382-001

SDS

Sil Industrial Minerals

ISO Registered

Section 1 – Product Identification & Company Identification

Synonyms: Silica Sand, Quartz, Crystalline Silica, Silica Dioxide, and Ground Silica
Product Uses: Filter Sand, Foundry Sand, Glass Sand, Sandblasting Sand, Golf Course Sand, Play Sand, Silica Flour, Sport Surface, Traction Sand with **Dust Suppressant**

SIL-4, SIL-7

Manufacturer:
Sil Industrial Minerals
9175 - 14 Street
Edmonton, Alberta, Canada
T6P 0C9

Phone Numbers: Head Office (780) 478-7171 (8:00 am to 5:00 pm Mountain)
Sales Center (780) 467-2627 (7:30 am to 5:00 pm Mountain)
Fax Number: Sales Center (780) 467-2752
Emergency Telephone Number: **(780) 796-3939**

Section 2 – Hazard Identification

This Material is considered hazardous under the OSHA Hazard Communications Standards (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 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, such as Scleroderma, Systemic Lupus Erythematosus, rheumatoid arthritis, and diseases affecting the kidneys.
e) Nephrotoxicity	There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of kidney disease, including end stage renal disease.

Eye Contact Crystalline silica (quartz) may cause abrasions to the cornea.

Skin Contact May cause abrasion to the skin.

Ingestion No known health effect.

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

Chronic Effects The various forms of chronic effects of silicosis include lung cancer, autoimmune and chronic kidney diseases, tuberculosis and non-malignant respiratory disease.

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

Medical Conditions 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 the potential adverse health effects.

Section 3 – Product Composition

	Chemical Formula	Typical % By Weight	CAS #
Crystalline Silica	SiO_2	92.0 – 94.0	14808-60-7
Aluminium Oxide	Al_2O_3	< 5.00	1344-28-1
Iron Oxide	Fe_2O_3	< 1.00	1309-37-1
Titanium Oxide	TiO_2	< 0.09	13463-67-7

Typical Values – Data shown is accurate and reliable, but not a specification

Exposure Limits (respirable fraction) in Air:

OSHA – PEL	10 mg/m³	
	% SiO_2+2	(8 Hour Time Weighted Average)
ACGIH	0.05 mg/cubic meter	(8 Hour Time Weighted Average)
NIOSH	0.05 mg/cubic meter	(10 Hour Time Weighted Average, 40 Hr Work Week)

Section 4 – First Aid Measures

Inhalation There is no specific treatment because the health effects associated with crystalline silica are chronic. If gross inhalation of crystalline silica occurs, remove the person to fresh air, perform artificial respiration as needed, and obtain medical attention as needed.

Eye Do not allow the victim to rub eye(s). Let the eye(s) water naturally for a few minutes. Have victim look right and left, and then up and down. If particle/dust does not dislodge, flush with lukewarm, gently flowing water for 5 minutes or until the particle/dust is removed, while holding the eyelid(s) open. If irritation persists, obtain medical attention. DO NOT attempt to manually remove anything stuck to the eye(s).

Skin Wash affected area thoroughly. If irritation persists, seek medical attention.

Ingestion If large amounts are ingested, seek medical attention immediately.

Good personal hygiene is essential. Always wash your hands after handling crystalline silica, prior to handling food and/or drinkable liquids.

Section 5 – Fire Fighting Measures

Flammability: None

Flashpoint: Not Combustible

Autoignition Temperature: None

Lower Explosive Limit: None

Upper Explosive Limit: None

Explosion Habits: None

Extinguishing Media: Compatible with all media, use the medium appropriate to the surrounding fire.

Special Fire Fighting Procedures: At extreme temperatures, calcium oxide fumes may evolve. Fire fighters must wear self-contained breathing apparatus (scba) and full protective clothing.

Hazardous Combustion Products: None

Section 6 – Accidental Release Measures

Wear the appropriate personal protective equipment as described in Section 8 of this document. Collect the material using a method which does not produce dust [High-Efficiency Particulate Air (HEPA) vacuum or thoroughly wetting down the silica]. Place the silica in a covered container appropriately designed for disposal. Dispose of the silica according to federal, state, provincial, and local regulations.

Extreme caution should be taken to avoid accidental release into waterways and/or sewer systems.

Section 7 – Handling and Storage

Handle material in such a manner as to reduce and/or minimize the dust, which can be created when handling crystalline silica. Use adequate ventilation and dust collection equipment. The proper personal protection equipment as described in Section 8 of this document. Do not breathe the dust, which may be created during the handling of this product. Do not rely on vision to determine whether respirable silica is in the air, as it may be present without a visible dust cloud. Use good housekeeping procedures to prevent the accumulation of silica dust in the workplace.

Avoid breakage of bagged material or the accidental release of bulk material. Use dustless methods (vacuum) during clean up. Do not dry sweep. Wet down spilled material if sweeping is the most feasible method of clean up.

