) inventory under CAS No. 14808-60-7.

RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), or its regulations, 40 CFR §261 *et seq.*

CERCLA: Crystalline silica (quartz) is not classified as a hazardous substance under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR §302.

Emergency Planning and Community Right to Know Act (EPCRA): Crystalline silica (quartz) is not an extremely hazardous substance under Section 302 and is not a toxic chemical subject to the requirements of Section 313.

Clean Air Act: Crystalline silica (quartz) was not processed with or does not contain any Class I or Class II ozone depleting substances.

Clean Water Act: Crystalline silica (quartz) is not listed as a hazardous substance in Section 311.

NTP: Respirable crystalline silica (quartz) is classified as a carcinogen.

OSHA: Crystalline silica (quartz) is listed under 29 CFR 1910.1000 as a toxic and hazardous substance.

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): Crystalline silica (quartz) is classified as a substance known to the State of California to be a carcinogen.

Canada:

Domestic Substances List (DSL): Best Sand Corporation's products, as naturally occurring substances, are on the Canadian DSL.

WHMIS (Workplace Hazardous Materials Information System) Classification: Class D, Division 2A.

Other:

IARC: Crystalline silica (quartz) is classified in IARC Group 1 Carcinogen.

National, state, provincial or local emergency planning, community right-to-know or other laws, regulations or ordinances may be applicable--consult applicable national, state, provincial or local laws.

SECTION 15: OTHER INFORMATION

Web Sites with Information about Effects of Crystalline Exposure:

<http://www.osha.gov>

<http://www.cdc.gov/niosh/silicpag.html>

User's Responsibility: The OSHA Hazard Communication Standard 29 CFR 1910.1200 require that this Material Safety Data Sheet be made available to your employees who handle or may be exposed to this product. Educate and train your employees regarding applicable precautions. Instruct your employees to handle this product properly.

Disclaimer: The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for one's own particular use. Since the actual use of the product described herein is beyond our control, Best Sand Corporation assumes no liability arising out of the use of the product by others. Appropriate warnings and safe handling procedures should be provided to handlers and users.

Silica, Lake or Bank Sand

WARNING *Inhalation May Cause Lung Damage*

Read Material Safety Data Sheet Before Using Product
Product is not intended for and is strictly prohibited for sandblasting.

This product contains respirable crystalline silica “quartz” (CAS #14808-60-7). Long term or repeated inhalation of respirable crystalline silica can cause fibrosis or scar tissue in the lungs (Silicosis). The International Agency for Research on Cancer (IARC) concluded that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).

For additional information on this product
Refer to the Material Safety Data Sheet or contact:

Best Sand
2069 N. 3462nd Road
P.O. Box 177
Wedron, IL 60557
(800) 281-9876

6/29/05

MATERIAL SAFETY DATA SHEET

SECTION 1 IDENTIFICATION

CLIFFORD W. ESTES CO., INC
40 VREELAND AVE STE 104
TOTOWA, NJ 07512

DATE: JANUARY 2005
PHONE: 973.890.1515

PRODUCT BRAND NAME: PERMACOLOR SURFACE AGGREGATES, REGULAR AND HP

PRODUCT IDENTIFICATION : BROADCAST(MED.&FINE), TROWEL-RITE (REGULAR AND SUPER), VARIOUS COLORS

CHEMICAL NAME: SILICON DIOXIDE (SIO2)

DEPARTMENT OF TRANSPORTATION: SAND, GRAVEL, NOIBN

CHEMICAL FAMILY: SILICA SAND

COLOR: TYPICAL COLORS

SECTION II HAZARDOUS INGREDIENTS

CHEMICAL NAME	% WT	CAS#	OSHA (PEL)	ACGIH (TLV)
SILICA SAND	94	14808-60-7		.1MG/M3
RESIN	4.95	NON-HAZARDOUS PROPRIETARY	N/A	N/A
TIO2	0.99	13463-67-7		
COLORANTS ORGANIC AND INORGANIC	0.06	NON-HAZARDOUS		

* Special Statement regarding Hazardous ingredients:

Although these products are composed primarily of Silica Sand (SIO2), and such sand is potentially a source for respirable dust, the sand particles are thoroughly encapsulated in a coating which captures all dust and should, under normal circumstances, prevent any normal release of silica dust to the workplace. See page two, Section VIII for further information on handling.

SECTION III PHYSICAL DATA

BOILING POINT: NONE
VAPOR PRESSURE: NONE
VAPOR DENSITY: NONE
% VOLATILES :<1%
APPEARANCE: SAND OR AGGREGATE, TYPICAL COLORS

SPECIFIC GRAVITY: 2.65
PH: INERT
EVAPORATION RATE: N/A
SOLUBILITY IN WATER: INSOLUBLE

HIMS RATINGS

HEALTH	0*
FLAMABILITY	0
REACTIVITY	0

*REFER TO SPECIAL STATEMENT ABOVE

SECTION IV FIRE AND EXPLOSION HAZARD

FLASH POINT: NON-FLAMMABLE

FLAMMABLE LIMITS: LEL- N/A , UEL - N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS: Products of combustion may include irritating gases.

SECTION V HEALTH AND SAFETY

THRESHOLD LIMIT VALUE: (SEE PAGE ONE)

EFFECTS OF OVER EXPOSURE: Prolonged inhalation of mineral dust may cause delayed lung injury.

EMERGENCY AND FIRST AID PROCEDURES: - EYES, Remove in the same manner as one would remove any foreign particle.

