Safety Data Sheet

SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	Crystalline Silica in the form of Quartz - various grades		
SYNONYMS	Quartz, Crystalline Silica, Silicon Dioxide		
MANUFACTURER	Southern Ohio Sand	SUPPLIER	Inversand Company
ADDRESS	225 Wickline Road, Beaver OH 45613	ADDRESS	226 Atlantic Ave, Clayton, NJ 08312
		TELEPHONE NUMBER	(856)881-2345
		FAX NUMBER	(856)881-6859

SECTION II - COMPOSITION/INFORMATION ON INGREDIENTS

CAS# / EINECS#	COMPONENT	PERCENTAGE	EU CLASSIFICATION (67/548/EEC)
14808-60-7 / 238-878-4	Crystalline Silica in the form of Quartz	87 - 99.9%	Xn R48/20

Refer to section 16 for further information on EU Classification.

See Section 8 for occupational exposure limit information

SECTION III - HAZARDS IDENTIFICATION

This product is a chemically inert, non-combustible mineral.

EMERGENCY OVERVIEW

WARNING!

Lung injury and cancer hazard. Do not breathe dust. May cause delayed lung injury. 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 crystalline silica can cause lung cancer in humans. Risk of injury is dependent on the duration and level of exposure. A single exposure will not result in serious adverse effects.. See "Health Hazards" in Section XI for detailed information. See exposure limit presentation in Section VIII for further information.

Avoid creating dust when handling, using or storing. Use only with adequate ventilation to keep exposure below recommended exposure limits.

EU Classification of Substance/Preparation: Harmful (Xn) R48/20

SECTION IV - FIRST AID MEASURES

GROSS INHALATION	Remove victim to fresh air. If breathing has stopped, perform artificial respiration. If breathing is difficult have qualified personnel administer oxygen. Get prompt medial attention.
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.
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 immediate medical attention.
INGESTION	If large amounts are swallowed, get immediate medical attention.

SECTION V - FIREFIGHTING MEASURES

EXTINGUISHING MEDIA	This product will not burn but is compatible with all extinguishing media. Use any media that is appropriate for the surrounding fire.
SPECIAL FIRE FIGHTING PROCEDURES	None required with respect to this product. Firefighters should always wear self-contained breathing apparatus for fires indoors or in confined areas.
UNUSUAL FIRE AND EXPLOSION HAZARDS	None
HAZARDOUS COMBUSTION PRODUCTS	None

SECTION VI - ACCIDENTAL RELEASE MEASURES

Wear appropriate protective equipment. If uncontaminated, collect using dustless method (HEPA vacuum or wet method) and place in appropriate container for use. 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 for appropriate disposal.

SECTION VII - HANDLING AND STORAGE

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. Use normal precautions against bag breakage or spills of bulk material. Do not use as a dry abrasive blasting agent. ANSI/AIHA Z9.4:1997 recommends that silica sand be prohibited as an abrasive blasting agent for use in fixed location abrasive-blast enclosures. Use good housekeeping in storage and use areas to prevent accumulation of dust in work area.

To reduce the risk of developing silicosis, lung cancer and other adverse health effects, the ACGih recommends that the

industrial hygienist use every means available to keep exposures below the recommended TLV. NIOSH recommends reducing airborne exposure levels as low as possible below NIOSH's recommended exposure limit, substituting less hazardous materials when feasible, using appropriate respiratory protection when source controls cannot keep exposures below the recommended limit and making medical examinations available to exposed workers.

Use adequate ventilation and dust collection. To minimize exposure, wear a respirator approved for silica dust when using, handling, storing or disposing of this product or bag. Refer to the most recent standards of ANSI (Z88.2), OSHA (29 CFR 1910.134), MSHA (30 CFR Parts 56 and 57) and NIOSH Respirator Decision Logic. Maintain, clean and fit test respirators in accordance with OSHA regulations. Maintain and test ventilation and dust collection equipment. Launder clothing that has become dusty. Empty containers (bags, bulk containers, storage tanks, etc.) retain silica residue and must be handled in accordance with the provisions of this Material Safety Data Sheet. **WARN and TRAIN** employees in accordance with state and federal regulations.

WARN YOUR EMPLOYEES (AND YOUR CUSTOMERS AND USERS IN CASE OF RESALE) BY POSTING, AND OTHER MEANS, OF THE HAZARDS AND OSHA AND ANY OTHER APPLICABLE REGULATORY PRECAUTIONS TO BE USED. PROVIDE TRAINING FOR YOUR EMPLOYEES ABOUT OSHA PRECAUTIONS.

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".

Additional information on silica hazards and precautionary measures can be found at the following websites:

NIOSH Joint Campaign on Silicosis Prevention http://www.cdc.gov/niosh/topics/silica/#campaign

OSHA Crystalline Silica Website http://www.osha.gov/SLTC/silicacrystalline/index.html

MSHA Silicosis Prevention Website http://www.msha.gov/S&HINFO/SILICO/SILICO.HTM

NIOSH Hazard Review-Health Effects of Occupational Exposure to Respirable Crystalline Silica Website http://www.cdc.gov/niosh/docs/2002-129-02-129a.html

SECTION VIII - EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure Limits

Definitions

MSHA means Mine Safety and Health Administration.

