

# SAFETY DATA SHEET



Rev. O – July 2024

## SECTION 1: IDENTIFICATION

Product Identifier: Silica Sand

Trade Names: Trademarks and product names include Badger Frac™, Badger Pac, Badger Cast™, Badger® Sand and Badger Enviromedia. Products also generally referred to as Taylor Silica, Fairwater Silica.

Product Use: Frac Sands, Gravel Pack Sands, Resin Coating Base Sands, Foundry Core and Molding Sands, Industrial Sands, Glass Sands, Filtration Media, Environmental Sands, Grinding Media, Engine Sand, Industrial Fillers, Testing Sands, Recreational and Agricultural Sands.

Restriction on Use: **This product is not to be used for abrasive blasting. This Safety Data Sheet (SDS) and the information contained herein were not developed for abrasive blasting.**

Manufacturer's Name: Badger Mining Corporation  
Manufacturer's Address: 409 South Church Street Berlin, WI 54923  
Manufacturer's Telephone: 800-285-0038

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**SECTION 2: HAZARD(S) IDENTIFICATION**

**GHS/ Hazcom 2024 / WHMIS 2022 Classification:**

<b>Physical:</b>	<b>Health:</b>
Not Hazardous	Carcinogen Category 1A Specific Target Organ Toxicity (Repeated Exposure) Category 1

GHS/Hazcom 2024/WHMIS 2022 Label:

**DANGER**

**Statements of Hazard**

May cause cancer by inhalation.  
Causes damage to lungs, kidneys and immune system through prolonged or repeated exposure by inhalation.

**Response:**

If exposed or concerned: Get medical advice.

**Disposal:**

Dispose of contents/containers in accordance with national and local regulation.



**Prevention**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Do not breathe dust.  
Wash hands thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves and safety glasses or goggles.  
In case of inadequate ventilation wear respiratory protection.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

CAS#	Component	Percentage
14808-60-7	Crystalline Silica, Quartz, SiO <sub>2</sub>	89.0- 99.9%

**SECTION 4: FIRST AID MEASURES**

**Inhalation:** If excessive inhalation of product occurs, remove the person to fresh air. Dust in throat and nasal passages should clear spontaneously. Perform artificial respiration as needed and contact a physician if irritation persists or develops later.

**Skin Contact:** No first aid should be needed since dermal contact with this product does not affect the skin. Wash exposed skin with soap and water before breaks and at the end of the shift. If abrasion occurs wash with soap and water, and seek medical attention if irritation persists or develops later.

**Eye Contact:** Flush the eyes immediately with large amounts of running water, lifting the upper and lower lids occasionally. If irritation persists or for imbedded foreign body, get medical attention.

**Ingestion:** If gastrointestinal discomfort occurs, give a large quantity of water. Never attempt to make an unconscious person drink or vomit. Seek medical attention.

**Most Important Symptoms and Effects, Both Acute and Delayed:** Direct skin and eye contact with dust may cause irritation by mechanical abrasion. Exposure to dust may cause mucous membrane and respiratory irritation, cough, sore throat, nasal congestion, sneezing and shortness of breath. There are generally no signs or symptoms of exposure to crystalline silica (quartz). Often, chronic silicosis has no symptoms. The symptoms of chronic silicosis, if present, are shortness of breath, wheezing, cough and sputum production. The symptoms of acute silicosis which can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as 6 months, are the same as those associated with chronic silicosis; additionally, weight loss and fever may also occur. The symptoms of scleroderma, an autoimmune disease, include thickening and stiffness of the skin, particularly in the fingers, shortness of breath, difficulty swallowing and joint problems.

**Indication of immediate medical attention and Special Treatment Needed:** None required.

#### **SECTION 5: FIREFIGHTING MEASURES**

**Suitable Extinguishing Media:** Compatible with all media; use the medium appropriate to the surrounding fire.

**Specific Hazards Arising from the Chemical:**

**Unusual Fire and Explosion Hazards:** Not flammable or combustible. Dry powders may accumulate static charge in handling which can be a source of ignition for flammable atmospheres.