SECTION VI REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY: Dissolves in hydrofluoric acid

CONDITIONS TO AVOID: None Known

SECTION VII SPILL/LEAK PROCEDURES

1. Clean up using dustless procedures. Use water and/or vacuum.
2. WASTE DISPOSAL: Dispose using locally approved waste disposal sites.

SECTION VIII SPECIAL PROTECTION

Use of this product under normal and recommended conditions and specifications will pose no known hazards. However, if surfaces using this product are subjected to sanding or grinding as might occur for maintenance purposes, and such treatment produces respirable dust, then proper ventilation and breathing apparatus should be used. Under such conditions, NIOSH-BOM approved respirators should be worn.

GLOVES: Optional

EYE PROTECTION: Full eye zone goggles should be worn.

SECTION IX SPECIAL PRECAUTIONS

1. USE DUSTLESS PROCEDURES DURING HANDLING, STORAGE, AND CLEAN-UP
2. PRACTICE GOOD HOUSEKEEPING. MAINTAIN VENTILATION. POST WARNING TO EMPLOYEES WHERE PRODUCT IS USED, STORED, AND HANDLED.

SECTION 1 Product and Company Information

PRODUCT NAME: SeamTek® Standard Hardener, SH101 Chemtrec
GENERIC NAME: Epoxy Hardener 24 Hour Emergency Number 1-800-424-9300
 Information Number: 1-800-666-6216

DISTRIBUTOR: LSP Performance Resins
 124 Speer Road
 Chestertown, MD 21620

Comments: To the best of our knowledge, this Material Safety Data Sheet conforms to the requirements of US OSHA 29 CFR1910.1200, 91/155/ECC and Canadian Hazardous Products Act

SECTION 2 Hazards Identification

Emergency Overview OSHA Hazardous Target Organ Effect: Skin Sensitizer, Irritant Target Organs: Respiratory, eyes, Skin Physical Appearance: Viscous liquid Immediate Concerns: Skin Irritation		Potential Health Effects Skin: Will cause irritation and dermatitis, repeated overexposure will cause dermatitis and sensitization. Sensitized persons may experience rapid irritation of skin upon exposure. Inhalation and Ingestion: Irritation to system
Carcinogenicity: Not listed by NTP Not Listed by IARC Not Listed by OSHA	Reproductive Toxicity Reproductive Effects : Not Available Teratogenic Effects: Not Available	Signs and Symptoms of Overexposure: Irritation of Skin Medical Conditions Aggravated: Allergy, Skin Disorders

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

Health		Environmental	Physical
Acute Toxicity, Oral	Category 5	Not Classified	Not Classified
Skin Irritant	Category 2		
Serious Eye Damage	Category 1		
Skin Sensitization	Category 1		

Pictogram:



Signal Word Danger

Hazard Statements		Precautionary Statements
H303	Maybe harmful if swallowed	P280 Wear protective gloves/protective clothing/eye protection/face protection P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
H315	Causes skin irritation	
H317	May cause an allergic skin reaction	
H318	Causes serious eye damage	

SECTION 3 Composition / Information on Ingredients

Chemical Name	CAS	Wt%
polyoxalkyleneamine	9046100	
Triethylene glycol diamine	929599	
Epoxy curing agent	mixture	
Alkyl phenol	84852153	
Alpha hydroxyl toluene	100-51-6	

SECTION 4 First Aid Measures

EYE CONTACT: Get medical attention immediately. Immediately flush eyes gently with large amounts of water, holding lids open for at least 20-30 minutes, retracting eyelids often. Check for, and remove contact lenses.

SKIN CONTACT: Get medical attention immediately. Flush contaminated skin with plenty of WATER. Do NOT wash with solvents. Wash contaminated clothing thoroughly with water before removing it or wear gloves. Continue to rinse for at least 10 minutes. May cause irritation and allergic reaction. Seek medical advice if irritation develops or persists.

INHALATION: Move exposed person to fresh air. Get medical attention immediately. If it is suspected that fumes are still present, the rescuer should wear an appropriate make of self contained breathing apparatus. Keep person warm and at rest. If not breathing or breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing air to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway

INGESTION: Get medical attention immediately. Wash out mouth with water. Move exposed person to fresh air. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Advice to physicians: Symptomatic and supportive therapy as needed. May aggravate skin conditions.

SECTION 5 Fire Fighting Measures

Conditions of Flammability

Not flammable or combustible

Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions – Carbon Oxides

Fire Fighting Instructions

Do not enter fire area without proper protection. Wear self contained breathing apparatus (pressure-demand MSHA/NIOSH) approved or equivalent. See Section 10 - decomposition products possible. Fight fire from safe distance/protected location. Heat/impurities may increase temperature/build pressure/rupture closed containers, spreading fire, increasing risk of burns/injuries. Use water spray/fog for cooling.

SECTION 6 Accidental Release Measures

Personal Precautions

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. 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 spill material and runoff and contact with soil, waterways, drains and sewers. Notify authorities of any releases to sewers, soils, waterways or air.

Methods and Materials for Containment and Cleaning Up

Stop the leak if it can be done without risk. Move containers from the spill area. Prevent entry into sewers, water ways or soils. Contain and collect spillage with non-combustible, absorbent material such as sand, earth, vermiculite or diatomaceous earth. Place in container for disposal according to local regulations via a licensed waste disposal contractor. Contaminated absorbent materials may pose the same hazards as the spilled product. See section 1 for emergency contact information and section 13 for waste disposal.

