

Material Safety Data Sheet

SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: Hydro-Sand

Part Number: none

Chemical Family: silica, quartz

Manufacturer's Name: Siemens Industry, Inc. - Water Technologies Business Unit

Address: 301 West Military Road, Rothschild, WI 54474

Product/Technical Information Phone Number: 800-826-1838

Medical/Handling Emergency Phone Number: CHEMTREC 1-800-424-9300
24 hours a day

Transportation Emergency Phone Number: CHEMTREC 1-800-424-9300
24 hours a day

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SECTION 2 – COMPOSITION INFORMATION

<u>Chemical Name</u>	<u>Percent by Weight</u>	<u>CAS#</u>
Silica, Crystalline Quartz	100%	14808-60-7

Specific Chemical Identity: Silicon Dioxide SiO₂

Common Names: Silica, Sand, Silica Sand, Crystalline Silica, Quartz, Ground Silica, Safety Sand, Class A Fill, Silica Stone, Gravel, Trapsand, Blasting Sand, Engine Sand, Filter Sand, Flume Sand, Shaft Blend, Traction Sand, Ferro 400, Euco 456, Euco 1500, Euco 2500.

SECTION 3 – HAZARDS IDENTIFICATION

Appearance & Odor: Tan to off-white sand or pebbles. No odor or taste.

Emergency Overview: Prolonged exposure to respirable crystalline quartz may cause delayed (chronic) lung injury (silicosis). Acute or rapidly developing silicosis may occur in a short period of time in heavy exposure in certain occupations such as sandblasters. Silicosis is a form of disabling pulmonary fibrosis which can be progressive and may lead to death.

Fire & Explosion Hazards: None, Silica sand may be used to extinguish certain classes of fires.

Primary Route(s) of Exposure: inhalation and eye contact

Inhalation – Acute Effects: Inhalation of dust will cause coughing and respiratory tract irritation. May also cause undue breathlessness, wheezing and sputum production.

Skin Contact – Acute Effects: This product is not known to be hazardous through skin contact.

Eye Contact – Acute Effects: Eye contact may cause irritation.

Ingestion – Acute Effects: This product is not known to be hazardous if ingested.

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SECTION 4 – FIRST AID MEASURES

Inhalation First Aid: For gross inhalation, remove person immediately to fresh air, give artificial respiration as needed, seek medical attention as needed. Drink water to clear throat and blow nose to evacuate dust.

Skin Contact First Aid: Wash skin vigorously with flowing water. Clothing should be washed before reuse.

Eye Contact First Aid: Immediately irrigate eyes with flowing water continuously for 15 minutes while holding eyes open. Contacts should be removed before or during flushing. Seek medical assistance if irritation develops. DO NOT instruct person to neutralize.

Ingestion First Aid: No hazards when ingested.

Medical Conditions Aggravated: Pre-existing upper respiratory and lung disease such as, but not limited to bronchitis, emphysema, and asthma may be aggravated by exposure. Pulmonary function may be reduced by inhalation of respirable crystalline silica. In addition, lung scarring produced by such inhalation may lead to a progressive massive fibrosis of the lung (silicosis) which may aggravate other pulmonary conditions and diseases and which increases susceptibility to pulmonary tuberculosis. Progressive massive fibrosis may be accompanied by right heart enlargement, heart failure and pulmonary failure. Smoking aggravates the effect of exposure.

Note to Physician: Treat patient symptomatically.

SECTION 5 – FIRE FIGHTING MEASURES

Flash Point/Method: Non-Flammable

Auto Ignition Temperature: None

Upper/Lower Explosion Limits: None

Extinguishing Media: None required; sand may be used as extinguishing media.

Fire Fighting Procedures: Not applicable.

Fire & Explosion Hazards: None, Silica sand may be used to extinguish certain classes of fires.

Hazardous Products of Decomposition and/or Combustion: Silica will dissolve in Hydrofluoric acid and produce a corrosive gas – silicon tetrafluoride.