**Hazardous Combustion Products:** None.

**Special Protective Equipment and Precautions for Fire-Fighters:** None required with respect to this product. Firefighters should always wear self-contained breathing apparatus for fires indoors or in confined areas.

#### **SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Personal Precautions, Protective Equipment and Emergency Procedures:** Wear appropriate personal protective equipment as specified in Section 8. Ensure appropriate respirators are worn during and following clean up or whenever airborne dust is present to ensure worker exposures remain below occupational exposure limits (OELs - Refer to Section 8). Follow respiratory protection selection guidelines as described in Section 8 of this document.

**Environmental Precautions:** Report spills and releases as required to appropriate authorities.

**Methods and Material for Containment/Cleanup:** Persons involved in cleaning should first follow the precautions defined in Section 7 of the SDS. Spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust that may pose inhalation hazards. Do not dry sweep spilled material. Collect the material using a method that does not produce dust such as a High-Efficiency Particulate Air (HEPA) vacuum or thoroughly wetting down the dust before cleaning up. Place the silica-containing dust in a covered container appropriate for disposal.

#### **SECTION 7: HANDLING AND STORAGE**

**Precautions for Safe Handling:** Do not breathe dust. Do not rely on your sight to determine if dust is in the air. Silica may be in the air without a visible dust cloud.

This product is **not** to be used for abrasive blasting. Follow protective controls set forth in Section 8 of this SDS when handling this product. Dust containing respirable crystalline silica may be generated during processing, handling and storage. Do not breathe dust, which may be created during the handling of this product. Do not rely on vision to determine whether respirable silica is present in the air, as it may be present without a visible cloud. Use good housekeeping procedures to prevent the accumulation of silica dust in the workplace. Avoid the creation of respirable dust. Avoid contact with skin and eyes. Do not store near food or beverages or smoking materials. Avoid standing on piles of materials as they may be unstable.

Use adequate ventilation and dust collection equipment. Ensure that the dust collection system is adequate to reduce airborne dust levels to below the appropriate OELs. If the airborne dust levels are above the appropriate OELs, use respiratory protection during the establishment of engineering controls. Refer to Section 8 - Exposure Controls/Personal Protection for further information.

In accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200, 1918.1, 1926.59, 1928.21), state, and/or local right-to-know laws and regulations, familiarize your employees with this SDS and the information contained herein. Warn your employees, your customers and other third parties (in case of resale or distribution to others) of the potential health risks associated with the use of this product and train them in the appropriate use of personal protective equipment and engineering controls, which will reduce their risks of exposure.

See also ASTM International standard practice E 1132-06, "Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica."

For safe handling and use of this product for Hydraulic Fracturing, please see the OSHA/NIOSH Hazard Alert Worker Exposure to Silica during Hydraulic Fracturing DHHS (NIOSH) Publication No. 2012-166 (2012). [http://www.osha.gov/dts/hazardalerts/hydraulic\\_frac\\_hazard\\_alert.pdf](http://www.osha.gov/dts/hazardalerts/hydraulic_frac_hazard_alert.pdf)

Refer to the OSHA Respirable Crystalline Silica standards; 29 CFR 1910.1053, 1915.1053 and 1926.1153 for specific requirements for use and handling and medical surveillance.

This product can accumulate electrostatic charges due to friction from transfer and mixing operations and cause an electrical spark (ignition source) which can ignite flammable liquids and atmospheres. Provide adequate precautions when adding this product to flammable and combustible mixtures.

**Conditions for Safe Storage, Including any Incompatibilities:** Store in a dry location.

<b>SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION</b>
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**Exposure Guidelines:**

<b>Component</b>	<b>OSHA PEL</b>	<b>ACGIH TLV</b>	<b>NIOSH REL</b>	<b>MSHA</b>
Crystalline Silica, quartz, SiO <sub>2</sub>	0.05 mg/m <sup>3</sup> TWA (respirable dust)	0.025 mg/m <sup>3</sup> TWA (respirable dust)	0.05 mg/m <sup>3</sup> TWA (respirable dust)	0.05 mg/m <sup>3</sup> TWA (respirable dust)

Crystalline silica is measured as the silica content of the respirable dust sample. Refer to the OSHA Respirable Crystalline Silica standards; 29CFR1910.1053, 1915.1053 and 1926.1153 for specific

requirements for monitoring and requirements for operations where the action level of 0.025 mg/m<sup>3</sup> is exceeded. For mining exposures refer to 30CFR60.