SECTION 7 Handling and Storage

Precautions for Safe Handling Can cause skin and eye irritation and allergic skin reaction.

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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. 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.

Conditions for Safe 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 8 Exposure Controls / Personal Protection

EXPOSURE GUIDELINES

Hazardous Component	PEL	STEL	TLV	Other
polyoxalkyleneamine	NE	NE	NE	NE
Triethylene glycol diamine	NE	NE	NE	NE
Epoxy curing agent	NE	NE	NE	NE
Alkyl phenol	NE	NE	NE	NE
Alpha hydroxyl toluene	NE	NE	NE	NE

ENGINEERING CONTROLS Use local exhaust ventilation to maintain airborne concentrations below exposure limits. Respiratory protection may be required in addition to general room ventilation.

PERSONAL PROTECTIVE EQUIPMENT Use a properly fitted, air-purifying or air supplied 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.

EYE PROTECTION Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles or vapor. Contact lenses should not be worn.

SKIN AND BODY PROTECTION When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn. Gloves should be impervious neoprene or rubber. Use of barrier cream is recommended. Clean equipment thoroughly after each use. Discard contaminated leather shoes and canvas sneakers.

OTHER HYGENIC PRACTICES Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

OTHER WORK PRACTICES Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9 Physical and Chemical Properties

Appearance	
Form	Liquid
Color	Colorless to Amber
pH	Not available
Melting/Freezing Temperature	40 C/ 104 F
Boiling Point	336 C/ 637 F
Flash Point	> 95 C/ 200 F
Ignition Temperature	Not available
Autoignition Temperature	Not available
Lower explosive limit; na	Upper explosive limit: na
Vapor Pressure	<0.1 mm Hg
Vapor Density (air=1)	Not available
Specific Gravity (water=1 @39.2F)	1.14 at 25 C/77F
Evaporation Rate (Bac=1)	None
Odor	Light possible phenol
Odor threshold	Not available

SECTION 10 Stability and Reactivity

Chemical Stability
 Stable under recommended storage conditions

Possibility of Hazardous Reactions
 No data available

Conditions to Avoid
 Avoid strong acids, bases in bulk and elevated temperatures

Materials to Avoid
 Reactive or incompatible with: acids, oxidizers, amines

Hazardous Decomposition Products
 Decomposition products formed under fire conditions may include: Carbon oxides, Nitrogen oxides, Aldehydes.

SECTION 11 Toxicological Information

<p>Acute Toxicity</p> <table border="0"> <tr> <td>Oral LD50</td> <td>Rat > 4000 mg/kg.</td> </tr> <tr> <td>Dermal LD50</td> <td>Rabbit 20,000 mg/kg</td> </tr> <tr> <td>Inhalation LC50</td> <td>No data available</td> </tr> </table> <p>Skin Corrosion/Irritation</p> <table border="0"> <tr> <td>Skin</td> <td>Irritant</td> </tr> </table> <p>Serious Eye Damage/Eye Irritation</p> <table border="0"> <tr> <td>Eye</td> <td>Irritant</td> </tr> <tr> <td>Eyes</td> <td>Rabbit</td> </tr> <tr> <td colspan="2">Severe eye irritation – 24 H</td> </tr> </table> <p>Respiratory or Skin Sensitization May cause skin or respiratory sensitization</p> <p>Mutagenicity</p> <table border="0"> <tr> <td>Mouse</td> <td>Skin</td> </tr> <tr> <td colspan="2">Carcinogenic by RTECS Criteria</td> </tr> <tr> <td colspan="2">liver, ovarian, thyroid</td> </tr> </table>	Oral LD50	Rat > 4000 mg/kg.	Dermal LD50	Rabbit 20,000 mg/kg	Inhalation LC50	No data available	Skin	Irritant	Eye	Irritant	Eyes	Rabbit	Severe eye irritation – 24 H		Mouse	Skin	Carcinogenic by RTECS Criteria		liver, ovarian, thyroid		<p>Carcinogenicity</p> <p>IARC: No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC</p> <p>ACGIH: No component of this product presents at levels greater than or equal to 0.1% is identified as carcinogen or potential carcinogen by ACGIH</p> <p>NTP: No component of this product presents at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP</p>
Oral LD50	Rat > 4000 mg/kg.																				
Dermal LD50	Rabbit 20,000 mg/kg																				
Inhalation LC50	No data available																				
Skin	Irritant																				
Eye	Irritant																				
Eyes	Rabbit																				
Severe eye irritation – 24 H																					
Mouse	Skin																				
Carcinogenic by RTECS Criteria																					
liver, ovarian, thyroid																					

SECTION 12 Ecological Information

Aquatic Ecotoxicity
 No data available

Biodegradability
 Persistent Not readily biodegradable

Mobility in soil
 No data available

SECTION 13 Disposal Considerations

Waste Disposal
 The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residuals. 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.

SECTION 14 Transport Information

DOT (US)

Not Regulated

IMDG

Not Regulated

TDG

Not Regulated

SECTION 15 Regulatory Information

TSCA INVENTORY STATUS

All components are listed or exempt

OSHA HAZARDS

Skin Sensitizer Irritant
Corrosive Material

HMIS Classification

Health Hazard;	3
Flammability	1
Physical Hazards	0

NFPA Rating

3
0
0

SARA TITLE III: Section 311/312 Hazard Class

Acute Health Hazard, Chronic Health Hazard

SARA TITLE III: Section 313 (40CFR370)

This product does not contain a chemical which is listed in Section 313 at or above the de minimus concentrations

CERCLA Information (40CFR302.4)

This material contains no hazardous or extremely hazardous substances at or above the de minimus concentrations as defined by CERCLA or SARA Title III, and release is therefore not reportable.