NFPA Ratings:

HEALTH: 2

FLAMMABILITY: 0

REACTIVITY: 0

OTHER: none

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SECTION 6 – ACCIDENTAL RELEASE MEASURES

Clean up spills in a manner that does not disperse dust into the air. Take up with broom and place in container for later disposal. Dampen to reduce dust. Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure, and removal of material from eyes, skin, and clothing. **DO NOT DUMP INTO ANY SEWERS, ON THE GROUND OR INTO ANY BODY OF WATER.** All disposal methods must be in compliance with all Federal, State, Local and Provincial laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

SECTION 7 – HANDLING AND STORAGE

Handling: Avoid breakage of bagged material or spills of bulk material. Avoid dispersion into air. Keep containers dry and closed. Follow good handling and housekeeping practices to minimize spills, generation of airborne dusts, and accumulation of dusts on exposed surfaces. Use with adequate exhaust ventilation to draw dust away from workers' breathing zones. Prevent or minimize exposures to dusts by using appropriate respirators, gloves, and eye protection. Wash exposed skin areas thoroughly with soap and water

Storage: Store in ambient atmospheric conditions. Product should be stored in a closed dry container. Maintain good housekeeping procedures.

General Comments: Use dustless systems for handling, storage, and clean up so that airborne dust does not exceed PEL. Use adequate ventilation and dust collection. 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 which has become dusty.

See OSHA Hazard Communication Rule 29 CFR Sections 1910, 1200, 1915.99, 1917.28, 1918.90, 1926.59, and 1928.21, and state and local worker or community "right to know" laws and regulations. We recommend that smoking be prohibited in all areas where respirators must be used. **WARN YOUR EMPLOYEES (AND YOUR CUSTOMERS—USERS IN CASE OF RESALE) BY POSTING AND OTHER MEANS OF THE HAZARD AND OSHA PRECAUTIONS TO BE USED. PROVIDE TRAINING FOR YOUR EMPLOYEES ABOUT THE OSHA PRECAUTIONS.**

See also American Society for Testing and Material (ASTM) standard practice E 1132-86, "Standard Practice for Health Requirements Relating to Occupational Exposure to Quartz Dust."

SECTION 8 – PERSONAL PROTECTION/ EXPOSURE CONTROL

Respiratory Protection: The following chart specifies the types of respirators that may provide respiratory protection for crystalline silica.

RESPIRATORY PROTECTION FOR CRYSTALLINE SILICA

Particulate Concentration 5 x PEL or Less	Any dust respirator
50 x PEL or Less	A high efficiency particulate filter respirator with a full face piece.

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	Any supplied-air respirator with a full face piece, helmet or hood. Any self-contained breathing apparatus with a full face piece.
500 x PEL or Less	A powered air-purifying respirator with a high efficiency particulate filter. A Type C supplied-air respirator operated in pressure-demand or other positive pressure or continuous-flow mode.
Greater than 500 x PEL or entry and escape from unknown concentrations	Self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive pressure mode. A combination respirator which includes a Type C supplied-air respirator with a full face piece operated in pressure-demand or other positive pressure continuous-flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Abrasive Breathing	Any type CE, supplied-air respirator with a full face piece, hood, or helmet operated in a positive-pressure mode.
*Only NIOSH-approved or MSHA-approved equipment should be used.	

See also ANSI standard Z88.2-1980 "Practices for Respiratory Protection," and standard Z9.4-1984 "Ventilation and Safe Practices of Abrasive Blasting Operations."

Skin Protection: Uniforms or other protective clothing and rubber gloves are recommended.

Eye Protection: Safety glasses with side shields are recommended for any type of handling. Where eye contact or dusty conditions may be likely, dust tight goggles are recommended. Have eye flushing equipment available.

Ventilation Protection: Use sufficient exhaust to reduce the level of respirable crystalline silica to the PEL. See ACGIH "Industrial Ventilation, A Manual of Recommended Practice," the latest edition.

Other Protection: Avoid creating and breathing dust. Eye wash fountains, or other means of washing the eyes with a gentle flow of cool to tepid tap water, should be readily available in all areas where this material is handled or stored.

