FairmountSantrol

Safety Data Sheet

Date: October 7, 2014 **Supersedes:** July 28, 2014

Section 1: Product Identification

Trade Name as Labeled: Silica, Lake or Bank Sand; All Grades
Chemical Name: Crystalline silica, mainly in form of quartz
Manufacturer:
Best Sand Corporation
11830 Ravenna Road, P.O. Box 87
Chardon, OH 44024
Phone: (440) 285-3132 Website: www.fairmountminerals.com

Application: Foundry Sand

Emergency Telephone Number
ChemTrec: (800) 424-9300

"This product is not intended for and is strictly prohibited for sandblasting"

Section 2: Hazard Identification

Hazard Overview
Product is a chemically inert, non-combustible mineral. Long-term exposure can cause silicosis. Silicosis is a respiratory disease, which can result in delayed, disabling and sometimes fatal lung injury. IARC and NTP have determined that respirable crystalline silica inhaled from occupational sources can cause cancer in humans. Risk of injury is dependent on the duration and level of exposure. A single exposure will likely not result in serious adverse effects.

GHS Classification:

Physical:
Not Classified

Health:
Category 1A Carcinogen
Category 1 Specific Target Organ Systemic Toxicity (Repeated Exposure)

Environmental:
Not Classified

Signal Word
Danger

Hazard Statements
H372: Causes damage to lungs and/or kidneys through prolonged or repeated exposure by inhalation.
H350: May cause lung cancer.

Precautionary Statements
P260: Do not breathe dust.
P314: Get medical advice/attention if you feel unwell.

Section 3: Composition/Information on Ingredients

CAS#	Component	Percentage	GHS Classification
14808-60-7	Crystalline Silica (Quartz)	>99%	STOST (Repeat Exposure) Category 1

See Section 8 for occupational exposure limit information.

Section 4: First Aid Measures

Inhalation (Gross): No specific first aid is necessary since the adverse health effects associated with inhalation of respirable crystalline silica result from chronic exposures. If there is a gross inhalation of product, remove the person immediately to fresh air. Get medical attention if persons feels unwell.
Ingestion: If large amounts of product are swallowed, get immediate medical attention.
Eye Contact: Immediately wash eyes with large amounts of water, lifting the upper and lower lids occasionally. If irritation persists or for imbedded foreign body, get immediate medical attention.
Skin Contact: Dermal contact with this product should not affect the skin. Wash exposed skin with soap and water before breaks and at the end of the work shift.

Section 5: Fire Fighting Measures

Extinguishing Media: Product is not flammable or combustible. It is compatible with all extinguishing media. Use any media that is appropriate for the surrounding fire.
Special Fire Fighting Procedures: Wear standard turnout gear and NIOSH-approved self-contained breathing apparatus (SCBA) with full facepiece in pressure demand or positive pressure demand mode.
Unusual Fire and Explosion Hazards: None known.
Hazardous Combustion Products: None known.

Section 6: Accidental Release Measures

Use personal protective equipment recommended in Section 8.
Avoid generating dust. If material is uncontaminated, collect using dustless method (HEPA vacuum) and place in appropriate container for use. Do not use compressed air to clean spilled sand or ground silica. If contaminated: a) use appropriate method for the nature of contamination, and b) consider possible toxic or fire hazards associated with the contaminating substances. Collect material in appropriate containers for recovery and recycling or disposal; see Section 12.

Section 7: Handling and Storage

Handling: Avoid generating dust. Do not breathe dust. *Use of this product may generate elevated airborne levels of crystalline silica dust that may not be visible to the unaided eye.* Use normal precautions against bag breakage or spills of bulk material. Use proper work practices and adequate ventilation with dust collection to maintain airborne levels of respirable crystalline silica to below the OSHA Permissible Exposure Limit (PEL). If airborne levels of crystalline silica exceed the PEL, wear respiratory protection and protective clothing when handling this product. Refer to Section 8 for additional information on personal protective equipment. See also American Society for Testing and Materials (ASTM) Standard Practice E1132-99a, "*Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica.*"
Storage: Use good housekeeping in storage and use areas to prevent accumulation of dust in work areas. Quartz is incompatible with strong oxidizers such as hydrofluoric acid, fluorine, chlorine trifluoride, or oxygen difluoride.

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, which includes training employees on the content of this SDS. *Warn your employees (and your customer users in case of resale) by posting and other means of the potential health risks associated with use of this product and train them in the appropriate personal protective equipment, work practices, and engineering controls, which will reduce their risk of exposure.*

Crystalline silica is listed by the State of California (under Proposition 65) as requiring the following warning:

> *Detectable amounts of chemicals known by the state of California to cause cancer, birth defects, or other reproductive harm may be found in this product.*

Section 8: Exposure Control/Personal Protection

Local Exhaust: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels of dust. See ACGIH "*Industrial Ventilation, A Manual of Recommended Practice*" (latest edition).

Eye Protection: Wear appropriate protective eyeglasses or chemical safety goggles where particles could cause injury to the eye as described by OSHA's eye and face protection regulations in 29 CFR §1910.133.