California Proposition 65 Information:

This product contains, no listed substances known to the state of California to cause cancer and/or reproductive toxicity.

SECTION 16 Other Information

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information in this MSDS was obtained from sources, which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable. This MSDS has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or results to be obtained from the user thereof. LSP Performance Resins assumes no responsibility for personal injury or property damage to vendees, such as vendees or users assume all risks associated with the use of the material.

U. S. SILICA COMPANY

MSDS - MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Names/Trade Names:

Silica Sand sold under various names: ASTM TESTING SANDS • GLASS SAND • FLINT SILICA • DM-SERIES • F-SERIES • FOUNDRY SANDS • FJ-SERIES • FP-SERIES • H-SERIES • L-SERIES • N-SERIES • NJ-SERIES • OK-SERIES • P-SERIES • T-SERIES • HYDRAULIC FRACING SANDS • MIN-U-SIL® Ground Silica • MYSTIC WHITE® • #1 DRY • #1 SPECIAL • PENN SAND® • Q-ROK® • SIL-CO-SIL® Ground Silica • SUPERSIL® • MASON SAND • GS-SERIES • PER-SPEC

Synonyms/Common Names: Sand, Silica Sand, Quartz, Crystalline Silica, Flint, Ground Silica.

Manufacturer's Name: U. S. Silica Company
P. O. Box 187
Berkeley Springs, WV 25411

Emergency Telephone Number: 304-258-2500 (8:30 am to 5:00 pm eastern)
304-258-8295 (fax)

Date Prepared: June 30, 2006 (revising February 10, 2005)

SECTION 2 - HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:

The U. S. Silica Company material is a white or tan sand, or ground sand. It is not flammable, combustible or explosive. It does not cause burns or severe skin or eye irritation. A single exposure will not result in serious adverse health effects. Crystalline silica (quartz) is not known to be an environmental hazard.

Crystalline silica (quartz) is incompatible with hydrofluoric acid, fluorine, chlorine trifluoride or oxygen difluoride.

OSHA REGULATORY STATUS

This material is considered hazardous under the OSHA Hazard Communications Standard (29 CFR 1910.1200).

POTENTIAL HEALTH EFFECTS:

Inhalation:

- a. Silicosis Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs. Silicosis may be progressive; it may lead to disability and death.
- b. Lung Cancer Crystalline silica (quartz) inhaled from occupational sources is classified as carcinogenic to humans.
- c. Tuberculosis Silicosis increases the risk of tuberculosis.
- d. Autoimmune and Chronic Kidney Diseases Some studies show excess numbers of cases of scleroderma, connective tissue disorders, lupus, rheumatoid arthritis, chronic kidney diseases and end-stage kidney disease in workers exposed to respirable crystalline silica.
- e. Non-Malignant Respiratory Diseases (other than silicosis) Some studies show an increased incidence in chronic bronchitis and emphysema in workers exposed to respirable crystalline silica.

Eye Contact: Crystalline silica (quartz) may cause abrasion of the cornea.

Skin Contact: Not applicable.

Ingestion: Not applicable.

Chronic Effects: The adverse health effects -- silicosis, lung cancer, autoimmune and chronic kidney diseases, tuberculosis, and non-malignant respiratory diseases-- are chronic effects.

Signs and Symptoms of Exposure: Generally, there are no signs or symptoms of exposure to crystalline silica (quartz).

Medical Conditions Generally Aggravated by Exposure: The condition of individuals with lung disease (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) can be aggravated by exposure.

See Section 11, Toxicological Information, for additional detail on potential adverse health effects.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

	<u>Chemical Formula</u>	<u>Typical %, By Weight</u>	<u>CAS #</u>
Crystalline Silica (quartz)	SiO ₂	99.0 - 99.9	14808-60-7
Aluminum Oxide	Al ₂ O ₃	< .8	1344-28-1
Iron Oxide	Fe ₂ O ₃	< .1	1309-37-1
Titanium Oxide	TiO ₂	< .1	13463-67-7

SECTION 4 - FIRST AID MEASURES

Inhalation: No specific first-aid is necessary since the adverse health effects associated with exposure to crystalline silica (quartz) result from chronic exposures. If there is a gross inhalation of crystalline silica (quartz), remove the person immediately to fresh air, give artificial respiration as needed, seek medical attention as needed.

Eye Contact: Wash immediately with water. If irritation persists, seek medical attention.

Skin Contact: Not applicable.

Ingestion: Not applicable.

SECTION 5 - FIRE FIGHTING MEASURES

Crystalline silica (quartz) is not flammable, combustible or explosive.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spills: Use dustless methods (vacuum) and place into closable container for disposal, or flush with water. Do not dry sweep. Wear protective equipment specified below.

Waste Disposal Method: See Section 13.

SECTION 7 - HANDLING AND STORAGE

Precautions During Handling and Use: Do not breathe dust. Use adequate ventilation and dust collection. Keep airborne dust concentrations below permissible exposure limit ("PEL"). Do not rely on your sight to determine if dust is in the air. Respirable crystalline silica dust may be in the air without a visible dust cloud.

If crystalline silica dust cannot be kept below permissible limits, wear a respirator approved for silica dust when using, handling, storing or disposing of this product or bag. See Section 8 for further information on respirators. Practice good housekeeping. Do not permit dust to collect on walls, floors, sills, ledges, machinery, or equipment. Maintain, clean, and fit test respirators in accordance with OSHA regulations. Maintain and test ventilation and dust collection equipment. Wash or vacuum clothing that has become dusty.