**California Inhalation Reference Exposure Limit (REL):** The California chronic REL for respirable crystalline silica is 3 ug/m<sup>3</sup> (as of June 2014). A chronic REL is an airborne level of a chemical at or below which no adverse health effects are anticipated in individuals indefinitely exposed to that level. [Adoption of chronic REL for Silica dated 2/10/05]

Canadian OEL:

Canada Labour Code: 0.025 mg/m<sup>3</sup> (respirable)

Alberta, British Columbia: 0.025 mg/m<sup>3</sup> (respirable quartz and cristobalite)

Manitoba, Newfoundland, Prince Edward Island, New Brunswick: 0.025 mg/m<sup>3</sup> (respirable, crystalline silica)

Ontario: 0.05 mg/m<sup>3</sup> (respirable cristobalite); 0.1 mg/m<sup>3</sup> (quartz, tripoli)

Quebec: 0.05 mg/m<sup>3</sup> (respirable, cristobalite, tridymite); 0.1 mg/m<sup>3</sup> (quartz, tripoli)

Nova Scotia: 0.025 mg/m<sup>3</sup> (respirable)

Yukon: 300 particles/ml measured with a konimeter (quartz, and tripoli); 150 particles/ML measured with a konimeter (cristobalite and tridymite)

Northwest Territories, Nunavut, Saskatchewan: 0.05 mg/m<sup>3</sup> (respirable, cristobalite, tridymite); 0.1 mg/m<sup>3</sup> (respirable,

Japan OEL - Japan Society of Occupational Health Respirable crystalline silica 0.03 mg/m<sup>3</sup>

Mexico – 0.025 mg/m<sup>3</sup> (quartz, tripoli, cristobalite) respirable

Argentina – 0.05 mg/m<sup>3</sup> (quartz, cristobalite, tridymite respirable)  
0.1 mg/m<sup>3</sup> (tripoli, respirable)

Crystalline silica exists in several forms, the most common of which are quartz (i.e. this product), tridymite and cristobalite, with quartz being the most common form found in nature. If quartz is heated to more than 870°C, it can change form to tridymite and if quartz is heated to more than 1450°C, it can change form to cristobalite.

Engineering Controls: Ventilation: Use local exhaust, general ventilation or natural ventilation adequate to maintain exposures below appropriate exposure limits.

Other control measures: Respirable dust and quartz levels should be monitored regularly. Dust and quartz levels in excess of appropriate exposure limits should be reduced by implementing feasible engineering controls, including (but not limited to) dust suppression (wetting), ventilation, process enclosure, and enclosed employee work stations. Refer to the OSHA Respirable Crystalline Silica standards; 29CFR1910.1053, 1915.1053 and 1926.1153 for specific requirements for engineering controls.

**This product is not to be used for abrasive blasting.**

**Personal Protective Equipment:**

**Respiratory Protection:** For operations where the occupational exposure limits are exceeded respiratory

protection approved for respirable particulates is required. Consult with OSHA regulations, Canadian CCOHS, NIOSH recommendations and other applicable regulatory agencies to determine the appropriate respiratory protection to be worn during use of this product, and use only such recommended respiratory protection equipment. Avoid breathing dust produced during the use and handling of this product. If the workplace airborne crystalline silica concentration is unknown for a given task, conduct air monitoring to determine the appropriate level of respiratory protection to be worn. Consult with a certified industrial hygienist, your insurance risk manager or the OSHA Consultative Services group for detailed information. Ensure appropriate respirators are worn during and following the task, including clean up or whenever airborne dust is present, to ensure worker exposures remain below OELs. Provisions should be made for a respiratory protection training program (see 29 CFR 1910.134 – Respiratory Protection for minimum program requirements). See also ANSI standard Z88.2 (latest revision) "American National Standard for Respiratory Protection," 29 CFR 1910.134 and 1926.103, and 42 CFR 84. Refer to the OSHA Respirable Crystalline Silica standards; 29CFR1910.1053, 1915.1053 and 1926.1153 for specific requirements for respiratory protection. Always refer to the most recent government and local standards.