The OSHA Hazard Communication Standard, 29 CFR Sections 1910.1200, 1915.1200, 1917.28, 1918.90, 1926.59, and 1928.21, as well as state, provincial, and local worker —right-to-knowll laws and regulations should be strictly adhered to. WARN YOUR EMPLOYEES (AND YOUR CUSTOMERS IN CASE OF RESALE) OF THE HAZARDS AND THE REQUIRED OSHA PRECAUTIONS. Provide the proper training to your employees in the safe handle and storage practices.

Section 8 – Exposure Controls/Personal Protection

Ventilation: Use local exhaust as required to maintain exposures below the occupational exposure limits; refer to the governing The Occupational Health & Safety Regulations for the recommended practices.

Respiratory Protection: Use only NIOSH approved respiratory protection equipment with a minimum N95 rating. Avoid breathing dust produced during the use of this and handling of this material. If the workplace airborne crystalline silica concentration is unknown for a given task, Air Quality Monitoring should be conducted in order to determine the appropriate level of respiratory protection. Ensure the appropriate respirators are worn during, and following the task, including clean up or whenever airborne dust is present, to insure ambient dust levels are below occupational exposure limits. Provisions should be made for a respiratory protection-training program. **Also see ANSI standard Z88.2 *"American National Standard for Respiratory Protection"*, or the CSA Standard Z94.4-02 *"Selection, Use, And Care of Respirators."***

Gloves: Recommended in situations where skin abrasions for sand may occur.

Eye: Recommended in order to prevent any particulate from entering the eye.

Clothing: Use protective clothing as appropriate for the work environment.

Section 9 – Physical and Chemical Properties

Appearance:	Light to Medium Brown	**Coefficient of Water/ Oil Distribution:**	Not Applicable
Physical State:	Solid Granular	**Vapour Density:**	Not Applicable
Odour Threshold:	Not Applicable	**Specific Gravity:**	2.6 (Approximate)
Vapour Pressure:	Not Applicable	**Melting Point:**	4000°F (Approx. 2,200°C)
Evaporation Rate:	Not Applicable	**pH:**	7.3
Freezing Point:	Not Applicable		

Section 10 – Stability and Reactivity

Stability: Stable

Materials to Avoid: Contact with powerful oxidizing agents, such as fluorine, chlorine trifluoride, and oxygen difluoride, may cause fires.

Hazardous Decomposition: 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 (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 of PMF may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pumonale).

Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; lung lesions can appear within 5 to 10 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. The disease continues to develop even after exposure stops, and is often associated with autoimmune disease, for example, scleroderma (a skin disease involving thickening of the skin.

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 (—IARCll) concluded that there was —*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sourcesll, and that there is —*sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite.ll 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)*.ll 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...ll(1997)

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, and rheumatoid arthritis—among silica exposed workers.

D. Tuberculosis

Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to person with tuberculosis.

E. Kidney Disease

Several studies have reported excess cases of kidney diseases, including end stage renal disease, among silica-exposed workers.

F. Non-Malignant Respiratory Diseases

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 dust generally (independent of the presence or absence of crystalline silica, or the level of crystalline silica in the dust).

Section 12 – Ecological Information

Crystalline silica (quartz) is not known to be ecotoxic. There is no evidence to suggest that crystalline silica is toxic to birds, fish, invertebrates, microorganisms, or plant life.

Section 13 – Disposal Considerations

General: Crystalline silica may be landfilled. Material should be placed in covered containers to minimize generation of airborne dust.

In the event the crystalline silica becomes contaminated, the material may require testing before it can be safely landfilled. Review all Federal, provincial, state, and local government requirements prior to disposal.

Section 14 – Transportation Information

Canadian Transportation of Dangerous Goods Regulations: Not Regulated

International Air Transport Association (IATA): Not Regulated

International Maritime Organization (IMO): Not Regulated

Section 15 – Regulatory Information

UNITED SATES (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: 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 Sil Industrial Minerals was not processed with or does not contain any Class 1 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 (quartz) is classified as a probable carcinogen.

CANADA

Domestic Substances List: Sil Industrial Minerals products, as naturally occurring substances, are on the Canadian DSL.

WHMIS Classification: D-2A

OTHER

Federal, provincial, state or local emergency planning, community right to know or other laws, regulations or ordinances may be applicable–consult applicable federal, provincial, state, or local laws.

Section 16 – Other Information

Hazardous Material Information System (HMIS):

Health	*
Flammability	O
Reactivity	O
Protective Equipment	E

For further information on health effects, see Sections 3 and 11 of this SDS

Prepared By: Sil Industrial Minerals

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This SDS Document supersedes all previous SDS Documents distributed in whole or in part by Sil Industrial Minerals, and/or its Distributors. No alterations shall be made to this SDS Document.

The data in this Safety Data Sheet related only to the specific material designated herein and does not relate to use in combination with any other material or in any process. The information set forth herein is based on technical data that Sil Industrial Minerals believes reliable. It is intended for use by persons having technical skills and at their own discretion and risk. Since conditions of use are outside our control, we make no warranties, expressed or implied, and assume no liability in connection with any use of this information. Any use of this data and information must be determined by the user to be in accordance with Federal, Provincial and/or Municipal laws and regulations.

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