The OSHA Hazard Communication Standard, 29 CFR Sections 1910.1200, 1915.1200, 1917.28, 1918.90, 1926.59 and 1928.21, and state and local worker or community "right-to-know" laws and regulations should be strictly followed.

Do not use U. S. Silica Company materials for sandblasting.

Precautions During Storage: Avoid breakage of bagged material or spills of bulk material. Use dustless methods (vacuum) and place into closable container for disposal, or flush with water. Do not dry sweep. See control measures in Section 8.

The OSHA Hazard Communication Standard, 29 CFR Sections 1910.1200, 1915.1200, 1917.28, 1918.90, 1926.59 and 1928.21, and state and local worker or community "right-to-know" laws and regulations should be strictly followed. **WARN YOUR EMPLOYEES (AND YOUR CUSTOMERS IN CASE OF RESALE) BY POSTING AND OTHER MEANS OF THE HAZARDS AND THE REQUIRED OSHA PRECAUTIONS. PROVIDE TRAINING FOR YOUR EMPLOYEES ABOUT THE OSHA PRECAUTIONS.**

For additional precautions, see American Society for Testing and Materials (ASTM) standard practice E 1132-99a, "Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica."

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Local Exhaust Ventilation: Use sufficient local exhaust ventilation to reduce the level of respirable crystalline silica to below the OSHA PEL. See ACGIH "Industrial Ventilation, A Manual of Recommended Practice" (latest edition).

Respiratory Protection:

If it is not possible to reduce airborne exposure levels to below the OSHA PEL with ventilation, use the table below to assist you in selecting respirators that will reduce personal exposures to below the OSHA PEL. This table is part of the NIOSH Respirator Selection Logic, 2004, Chapter III, Table 1, "Particulate Respirators". The full document can be found at www.cdc.gov/niosh/nppt/topics/respirators; the user of this MSDS is directed to that site for information concerning respirator selection and use.

The assigned protection factor (APF) is the minimum anticipated level of protection provided by each type of respirator worn in accordance with an adequate respiratory protection program. For example, an APF of 10 means that the respirator should reduce the airborne concentration of a particulate by a factor of 10, so that if the workplace concentration of a particulate was 150 ug/m³, then a respirator with an APF of 10 should reduce the concentration of particulate to 15 ug/m³.

Assigned protection factor ¹	Type of Respirator (Use only NIOSH-certified respirators)
10	Any air-purifying elastomeric half-mask respirator equipped with appropriate type of particulate filter. ² Appropriate filtering facepiece respirator. ^{2,3} Any air-purifying full facepiece respirator equipped with appropriate type of particulate filter. ² Any negative pressure (demand) supplied-air respirator equipped with a half-mask.
25	Any powered air-purifying respirator equipped with a hood or helmet and a high efficiency (HEPA) filter. Any continuous flow supplied-air respirator equipped with a hood or helmet.
50	Any air-purifying full facepiece respirator equipped with N-100, R-100, or P-100 filter(s). Any powered air-purifying respirator equipped with a tight-fitting facepiece (half or full facepiece) and a high-efficiency filter. Any negative pressure (demand) supplied-air respirator equipped with a full facepiece. Any continuous flow supplied-air respirator equipped with a tight-fitting facepiece (half or full facepiece). Any negative pressure (demand) self-contained respirator equipped with a full facepiece.
1,000	Any pressure-demand supplied-air respirator equipped with a half-mask.

1. The protection offered by a given respirator is contingent upon (1) the respirator user adhering to complete program requirements (such as the ones required by OSHA in 29CFR1910.134), (2) the use of NIOSH-certified respirators in their approved configuration, and (3) individual fit testing to rule out those respirators that cannot achieve a good fit on individual workers.

2. Appropriate means that the filter medium will provide protection against the particulate in question.

3. An APF of 10 can only be achieved if the respirator is qualitatively or quantitatively fit tested on individual workers.

Exposure Guidelines:

Component	CAS No.	Percentage (by wt.)	OSHA PEL		ACGIH TLV		NIOSH REL		Unit
			TWA	STEL	TWA	STEL	TWA	STEL	
Crystalline Silica (quartz)	14808-60-7	99.0-99.9	$\frac{10}{\% \text{ SiO}_2+2}$	None	.025	None	.05	None	mg/m ³

If crystalline silica (quartz) is heated to more than 870°C, it can change to a form of crystalline silica known as trydimite; if crystalline silica (quartz) is heated to more than 1470°C, it can change to a form of crystalline silica known as cristobalite. The OSHA PEL for crystalline silica as trydimite or cristobalite is one-half of the OSHA PEL for crystalline silica (quartz).

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White or tan sand; granular, crushed, or ground.		
Boiling Point:	4046°F/2230°C	Odor:	None
Vapor Pressure (mm Hg.):	None	Specific Gravity (Water = 1):	2.65
Vapor Density (Air = 1):	None	Melting Point:	3110°F/1710°C
Solubility in Water:	Insoluble in water	Evaporation Rate (Butyl Acetate = 1):	None

SECTION 10 - STABILITY AND REACTIVITY

- Stability:** Crystalline silica (quartz) is stable.
- Incompatibility (Materials to Avoid):** Contact with powerful oxidizing agents, such as fluorine, chlorine trifluoride and oxygen difluoride, may cause fires.
- Hazardous Decomposition or Byproducts:** Silica will dissolve in hydrofluoric acid and produce a corrosive gas - silicon tetrafluoride.
- Hazardous Polymerization:** Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

The method of exposure to crystalline silica that can lead to the adverse health effects described below is inhalation.