**Gloves:** Protective gloves recommended for situations where abrasion from sand may occur.

**Eye Protection:** Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated. There is a potential for severe eye irritation if exposed to excessive concentrations of dust for those wearing contact lenses.

**Other Protective**

**Equipment/Clothing:** As appropriate for the work environment. Dusty clothing should be laundered before reuse.

**General Hygiene**

**Considerations:** There are no known hazards associated with this material when used as recommended. Following the guidelines in this SDS is recognized as good industrial hygiene practice. Avoid breathing dust. Avoid skin and eye contact. Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State:</b>	Solid	<b>Color:</b>	Light Buff to White Sand
<b>Kinematic Viscosity:</b>	Not applicable	<b>Odor:</b>	None
<b>pH:</b>	Not applicable	<b>Odor Threshold:</b>	Not applicable
<b>Boiling Point/Range:</b>	4046°F / 2230°C	<b>Relative Vapor Density:</b>	Not applicable
<b>Melting point/freezing point:</b>	3110°F / 1710°C	<b>Evaporation Rate:</b>	Not applicable
<b>Flammability (solid, gas, liquid):</b>	Non-combustible solid	<b>Partition coefficient (n-octanol/water):</b>	Not applicable

<b>Decomposition Temperature:</b>	Not applicable	<b>Vapor Pressure:</b>	Not applicable
<b>Flash Point:</b>	Not applicable	<b>Relative Density:</b>	2.65
<b>Lower Explosion Limit:</b>	Not applicable	<b>Solubilities:</b>	Insoluble in water
<b>Upper Explosion Limit:</b>	Not applicable	<b>Autoignition Temperature:</b>	Will not burn
<b>Particle Characteristics:</b>	No data available		

## SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** This product is not reactive under normal conditions of storage and use.

**Chemical Stability:** Stable.

**Possibility of Hazardous Reactions:** None known

**Conditions to Avoid:** None known.

**Incompatible Materials:** Contact with strong oxidizing agents, such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, hydrogen fluoride, oxygen difluoride, hydrogen peroxide, acetylene and ammonia may cause fire and/or explosions.

**Hazardous Decomposition Products:** Silica will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride.

**Thermal Stability:** If crystalline silica (quartz) is heated to more than 870°C (1598°F), it can change to a form of crystalline silica known as tridymite, and if crystalline silica (quartz) is heated to more than 1470°C (2678°F), it can change to a form of crystalline silica known as cristobalite.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

Crystalline silica exists in several forms, the most common of which is quartz. Crystalline silica as tridymite and cristobalite are more fibrogenic than crystalline silica as quartz.

### Potential Health Effects:

**Inhalation:** Dust may irritate nose, throat, mucous membranes and respiratory tract by mechanical abrasion. Coughing, sneezing, chest pain, shortness of breath, inflammation of mucous membrane, and flu-like fever may occur following exposures in excess of appropriate exposure limits. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may have serious chronic health effects (see below Repeat Dose Toxicity.)

**Skin Contact:** May cause abrasion to skin.

**Eye Contact:** Direct contact with dust may cause irritation by mechanical abrasion. Conjunctivitis may occur. Crystalline silica (quartz) may cause abrasion of the cornea.

**Ingestion:** No adverse effects expected for incidental ingestion. Ingestion of large amounts may cause gastrointestinal tract irritation and blockage.

**Medical Conditions Generally Aggravated by Exposure:** The condition of individuals with existing respiratory system disease(s) (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) and/or dysfunctions can be aggravated by exposure. Exposure to dust may aggravate existing skin and/or eye conditions. Smoking and obstructive/restrictive lung diseases may also exacerbate the effects of excessive exposure to this product.