Exposure Limits:

OSHA PEL: Exposure to airborne crystalline silica shall not exceed an 8-hour time-weighted average limit as stated in 29 CFR § 1910.1000 Table Z-3 for Mineral Dusts, specifically, Silica:

Crystalline

Quartz (Respirable)	$\frac{\text{mppcf}}{250}$ $\% \text{ SiO}_2 + 5$	$\frac{\text{mg/m}^3}{10}$ $\% \text{ SiO}_2 + 2$
Quartz (Total Dust)	mppcf none	$\frac{\text{mg/m}^3}{30}$ $\% \text{ SiO}_2 + 2$

ACGIH TLV: Crystalline Quartz

TLV – TWA = 0.1 mg/m³ (Respirable Dust)

See Threshold Limit Value and Biological Exposure Indices

for 1987-1988 American Conference of Governmental Industrial Hygienists

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Other Limits Recommended: National Institute for Occupational Safety and Health (NIOSH) recommended standard maximum permissible concentration = 0.05 mg/m³ (respirable free silica) as determined by a full-shift sample up to 10-hour working day, 40-hour work week. See NIOSH Criteria for a Recommended Standard Occupational Exposure to Crystalline Silica.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Tan to off-white sand or pebbles. No odor or taste.

Vapor Pressure: not applicable

Vapor Density (Air=1): not applicable

Boiling Point: 4046°F

Melting Point: 3050°F

Specific Gravity: 2.65

Solubility in Water: insoluble in water

Volatile Percentage: not applicable

pH: not applicable

Flash Point/method: non-flammable

Auto Ignition Temperature: none

Upper/Lower Explosion Limits: none

SECTION 10 – STABILITY AND REACTIVITY

Stability: This product is considered stable under normal conditions of use and storage.

Incompatibilities: Contact with powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, may cause fires.

Polymerization: Hazardous polymerization will not occur.

Decomposition: Silica will dissolve in Hydrofluoric Acid and produce a corrosive gas – silicon tetrafluoride.

Conditions to Avoid: Avoid dispersion into air and incompatible materials. Prevent or minimize exposures to dusts by using appropriate respirators, gloves, and eye protection.

SECTION 11 – TOXICOLOGICAL INFORMATION

Inhalation – Acute: Inhalation of dust will cause coughing and respiratory tract irritation. May also cause undue breathlessness, wheezing and sputum production.

Inhalation – Chronic: Dust may effect the lungs resulting in fibrosis (silicosis).

Skin Contact – Acute: This product is not known to be hazardous through skin contact.

Skin Contact – Chronic: There are no known chronic dermal effects.

Eye Contact – Acute: Crystalline silica has been observed to cause fibrotic nodules in the eye analogous to pulmonary silicosis. An apparently unique report of involvement of the cornea in foundry workers who developed pulmonary silicosis has described gradual decrease in visual

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acuity due to corneal opacities in the pupillary area and has reported spectroscopic analytical evidence of an abnormally high silicon content in the cornea.

Ingestion – Acute: This product is not known to be hazardous if ingested.

Ingestion – Chronic: There are no known chronic ingestion effects.

Carcinogenicity/Mutagenicity: The International Agency for Research on Cancer (IARC) has classified crystalline silica inhaled in the form of quartz or cristobalite as a Group 1 carcinogen. A Group 1 carcinogen is an agent (mixture) which is carcinogenic to humans. The exposure circumstance entails exposures that are carcinogenic to humans. This category is used when there is sufficient evidence of carcinogenicity in humans.

Warning: This product contains Crystalline silica, a chemical known to the State of California to cause cancer.

Reproductive Effects: There are no known reproductive effects.

Neurotoxicity: There are no known neurotoxic effects.

Other Effects: There are no other known toxic effects.

Target Organs: This product affects the eyes and lungs.

SECTION 12 – ECOLOGICAL INFORMATION

This material, in its original state, is not harmful to the environment.

SECTION 13 – DISPOSAL CONSIDERATIONS

Material that cannot be used or chemically reprocessed and empty containers should be disposed of in accordance with all applicable regulations. Product containers should be thoroughly emptied before disposal. Generators of waste material are required to evaluate all waste for compliance the RCRA and any local disposal procedures and regulations. NOTE: State and local regulations may be more stringent than federal regulations.

SECTION 14 – TRANSPORTATION INFORMATION

Description: Not DOT regulated.

SECTION 15 – REGULATORY INFORMATION

CERCLA SECTION 103 (40CFR302.4): no RQ: none

SARA SECTION 302 (40CFR355.30): no

SARA SECTION 304 (40CFR355.40): no

SARA SECTION 313 (40CFR372.65): no

OSHA PROCESS SAFETY (29CFR1910.119): no

CALIFORNIA PROPOSITION 65: yes

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SECTION 16 – OTHER INFORMATION

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to silica. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws. Customers-users of silica must comply with all applicable health and safety laws, regulations and orders.