A. SILICOSIS

The major concern is silicosis, caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute.

Chronic or Ordinary Silicosis (often referred to as Simple Silicosis) is the most common form of silicosis, and can occur after many years of exposure to relatively low levels of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis.

Simple silicosis is characterized by lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function or disability.

Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough and sputum production. Complicated silicosis or PMF may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pulmonale).

Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five (5) years of initial exposure. Progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that lung lesions appear earlier and progression is more rapid.

Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis is fatal.

B. CANCER

IARC - The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans (Group 1)*." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates..." (1997).

NTP - The National Toxicology Program's Eleventh Annual Report on Carcinogens classifies "silica, crystalline (respirable size)" as a known human carcinogen.

OSHA - Crystalline silica (quartz) is not regulated by the U. S. Occupational Safety and Health Administration as a carcinogen.

C. AUTOIMMUNE DISEASES

Several studies have reported excess cases of several autoimmune disorders, -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis -- among silica-exposed workers. For a review of the subject, the following may be consulted: "Occupational Exposure to Crystalline Silica and Autoimmune Disease", Environmental Health Perspectives, Volume 107, Supplement 5, pp. 793-802 (1999); "Occupational Scleroderma", Current Opinion in Rheumatology, Volume 11, pp. 490-494 (1999).

D. TUBERCULOSIS

Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to persons with tuberculosis. The following may be consulted for further information: Occupational Lung Disorders, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994); "Risk of pulmonary tuberculosis relative to silicosis and exposure to silica dust in South African gold miners," Occup Environ Med., Volume 55, pp.496-502 (1998).

E. KIDNEY DISEASE

Several studies have reported excess cases of kidney diseases, including end stage renal disease, among silica-exposed workers. For additional information on the subject, the following may be consulted: "Kidney Disease and Silicosis", Nephron, Volume 85, pp. 14-19 (2000).

F. NON-MALIGNANT RESPIRATORY DISEASES

The reader is referred to Section 3.5 of the NIOSH Special Hazard Review cited below, for information concerning the association between exposure to crystalline silica and chronic bronchitis, emphysema and small airways disease. There are studies that disclose an association between dusts found in various mining occupations and non-malignant respiratory diseases, particularly among smokers. It is unclear whether the observed associations exist only with underlying silicosis, only among smokers, or result from exposure to mineral dusts generally (independent of the presence or absence of crystalline silica, or the level of crystalline silica in the dust).

Sources of information:

The *NIOSH Hazard Review - Occupational Effects of Occupational Exposure to Respirable Crystalline Silica* published in April 2002 summarizes and discusses the medical and epidemiological literature on the health risks and diseases associated with occupation exposures to respirable crystalline silica. The *NIOSH Hazard Review* should be consulted for additional information, and citations to published studies on health risks and diseases associated with occupational exposure to respirable crystalline silica. The *NIOSH Hazard Review* is available from NIOSH - Publications Dissemination, 4676 Columbia Parkway, Cincinnati, OH 45226, or by calling 1-800-35-NIOSH (1-800-356-4676), or through the NIOSH web site, www.cdc.gov/niosh/topics/silica, then click on the link "NIOSH Hazard Review: Health Effects of Occupational Exposure to Respirable Crystalline Silica".

SECTION 12 - ECOLOGICAL INFORMATION

Crystalline silica (quartz) is not known to be ecotoxic; i.e., there are no data that suggests that crystalline silica (quartz) is toxic to birds, fish, invertebrates, microorganisms or plant

SECTION 13 - DISPOSAL CONSIDERATIONS

General: The packaging and material may be landfilled; however, material should be covered to minimize generation of airborne dust.

RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

The above applies to materials as sold by U. S. Silica Company. The material may be contaminated during use, and it is the responsibility of the user to assess the appropriate disposal of the used material.

SECTION 14 - TRANSPORT INFORMATION

Crystalline silica (quartz) is not a hazardous material for purposes of transportation under the U. S. Department of Transportation Table of Hazardous Materials, 49 CFR §172.101.

SECTION 15 - REGULATORY INFORMATION

UNITED STATES (FEDERAL AND STATE)

TSCA No.: Crystalline silica (quartz) appears on the EPA TSCA inventory under the CAS No. 14808-60-7.

RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

CERCLA: Crystalline silica (quartz) is not classified as a hazardous substance under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR §302.

Emergency Planning and Community Right to Know Act (SARA Title III): Crystalline silica (quartz) is not an extremely hazardous substance under Section 302 and is not a toxic chemical subject to the requirements of Section 313.

Clean Air Act: Crystalline silica (quartz) mined and processed by U.S. Silica Company is not processed with or does not contain any Class I or Class II ozone depleting substances.

FDA: Silica is included in the list of substances that may be included in coatings used in food contact surfaces, 21 CFR §175.300(b)(3)(xxvi).

NTP: Respirable crystalline silica, primarily quartz dusts occurring in industrial and occupational settings, is classified as Known to be a Human Carcinogen.

OSHA Carcinogen: Crystalline silica (quartz) is not listed.

California Proposition 65: Crystalline silica (airborne particles of respirable size) is classified as a substance known to the State of California to be a carcinogen.