**Acute Toxicity:** Not classified. Silica: LD50 oral rat >22,500 mg/kg.

**Skin Corrosion/Irritation:** Not classified.

**Eye Damage/Irritation:** Not classified.

**Skin Sensitization:** Not a skin sensitizer in animals or humans.

**Respiratory Sensitization:** Not a skin sensitizer in animals or humans.

**Germ Cell Mutagenicity:** No specific data is available, however, there is no evidence that silica is a germ cell mutagen.

**Carcinogenicity:** The International Agency for Research on Cancer has determined that crystalline silica is carcinogenic to humans (Group 1 - carcinogenic to humans). Refer to [IARC Monograph 100C, A Review of Human Carcinogens: Arsenic, Fibres, and Dusts](#) (published in 2011) in conjunction with the use of these materials. The National Toxicology Program classifies respirable crystalline silica as “known to be a human carcinogen.” Refer to the Twelfth Report on Carcinogens (2011). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2). The other components are not classified as carcinogens.

**Developmental / Reproductive Toxicity:** No specific data is available, however, there is no evidence that silica exposure has any effect on reproduction.

**Specific Target Organ Toxicity (Single and Repeated Dose):**

**A. SILICOSIS**

The major concern is silicosis (lung disease), caused by the inhalation and retention of respirable crystalline silica dust. Silicosis leads to conditions such as lung fibrosis and reduced pulmonary function. The form and severity in which silicosis manifests itself, depends in part on the type and extent of exposure to silica dusts: chronic, accelerated and acute forms are recognized. In later stages the critical condition may become disabling and potentially fatal.

Restrictive and/or obstructive changes in lung function may occur due to exposure. A risk associated with silicosis is development of pulmonary tuberculosis (silico-tuberculosis). Respiratory insufficiencies due to



massive fibrosis and reduced pulmonary function, possibly with accompanying heart failure, are other potential causes of death due to silicosis.

Chronic or Ordinary Silicosis is the most common form of silicosis and can occur after many years of exposure to levels above the OELs for airborne respirable crystalline silica dust. Not all individuals with silicosis will exhibit symptoms (signs) of the disease. Symptoms of silicosis may include (but are not limited to): Shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; heart enlargement and/or failure. 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 (cor pulmonale) 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 (5) 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 is a rapidly progressive, incurable lung disease and is typically fatal.

## **B. CANCER**

IARC - The International Agency for Research on Cancer ("IARC") concluded that there is "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the form of quartz or cristobalite", there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz dust" and that there is "*limited evidence* in experimental animals for the carcinogenicity of tridymite dust and cristobalite dust." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite dust is *carcinogenic to humans (Group 1)*." The IARC evaluation noted that not all industrial circumstances studied evidenced carcinogenicity. The monograph also stated that "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 100C, "Silica Dust, Crystalline, in the Form of Quartz or Cristobalite" (2012).

NTP - In its Eleventh Annual Report on Carcinogens, concluded that respirable crystalline silica is known to be a human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating

a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust.

OSHA - Crystalline silica is an OSHA designated carcinogen.

#### C. AUTOIMMUNE DISEASES

There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be 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: (1) "Antinuclear Antibody and Rheumatoid Factor in Silica-Exposed Workers", *Arh Hig Rada Toksikol*, (60) 185-90 (2009); (2) "Occupational Exposure to Crystalline Silica and Autoimmune Disease", *Environmental Health Perspectives*, (107) Supplement 5, 793-802 (1999); (3) "Occupational Scleroderma", *Current Opinion in Rheumatology*, (11) 490-494 (1999); (4) "Connective Tissue Disease and Silicosis", *Am J Ind Med*, (35), 375-381 (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: (1) "Tuberculosis and Silicosis: Epidemiology, Diagnosis and Chemoprophylaxis", *J Bras Pneumol*, (34) 959-66 (2008); (2) *Occupational Lung Disorders*, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994); (3) "Risk of Pulmonary Tuberculosis Relative to Silicosis and Exposure to Silica Dust in South African Gold Miners," *Occup Environ Med*, (55) 496-502 (1998); (4) "Occupational Risk Factors for Developing Tuberculosis", *Am J Ind Med*, (30) 148-154 (1996).

