

MATERIAL SAFETY DATA SHEET

Norchem Silica Fume (Dry Powder-S)

SECTION III - PHYSICAL DATA

| | | | |
|-----------------------------|--|--------------------------|----------------|
| Physical State: | Amorphous sub-micron powder – dust has a tendency to agglomerate | | |
| Color: | Light gray to medium gray | Odor: | No Odor |
| Melting Point: | 1200°C - 1300°C* | Specific Gravity: | 2.2 – 2.50 |
| pH: | 6.0 to 9.0 | | Water = 1.0 |
| Solubility in Water: | Insoluble | Particle Size: | Approx. 0.4 µm |
| Bulk Density: | Approx. 8 to 45 lb/ft ³ or 128-720 kg/m ³ | | |
| Solubility Solvents: | Insoluble to slightly soluble in organic solvents | | |

*The melting point temperature is dependent on the type of amorphous silica as well as the source.

SECTION IV – STABILITY AND REACTIVITY DATA

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|----------------------------|---|
| Chemical Stability: | Stable will not react with water. |
| Incompatibility: | Silica fume is soluble in hydrofluoric acid (HF). |
| Decomposition: | Heating at temperatures above 500°C (930°F) for prolonged time periods will convert amorphous silica to crystalline phases. |

SECTION V - FIRE AND EXPLOSION HAZARD DATA

Silica Fume is non-combustible even when in a dust cloud and presents no danger of explosion.

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|--|------|-----------------------------|------|
| Flash Point: | N/A | Method Used: | N/A |
| Extinguishing Media: | N/A | Explosion Potential: | None |
| Special Fire Fighting Procedures: | None | Flammable Limits: | None |

SECTION VI – HEALTH HAZARD IDENTIFICATION DATA

Silica Fume is generally considered a nuisance dust of low toxicity. Use and handling of Silica Fume does not represent a health risk when normal safety rules are observed. Silica Fume when handled and stored in accordance with this document is unlikely to cause harmful effects. It is possible for Silica Fume to contain trace amounts (<0.5%) of crystalline silica, which has been shown to cause silicosis, and has been identified by IARC and NTP as a possible human carcinogen.

Route(s) of Entry: **Inhalation:** Yes **Skin:** No **Ingestion:** N/A **Eyes:** Yes

Acute and Chronic Toxicity:

| | |
|--------------------|--|
| Inhalation: | May cause coughing and shortness of breathe. |
| Ingestion: | Not recommended. No known adverse effects. |
| Eye: | May irritate eyes. |
| Skin: | Not absorbed through skin. Prolonged skin exposure may cause irritation, drying or abrasions, especially when wet. |

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SECTION VII – FIRST AID MEASURES

Inhalation: If inhaled to excess remove exposed person to a ventilated area or fresh air.
Skin Contact: Wash skin with water and mild soap.
Ingestion: Obtain first aid or medical assistance immediately.
Eye Contact: Flush eyes with water and carefully rinse under the eyelids. Obtain medical assistance, if needed.

SECTION VIII – SAFE HANDLING AND STORAGE

Normal Storage: General storage, best in closed containers, ambient air temperature, keep dry.
Handling Precautions: Avoid generating dust. Handle with adequate ventilation for dust. See OSHA 29 CFR 1910-94 (Ventilation)

SECTION IX – EXPOSURE CONTROL & PERSONAL PROTECTION

Engineering Control: Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposures below PELs or TLVs in processing areas.
Respiratory Protection: Use 42 CFR 84 NIOSH/MSHA approved respirators when airborne concentrations equal or exceed the Permissible Exposure Limit.
Skin Protection: Gloves are recommended.
Eye Protection: Use safety glasses with side shields. If the potential for exposure to particles (airborne dust) which could cause mechanical injury to the eye wear safety goggles.

SECTION X – TOXICOLOGICAL INFORMATION

A. Acute Effects:

Inhalation: Airborne Silica Fume dust generated by the use or handling of this product may result in respiratory irritation.
Ingestion: Silica Fume dust may irritate and dehydrate throat and mouth.
Eye Contact: Silica Fume dust may cause eye irritation and dryness.
Skin Contact: Silica Fume dust may cause exposed skin irritation and dryness.

B. Chronic Effects:

Silica Fume is generally considered a nuisance dust of low toxicity consequently it is considered to pose minimal risk of pulmonary fibrosis (silicosis). Avoid prolonged exposure to silica fume dust concentrations above the recommended exposure limits, unless the protective equipment is used.

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SECTION X – TOXICOLOGICAL INFORMATION (Con't.)

B. Chronic Effects (Con't.):

It is possible for Silica Fume to contain trace amounts (<0.5%) of crystalline silica, which has been shown to cause silicosis, and has been identified by IARC and NTP as a possible human carcinogen.

Heating Silica Fume at temperatures above 500°C (930°F) for prolonged time periods will convert amorphous silica to the crystalline phases Cristobalite and Tridymite that may cause silicosis. Increased temperatures will increase the formation rate of these phases.

SECTION XI – ECOLOGICAL INFORMATION

No adverse effects are expected. Silica Fume is not considered dangerous to the environment.

SECTION XII – ACCIDENTAL RELEASE & DISPOSAL CONSIDERATIONS

If Spilled: Collect using methods that minimize creation of airborne dust. High efficiency vacuum cleaning is recommended to recover spilled material. Place in suitable container for recycling or disposal.

Personal Safety: Observe health and safety precautions. Refer to Section IX.

Waste Disposal: Dispose of in accordance with applicable Federal, State and Local regulations.

SECTION XIII – TRANSPORTATION INFORMATION

USDOT: Not regulated as a hazardous material.

Identification: N/A

Classification: National Motor Freight Classification (NMFC): 50

SECTION XIV – REGULATORY INFORMATION

OSHA: Under 29 CFR 1910.1200 Hazard Communication Standard, this product is considered hazardous by definition.

TSCA: Toxic Substance Control Act (Title 40 CFR Part 710). Lists components of this product on the TSCA inventory.

CERCLA: Comprehensive Response Compensation and Liability Act (40 CFR part 302.4) does not list this product.

RCRA: Resource Conservation Recovery Act does not list this product.

SARA TITLE III: Superfund Amendments and Reauthorization Act:

311/312: Hazard Categories: Immediate health, delayed health.

313: Reportable Ingredients - none

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SECTION XIV – REGULATORY INFORMATION (Con't.)

CALIFORNIA PROPOSITION 65: This product may contain (crystalline silica) a chemical known to the State of California to cause cancer.

HAZARD

RATING SYSTEM: Hazardous Material Identification System (HMIS)

HEALTH = 1

FLAMMABILITY = 0

REACTIVITY = 0

PERSONAL PROTECTION = E – (see section IX)

SECTION XV – ADDITIONAL INFORMATION

All information, recommendations, and suggestions in this MSDS, concerning our products are based on tests and data believed to be reliable, it cannot be guaranteed. Since the actual use by others is beyond our control it is the user's responsibility to determine the safety, toxicity and suitability for their own use of the product described herein.