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MATERIAL SAFETY DATA SHEET*Norchem Silica Fume (Dry Powder-S)***SECTION I - PRODUCT INFORMATION**

Product Name:	Silica Fume, Amorphous	CAS No.	69012-64-2
Manufacturer:	Norchem, Inc. 985 Seaway Drive, Suite A Fort Pierce, Florida 34949		Globe Metallurgical, Inc. P.O. Box 157, County Rd. 32 Beverly, Ohio 45715
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EMERGENCY TELEPHONE: CHEMTREC 1-800-424-9300**Synonyms:** Amorphous Silica, Silicon Dioxide, Microsilica, Corrochem, Micropoz.**SECTION II - INGREDIENT INFORMATION & EXPOSURE LIMITS**

COMPONENTS:	CAS Registry #	Wt. %	OSHA-PEL	ACGIH-TLV
Silicon Dioxide (SiO ₂) – Amorphous	69012-64-2	> 85.0 ¹	N. E.	TLV-withdrawn
Silicon Dioxide (SiO ₂) – Amorphous	69012-64-2	< 85.0 ²	N. E.	TLV-withdrawn
Silicon Dioxide (SiO ₂) - Crystalline	14808-60-7	< 0.05	$\frac{10 \text{ mg/m}^3 \text{ **}}{\% \text{ SiO}_2 + 2}$	0.025 mg/m ^a

^a Measured as respirable fraction of the aerosol.¹ Silica Fume produced from silicon metal alloys.² Silica Fume produced from ferro silicon metal alloys.

**Respirable Dust

N.E. Not Established

Other Constituent Materials³:

COMPONENTS:	CAS Registry #	Wt. %
Carbon (C)	7440-44-0	< 6
Iron Oxide (Fe ₂ O ₃)	1309-37-1	< 2
Aluminum Oxide (Al ₂ O ₃)	1344-28-1	< 2
Sodium Oxide (Na ₂ O)	1313-59-3	< 2
Potassium Oxide (K ₂ O)	12136-45-7	< 2
Magnesium Oxide (MgO)	1309-48-4	< 2
Calcium Oxide (CaO)	1305-78-8	< 2

³ Manufacturer can provide a detailed elemental analysis including other trace elements. The (wt %) values will change if silica fume is from ferro silicon production.

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SECTION III - PHYSICAL DATA

Physical State:	Amorphous sub-micron powder – dust has a tendency to agglomerate		
Color:	Light gray to medium gray	Odor:	None
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

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.				
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 (<0.05%) 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: No data available

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.

It is possible for Silica Fume to contain trace amounts (<0.05%) of crystalline silica, which has been shown to cause silicosis, and has been identified by IARC and NTP as a possible human carcinogen.

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SECTION X – TOXICOLOGICAL INFORMATION (Con't.)

B. Chronic Effects (Con't.):

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

SARA 311/312 (RTK):	
This product has been reviewed according to the EPA “Hazard Categories” promulgated under Sections 311 and 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:	
Not Applicable	
SARA 313:	
This product contains the following substance subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and CFR Part 372:	
This product contains no chemicals subject to the SARA 313 supplier notification requirements.	

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SECTION XIV – REGULATORY INFORMATION (Con't.)

CERCLA:	
CERCLA section 103a specifically requires the person in charge of a vessel or facility to report immediately to the National Response Center (NRC) a release of hazardous substance whose amount equals or exceeds the assigned RQ.	
No CERCLA chemicals exist in this product above reportable concentrations.	
TSCA Section 12(b) Export Notification:	
This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States.	
There are no TSCA 12(b) Chemicals in this product.	
California Proposition 65:	
This product may contain (crystalline silica) a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.	
It is possible for Silica Fume to contain trace amounts < 0.05% of crystalline silica.	
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.