#### E. 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: (1) "Mortality from Lung and Kidney Disease in a Cohort of North American Industrial Sand Workers: An Update", *Ann Occup Hyg*, (49) 367-73 (2005); (2) "Kidney Disease and Silicosis", *Nephron*, (85) 14-19 (2000); (3) "End Stage Renal Disease Among Ceramic Workers Exposed to Silica", *Occup Environ Med*, (56) 559-561 (1999); (4) "Kidney Disease and Arthritis in a Cohort Study of Workers Exposed to Silica", *Epidemiology*, (12) 405-412 (2001).

#### F. NON-MALIGNANT RESPIRATORY DISEASES

NIOSH has cited the results of studies that report an association between dusts found in various mining operations and non-malignant respiratory disease, particularly among smokers, including bronchitis, emphysema, and small airways disease. *NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica*, published in April 2002, available from NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226, or at <https://www.cdc.gov/niosh/docs/2002-129/>

**Aspiration Toxicity:** Not applicable for solids.

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity:** Practically non-toxic to aquatic organisms. Silica: LC50 carp >10,000 mg/L/72 hr.

**Persistence and Degradability:** Silica is not degradable.

**Bioaccumulative Potential:** Not expected to bioaccumulate.

**Mobility in Soil:** Not applicable.

**Other Adverse Effects:** None known

## SECTION 13: DISPOSAL CONSIDERATIONS

General: Crystalline silica may be landfilled. Material should be placed in covered containers 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 information applies to Badger Mining Corporation silica sand only as sold. The product may be contaminated during use and it is the responsibility of the user to assess the appropriate disposal method in this situation.

## 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, and Transportation of Dangerous Goods Regulations in the European Union, Canada, Argentina, Republic of Uzbekistan and Japan. Label as required by the OSHA Hazard Communication standard {29 CFR 1910.1200(f)}, and applicable state and local regulations.

Consult applicable international, national, state, provincial or local laws.

Transport in Bulk According to IMO Instruments: None

## SECTION 15: REGULATORY INFORMATION


**SARA 302:** Crystalline silica, quartz is not listed.

**SARA 311/312:** Refer to Section 2 for the OSHA Hazard Classification

**SARA 313** This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under the SARA Section 313 (40 CFR 372): None

**CERCLA Section 103 Reportable Quantity:** None

**California Proposition 65:**

 **WARNING:** This product can expose you to chemicals including crystalline silica, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**Canadian Regulations:** National Pollutant Release Inventory (NPRI), CEPA subsection 16(1): None required.

**International Inventories**

**Toxic Substances Control Act:** All of the components of this product are listed on the EPA TSCA Inventory or exempt from premanufacture notification requirements.

**EU REACH Status:** This substance is exempt from REACH registration.

**Canadian Environmental Protection Act:** All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

**Japan METI:** 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.

**Korea:** All of the components of this product are listed on the KECL inventory or exempt from notification requirements.

**Philippines:** All of the components of this product are listed on the PICCS inventory or exempt from notification requirements.

**New Zealand:** All of the components of this product are listed on the HSNO inventory or exempt from notification requirements.

**China:** All of the components of this product are listed on the IECSC inventory or exempt from notification requirements.

**Taiwan:** All of the components of this product are listed on the CSNN inventory or exempt from notification requirements.

<b>16: OTHER INFORMATION</b>
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**User's Responsibility:** The OSHA Hazard Communication Standard 29 CFR 1910.1200 requires that this SDS 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, Badger Mining 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.

An electronic version of this SDS is available at [www.badgerminingcorp.com](http://www.badgerminingcorp.com) . More information on the effects of crystalline silica exposure may be obtained from OSHA (phone number: 1-800-321-OSHA; website: <http://www.osha.gov>) or from NIOSH (phone number: 1-800-35-NIOSH; website: <http://www.cdc.gov/niosh>).

DATE OF PREPARATION 7/2024 REPLACES 12/2021