Skin Protection: Follow good personal hygiene practices including cleansing of exposed skin with soap and water, and laundering work clothing that has become dusty. Wash exposed skin with soap and water before breaks and at the end of work shift.

Respiratory Protection: When effective engineering controls are not feasible to control exposures to respirable crystalline silica below the OSHA PEL (or other exposure limit), use the following table to assist in selecting respiratory protection. This table was obtained from the NIOSH Respirator Selection Logic (2004). Assigned protection factor (APF) is the minimum expected level of respiratory protection provided by a properly functioning respirator. Maximum use concentration (MUC) for a respirator is determined by multiplying a contaminant exposure limit by the protection factor assigned to the respirator. 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*" also should be considered. All tight-fitting respirators must be fit-tested either qualitatively or quantitatively for each respirator user. Use only NIOSH-certified respirators.

Assigned Protection Factor	Type of Respirator (NIOSH-Certified Respirator)
10	Any air-purifying elastomeric half-mask respirator equipped with appropriate type of particulate filter. [1] Appropriate filtering facepiece respirator. [1,2] Any air-purifying full facepiece respirator equipped with appropriate type of particulate filter. [1] 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 HEPA 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.
1000	Any pressure-demand supplied-air respirator equipped with a full facepiece.

[1] Appropriate means that the filter medium will provide protection against the particulate in question.
[2] APF of 10 can only be achieved if the respirator is qualitatively or quantitatively fit tested on individual workers.

Occupational Exposure Limits:

Chemical	Percent (by wt.)	Exposure Limits						Unit
		OSHA		NIOSH		ACGIH		
		TWA	STEL	TWA	STEL	TWA	STEL	
Crystalline Silica (Quartz)	>99%	$\frac{10\ mg/m^{3a,b}}{\%\ SiO_2 + 2}$	N.E.	0.05[a]	N.E.	0.025[a]	N.E.	mg/m^3

N.E. = Not Established. mg/m^3 = milligrams per cubic meter of air.
[a] = Respirable Fraction.
[b] = OSHA PEL for crystalline silica as cristobalite or trdymite is ½ the value calculated from the respirable dust formula for quartz.

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 Limit (REL) is a time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek. STEL denotes a Short Term Exposure Limit, 15-minutes.

Section 9: Physical and Chemical Properties

Appearance: Free-flowing sand; white to tan
pH: Not applicable
Specific Gravity (water = 1): 2.65
Solubility in Water: Insoluble
Vapor Density: Not applicable
Vapor Pressure: Not applicable
Odor: Odorless
Melting Point: 2930 °F (1610 °C)
Evaporation Rate: None
Boiling Point: 4046 °F (2230 °C)
Autoignition Temp: Will not burn
Flammable Limits (LEL/UEL): Not applicable

Section 10: Stability and Reactivity

Stability: Stable under normal handling and storage conditions.
Hazardous Polymerization: Will not occur.
Chemical Incompatibility: Strong oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, and oxygen difluoride, may cause fire.
Hazardous Decomposition Products: Silica will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride.

Section 11: Toxicological Information

Inhalation of respirable silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of silica dust may have the following serious chronic health effects:

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.

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 "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 by the Occupational Safety and Health Administration (OSHA) as a human 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: 121-126 (1998).
"*Crystalline Silica and the Risk of Lung Cancer on the Potteries,*" Occup. Environ. Med., Vol. 55: 779-785 (1998).
"*Is Silicosis Required for Silica-Associated Lung Cancer?*" American Journal of Industrial Medicine, Vol. 37: 252- 259 (2000).
"*Silica, Silicosis, and Lung Cancer: A Risk Assessment,*" American Journal of Industrial Medicine, Vol. 38: 8-18 (2000).
"*Silica, Silicosis, and Lung Cancer: A Response to a Recent Working Group Report,*" Journal of Occupational and Environmental Medicine, Vol. 42: 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 articles may be consulted:

"*Occupational Exposure to Crystalline Silica and Autoimmune Disease*", Environmental Health Perspectives, Vol. 107, Supplement 5, pp. 793-802 (1999).
"*Occupational Scleroderma*", Current Opinion in Rheumatology, Vol. 11: 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, 3rd Ed., Chapter 12, "Silicosis and Related Diseases," Parkes, W. (1994).
"*Risk of pulmonary tuberculosis relative to silicosis and exposure to silica dust in South African gold miners,*" Occup. Environ. Med., Vol. 55: 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, Vol. 85: 14-19 (2000).

Skin Contact: No adverse effects expected.

Eye Contact: Contact may cause mechanical irritation and possible injury.

Ingestion: No adverse effects expected for normal, incidental ingestion.

Chronic Health Effects: See "Inhalation" subsection above with respect to silicosis, cancer status and other data with possible relevance to human health.

Medical Conditions Aggravated by Exposure: Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to respirable silica dust.