California Inhalation Reference Exposure Level (REL): California established a chronic REL of 3 ug for silica (crystalline, respirable). A chronic REL is an airborne level of a substance at or below which no adverse health effects are anticipated in individuals indefinitely exposed to the substance at that level.

Massachusetts Toxic Use Reduction Act: Silica, crystalline (respirable size, <10 microns) is “toxic” for purposes of the Massachusetts Toxic Use Reduction Act.

Pennsylvania Worker and Community Right to Know Act: Quartz is a hazardous substance under the Act, but it is not a special hazardous substance or an environmental hazardous substance.

CANADA

Domestic Substances List: U. S. Silica Company products, as naturally occurring substances, are on the Canadian DSL.

WHMIS Classification: D2A

OTHER

EINECS No.: 238-878-4

EEC Label (Risk/Safety Phrases): R 48/20, R 40/20, S22, S38

IARC: Crystalline silica (quartz) is classified in IARC Group 1.

Japan MITI: All of the components of this product are existing chemical substances as defined in the Chemical Substance Control Law.

Australian Inventory of Chemical Substances: All of the components of this product are listed on the AICS inventory or exempt from notification requirements.

National, state, provincial or local emergency planning, community right-to-know or other laws, regulations or ordinances may be applicable--consult applicable national, state, provincial or local laws.

SECTION 16 - OTHER INFORMATION

Hazardous Material Information System (HMIS):

Health	*
Flammability	0
Reactivity	0
Protective Equipment	E

* For further information on health effects, see Sections 2 and 11 of this MSDS.

National Fire Protection Association (NFPA):

Health	0
Flammability	0
Reactivity	0

Web Sites with Information about Effects of Crystalline Silica Exposure:

The U. S. Silica web site will provide updated links to OSHA and NIOSH web sites addressing crystalline silica issues. www.u-s-silica.com, click in "Information", then click on "Health & Safety".

U. S. SILICA COMPANY DISCLAIMER

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by purchase, resale, use or exposure to our silica. Customers-users of silica must comply with all applicable health and safety laws, regulations, and orders, including the OSHA Hazard Communication Standard.

SECTION 1 Product and Company Information

PRODUCT NAME: SeamTek® Standard Resin, SR101 Chemtrec
GENERIC NAME: Epoxy Resin 24 Hour Emergency Number 1-800-424-9300
Information Number: 1-800-666-6216
DISTRIBUTOR: LSP Performance Resins
 124 Speer Road
 Chestertown, MD 21620
 Comments: To the best of our knowledge, this Material Safety Data Sheet conforms to the requirements of US OSHA 29 CFR1910.1200, 91/155/ECC and Canadian Hazardous Products Act

SECTION 2 Hazards Identification

Emergency Overview OSHA Hazardous Target Organ Effect: Skin Sensitizer, Irritant Target Organs: Respiratory, eyes, Skin Physical Appearance: Viscous liquid Immediate Concerns: Skin Irritation		Potential Health Effects Skin: Will cause irritation and dermatitis, repeated overexposure will cause dermatitis and sensitization. Sensitized persons may experience rapid irritation of skin upon exposure. Inhalation and Ingestion: Irritation to system
Carcinogenicity: Not listed by NTP Not Listed by IARC Not Listed by OSHA	Reproductive Toxicity Reproductive Effects : Not Available Teratogenic Effects: Not Available	Signs and Symptoms of Overexposure: Irritation of Skin Medical Conditions Aggravated: Allergy, Skin Disorders

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

Health		Environmental	Physical
Acute Toxicity, Oral	Category 5	Not Classified	Not Classified
Skin Irritant	Category 2		
Serious Eye Damage	Category 1		
Skin Sensitization	Category 1		

Pictogram:



Signal Word Danger

Hazard Statements		Precautionary Statements
H303	Maybe harmful if swallowed	P280 Wear protective gloves/protective clothing/eye protection/face protection P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
H315	Causes skin irritation	
H317	May cause an allergic skin reaction	
H318	Causes serious eye damage	

SECTION 3 Composition / Information on Ingredients

Chemical Name	CAS	Wt%
diglycidyl ether bisphenol A epoxy resin	25085-99-8	
Aliphatic epoxide	68609-97-2	
Alkylated phenol	AN123581	
2-methyl-2,4-pentanediol	107-41-5	
Alkyl phenol	84852153	

SECTION 4 First Aid Measures

EYE CONTACT: Get medical attention immediately. Immediately flush eyes gently with large amounts of water, holding lids open for at least 20-30 minutes, retracting eyelids often. Check for, and remove contact lenses.

SKIN CONTACT: Get medical attention immediately. Flush contaminated skin with plenty of WATER. Do NOT wash with solvents. Wash contaminated clothing thoroughly with water before removing it or wear gloves. Continue to rinse for at least 10 minutes. May cause irritation and allergic reaction. Seek medical advice if irritation develops or persists.

INHALATION: Move exposed person to fresh air. Get medical attention immediately. If it is suspected that fumes are still present, the rescuer should wear an appropriate make of self contained breathing apparatus. Keep person warm and at rest. If not breathing or breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing air to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway

INGESTION: Get medical attention immediately. Wash out mouth with water. Move exposed person to fresh air. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Advise to physicians: Symptomatic and supportive therapy as needed. May aggravate skin conditions.