NIOSH means National Institute for Occupational Safety and Health.

OSHA means Occupational Safety and Health Administration.

PEL means OSHA Permissible Exposure Limit.

REL means the NIOSH recommended Exposure Limit.

TLV means American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Value.

TWA means time-weighted average.

OSHA PEL AND MSHA Exposure Limit for Crystalline Silica, Quartz	$10 mg/m^3$
(respirable measured as an 8-hour TWA)	% Silica + 2

TLV - 0.025 mg/m3 8-hour TWA (respirable fraction)

In 2006 the ACGIH lowered the TLV for Silica, Crystalline: α-Quartz and Cristobalite to 0.025 mg/m^3 stating in the *Documentation of the TLV* "Because the time between exposure and signs of fibrosis is characteristically very long, as much as 30 to 40 years, the margin of safety for exposure to crystalline silica at the proposed TLV-TWA is not known precisely. Given the observed association between silicosis and lung cancer, it is recommended that air concentrations be maintained as far below the proposed TLV as prudent practices permit. The recommended TLV-TWA of 0.025 mg/m^3, respirable particulate mass, is intended to prevent pulmonary fibrosis that may be a risk factor for lung cancer. An A2, Suspected Human Carcinogen, notation is based on the demonstrated association between lung cancer and the presence of silicosis." The documentation further states "A lack of toxicological and industrial hygiene data does not permit the recommendation of a TLV-STEL. However, it should be noted that high exposures of short duration to freshly fragmented crystalline particles do produce an acute and rapidly progressive form of silicosis. The reader is encouraged to review the section on *Excursion Limits* in the "Introduction to the Chemical Substances" of the current TLVs® and BEIs® book for guidance and control of excursions above the TLV-TWA, even when the 8-hour TWA is within the recommended limits"

NIOSH has issued its REL of 50 micrograms respirable free silica per cubic meter of air (0.05 mg/m^3) as determined by a full

shift sample up to 10-hour working day, 40 hours per week. NIOSH has recommended that OSHA and MSHA adopt the NIOSH REL as the OSHA PEL and the MSHA Exposure Limit. The 1974 NIOSH Criteria for a Recommended Standard for Occupational Exposure to Crystalline Silica should be consulted for more detailed information. Additionally, NIOSH, in a publication entitled NIOSH Hazard Review Health Effects of Occupational Exposure to Respirable Silica (April 2002), NIOSH Stated"...that workers have a significant risk of developing chronic silicosis when they are exposed to respirable crystalline silica over a working lifetime at the current Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL), the Mine safety and Health Administration (MSHA) PEL, or the National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL). ...Current sampling and analytical methods used to evaluate occupational exposure to respirable crystalline silica do not meet the accuracy criterion needed to quantify exposures at concentrations below the NIOSH REL of 0.05 mg/m^3 as a time-weighted average (TWA) for up to a 10-hour workday during a 40-hr workweek. Until improved sampling and analytical methods are developed for respirable crystalline silica, NIOSH will continue to recommend an exposure limit of 0.05 mg/m^3 to reduce the risk of developing silicosis, lung cancer, and other adverse health effects. NIOSH also recommends minimizing the risk of illness that remains for workers exposed at the REL by substituting less hazardous materials for crystalline silica when feasible, by using appropriate respiratory protection when source controls cannot keep exposures below the NIOSH REL, and by making medical examinations available to exposed workers."

Crystalline silica exists in several forms, the most common of which are quartz (i.e. this poduct), trydimite 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 trydimite and if quartz is heated to more than 1450°C, it can change form to cristobalite. The OSHA PELs and MSHA Exposure Limits for trydimite and cristobalite are one-half of the PEL for quartz.

Ventilation	Use local exhaust as required to maintain exposures as far as possible below applicable occupational exposure limits. See also ACGIH "Industrial Ventilation - A Manual for Recommended Practice" (current edition). control of exposure to dust must be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general or local exhaust ventilation and substitution of less toxic materials).
Respiratory Protection	When effective engineering controls are not feasible, or while they are being implemented, appropriate respiratory protection must be used. Use appropriate respiratory protection for respirable particulates based on consideration of airborne workplace concentrations and duration of exposure arising from intended end use. Refer to the most recent standards of ANSI (Z88.2), OSHA (29 CFR 1910.134), MSHA (30 CFR Parts 56 and 57) and NIOSH Respirator Decision Logic.
Gloves	Protective gloves recommended
Eye Protection	Safety glasses or goggles recommended
Other Protective Equipment/Clothing	As appropriate for the work environment. Dusty clothing should be laundered before reuse.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor White powder, odorless

pH	Not applicable	Specific Gravity (water=1)	2.65
Boiling Point	4046°F / 2230°C	Vapor Pressure	Not applicable
Melting Point	2930°F / 1610°C	Vapor Density	Not applicable
Solubility in Water	Negligible	Evaporation Rate	Not applicable
Percent Volatile	0%	Flash Point (Method Used)	Fully oxidized, will not burn
Autoignition Temp	Will not burn	Flammable Limits LEL	Not applicable
		UEL	Not applicable

SECTION X - STABILITY AND REACTIVITY

Stability Stable

Conditions to Avoid None

Incompatibility Powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, etc.

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

Hazardous Polymerization Will not occur

Conditions to Avoid None