Signs and Symptoms of Exposure: Exposure to dust may cause mucous membrane and respiratory irritation, cough, sore throat, nasal congestion, sneezing and shortness of breath. However, there may be no immediate signs or symptoms of exposure to hazardous concentrations of respirable crystalline silica (quartz). See "Inhalation" subsection above for symptoms of silicosis. The absence of symptoms is not necessarily indicative of safe conditions.

Acute Toxicity: Crystalline Silica
Oral, rat: LD50 = 22,500 mg/kg

Section 12: Ecological Information

Crystalline Silica:
LC50 carp >10,000 mg/L/72 hr.

This product is not expected to present an environmental hazard.

Section 13: Disposal Considerations

General: If uncontaminated, dispose as an inert, non-metallic mineral. If contaminated, dispose in accordance with all applicable local, state/provincial and federal regulations in light of the contamination present. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.
RCRA: This product as sold by Best Sand Corporation is not classified as hazardous wastes under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

Section 14: Transport Information

This product is not regulated for transportation under the U.S. DOT, Canadian TDG, IMDG, or IATA Regulations.

Section 15: Regulatory Information

United States (Federal and State):
TSCA: Crystalline silica (CAS #14808-60-7) is listed on the EPA Toxic Substance Control Act (TSCA) Section 8(b) inventory.
RCRA: Crystalline silica is not classified as hazardous waste under the Resource Conservation and Recovery Act (RCRA), or its regulations, 40 CFR §261 et seq.
CERCLA Section 103 Reportable Quantity: None.
SARA 311/312: Hazard Categories for SARA Section 311/312 Reporting: Crystalline silica (Acute and Chronic Health Hazard).
SARA 313: Product contains no chemicals that are subject to Annual Release Reporting Requirements under SARA Section 313 (40 CFR 372).
Clean Air Act: Product was not processed with or does not contain Class I or II ozone depleting substances.
Clean Water Act: Not listed as a hazardous substance in Section 311.
NTP: Crystalline silica (quartz) is classified as a Known to be a Human 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 (respirable) is classified as a substance known by the State of California to cause cancer.

Canada:
Domestic Substances List (DSL): Crystalline silica (quartz) is a naturally occurring substance on the DSL.
WHMIS Classification: Crystalline silica - Class D, Division 2, Subdivision A (Very Toxic Material causing other Toxic Effects).

Other:
IARC: Crystalline silica (quartz) is classified in IARC Group 1 Carcinogen.
European Inventory of Commercial Chemical Substances: Crystalline silica (quartz) is listed on EINECS Inventory; the EINECS number for quartz: 238-878-4.
European Community Labeling:
Harmful Xn
Contains crystalline silica, quartz (238-878-4)
R48/20 Harmful: Danger of serious damage to health by prolonged exposure by inhalation
S22 Do not breathe dust
S38 In case of insufficient ventilation, wear suitable respiratory protection

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

Web Sites with information about health effects from occupational exposure to the chemical substances contained in this product and associated engineering controls and personal protective equipment:

OSHA Website:
http://www.osha.gov/dsg/topics/silicacrystalline/index
NIOSH Website:
http://www.cdc.gov/niosh/topics/silica
NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica
http://www.cdc.gov/niosh/docs/2002-129/02-129a.html
IARC Monograph concerning crystalline silica, Volume 100C:
http://monographs.iarc.fr/ENG/Monographs/PDFs/index.php.

NFPA Hazard Rating: Health: 1 Fire: 0 Reactivity: 0

HMIS Hazard Rating: Health: * Fire: 0 Reactivity: 0
* Warning – Chronic health effect possible – inhalation of silica dust may cause lung injury/disease (silicosis). Take appropriate measures to avoid breathing dust. See Section 8.

EU Classes and Risk Phrases for Reference
Xn Harmful
R48/20 Harmful: Danger of serious damage to health by prolonged exposure by inhalation.

User's Responsibility: The OSHA Hazard Communication Standard 29 CFR 1910.1200 require that this 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 and Bank Sand (All Grades)

Crystalline Silica (Quartz)

DANGER

HAZARD STATEMENTS
Causes damage to lungs through prolonged or repeated inhalation exposure.
May cause lung cancer.
May cause damage to kidneys.

PRECAUTIONARY STATEMENTS
Minimize dust generation and accumulation during handling and use.
Do no breathe dust.
Use with adequate capture ventilation.
Clean up spills and dust accumulation using dustless methods (HEPA vacuum or water) to minimize dust generation.
Avoid contact with strong oxidizing agents; may cause fire.
Wash hands after handling.
No specific disposal method is required. Dispose of in accordance with Federal, State, and Local regulations.
Do not handle product until Safety Data Sheet has been read and understood.

Fire:
Product will not burn. Product is compatible with all extinguishing media.

First Aid:
Gross inhalation, remove person immediately to fresh air. Get medical attention if person feels unwell.
Gross ingestion, get immediate medical attention.

For additional information, read **Safety Data Sheet** for product.

24-hour Emergency Phone Number
CHEMTREC® (800) 424-9300

Manufacturer:
Best Sand Corporation
11830 Ravenna Road
P.O. Box 87
Chardon, OH 44024
Phone: (440) 285-3132
Website: www.fairmountminerals.com

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