SECTION 5 Fire Fighting Measures

Conditions of Flammability

Not flammable or combustible

Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions – Carbon Oxides

Fire Fighting Instructions

Do not enter fire area without proper protection. Wear self contained breathing apparatus (pressure-demand MSHA/NIOSH) approved or equivalent. See Section 10 - decomposition products possible. Fight fire from safe distance/protected location. Heat/impurities may increase temperature/build pressure/rupture closed containers, spreading fire, increasing risk of burns/injuries. Use water spray/fog for cooling.

SECTION 6 Accidental Release Measures

Personal Precautions

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. 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 spill material and runoff and contact with soil, waterways, drains and sewers. Notify authorities of any releases to sewers, soils, waterways or air.

Methods and Materials for Containment and Cleaning Up

Stop the leak if it can be done without risk. Move containers from the spill area. Prevent entry into sewers, water ways or soils. Contain and collect spillage with non-combustible, absorbent material such as sand, earth, vermiculite or diatomaceous earth. Place in container for disposal according to local regulations via a licensed waste disposal contractor. Contaminated absorbent materials may pose the same hazards as the spilled product. See section 1 for emergency contact information and section 13 for waste disposal.

SECTION 7 Handling and Storage

Precautions for Safe Handling

Can cause skin and eye irritation and allergic skin reaction.

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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. 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.

Conditions for Safe 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 8 Exposure Controls / Personal Protection

EXPOSURE GUIDELINES

Hazardous Component	PEL	STEL	TLV	Other
diglycidyl ether bisphenol A epoxy resin	NE	NE	NE	NE
Aliphatic epoxide	NE	NE	NE	NE
Alkylated phenol	NE	NE	NE	NE
2-methyl-2,4-pentenediol	25 ppm	NE	25 ppm	NE
Alkyl phenol	NE	NE	NE	NE

ENGINEERING CONTROLS Use local exhaust ventilation to maintain airborne concentrations below exposure limits. Respiratory protection may be required in addition to general room ventilation.

PERSONAL PROTECTIVE EQUIPMENT Use a properly fitted, air-purifying or air supplied 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.

EYE PROTECTION Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles or vapor. Contact lenses should not be worn.

SKIN AND BODY PROTECTION When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn. Gloves should be impervious neoprene or rubber. Use of barrier cream is recommended. Clean equipment thoroughly after each use. Discard contaminated leather shoes and canvas sneakers.

OTHER HYGENIC PRACTICES Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

OTHER WORK PRACTICES Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9 Physical and Chemical Properties

Appearance	
Form	Liquid
Color	Colorless to Amber
pH	Not available
Melting/Freezing Temperature	40 C/ 104 F
Boiling Point	336 C/ 637 F
Flash Point	> 95 C/ 200 F
Ignition Temperature	Not available
Autoignition Temperature	Not available
Lower explosive limit; na	Upper explosive limit: na
Vapor Pressure	<0.1 mm Hg
Vapor Density (air=1)	Not available
Specific Gravity (water=1 @39.2F)	1.14 at 25 C/77F
Evaporation Rate (Bac=1)	None
Odor	Light possible phenol
Odor threshold	Not available

SECTION 10 Stability and Reactivity

Chemical Stability

Stable under recommended storage conditions

Possibility of Hazardous Reactions

No data available

Conditions to Avoid

Avoid strong acids, bases in bulk and elevated temperatures

Materials to Avoid

Reactive or incompatible with: acids, oxidizers, amines

Hazardous Decomposition Products

Decomposition products formed under fire conditions may include: Carbon oxides, Nitrogen oxides, Aldehydes.

SECTION 11 Toxicological Information

Acute Toxicity

Oral LD50	Rat > 4000 mg/kg.
Dermal LD50	Rabbit 20,000 mg/kg
Inhalation LC50	No data available

Carcinogenicity

IARC: No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC

Skin Corrosion/Irritation

Skin	Irritant
------	----------

ACGIH: No component of this product presents at levels greater than or equal to 0.1% is identified as carcinogen or potential carcinogen by ACGIH

Serious Eye Damage/Eye Irritation

Eye	Irritant
Eyes	Rabbit
Severe eye irritation – 24 H	

NTP: No component of this product presents at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP

Respiratory or Skin Sensitization

May cause skin or respiratory sensitization

Mutagenicity

Mouse	Skin
Carcinogenic by RTECS Criteria	
liver, ovarian, thyroid	

SECTION 12 Ecological Information

Aquatic Ecotoxicity

No data available

Biodegradability

Persistent	Not readily biodegradable
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Mobility in soil

No data available

SECTION 13 Disposal Considerations

Waste Disposal

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residuals. 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.

SECTION 14 Transport Information

DOT (US)

Not Regulated

IMDG

Not Regulated

TDG

Not Regulated

SECTION 15 Regulatory Information

TSCA INVENTORY STATUS

All components are listed or exempt

OSHA HAZARDS

Skin Sensitizer Irritant
Corrosive Material

HMIS Classification

Health Hazard;	2	NFPA Rating	2
Flammability	1		0
Physical Hazards	0		0

SARA TITLE III: Section 311/312 Hazard Class

Acute Health Hazard, Chronic Health Hazard

SARA TITLE III: Section 313 (40CFR370)

This product does not contain a chemical which is listed in Section 313 at or above the de minimus concentrations

CERCLA Information (40CFR302.4)

This material contains no hazardous or extremely hazardous substances at or above the de minimus concentrations as defined by CERCLA or SARA Title III, and release is therefore not reportable.

California Proposition 65 Information:

This product contains, no listed substances known to the state of California to cause cancer and/or reproductive toxicity.

SECTION 16 Other Information

Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information in this MSDS was obtained from sources, which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable. This MSDS has been prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).