



## SILICA FUME -TECHNICAL DATA SHEET

**SILICA FUME** is a very fine pozzolanic material, composed of amorphous silica produced by electric arc furnaces as a byproduct of the production of elemental silicon or ferro silicon alloys.

**SILICA FUME** can be used in a variety of applications such as concrete, grouts, mortars, fibre cement products, refractory, oil/gas well cements, ceramics, elastomer, and polymer applications.

**SILICA FUME** is produced in conformance with the ASTM C-1240 specifications. The quality is controlled and monitored throughout the entire production process to ensure that it meets or exceeds specification requirements.

PROPERTIES	
State	Amorphous - Sub-micron powder
Color	Gray to medium gray powder
Specific Gravity	2.25
Solubility	Insoluble
Bulk Density - Densified (bulk and bagged products)	41 to 48 lb/ft <sup>3</sup> (655 to 770 kg/m <sup>3</sup> )
Bulk Density - Undensified (bulk & paper bags)	16 to 22 lb/ft <sup>3</sup> (256 to 352 kg/m <sup>3</sup> )
Bulk Density - Undensified (supersacks)	22 to 26 lb/ft <sup>3</sup> (252 to 416 kg/m <sup>3</sup> )

SPECIFICATIONS		
Chemical Requirements	ASTM	Typical
Silicon Dioxide (SiO <sub>2</sub> ) %	85.0 % Minimum	93.74 %
Moisture Content %	3.0 % Maximum	0.45 %
Loss on Ignition (LOI) %	6.0 % Maximum	3.75 %
Physical Requirements	ASTM	Typical
Oversize percent retained on 45-µm (325 sieve)	10.0 % Maximum	1.91 %
Accelerated Pozzolanic Strength Activity Index with Portland cement (7 day)	105.0 % Minimum	139 %
Specific Surface	15 m <sup>2</sup> /g Minimum	22.49 m <sup>2</sup> /g

### POZZOLANIC REACTION IN A CEMENTITIOUS SYSTEM

**SILICA FUME** in contact with water goes into solution within an hour. The silica in solution forms an amorphous silica rich, Ca poor, gel on the surface of the silica fume particles and agglomerates. After time the silica rich, Ca poor, coating dissolves and the agglomerates of silica fume reacts with free lime (CaOH<sub>2</sub>) to form calcium silicate hydrates (CSH). This reaction is called the *pozzolanic reaction*.

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## PACKAGING, STORAGE AND HANDLING

PRODUCT FORM	PACKAGING	WEIGHT
Silica Fume – Densified	Bulk Truckload	46,000 lbs. max
	Super Sack	2,200 lbs.
	Paper Bag	50 lbs.
Silica Fume - Undensified	Paper Bag	25 lbs.
	Super Sack	1,000 lbs.
	Paper Bag	50 lbs.

## STORAGE

**SILICA FUME** should be kept dry, out of weather and the elements.

## SAFETY AND HANDLING PRECAUTIONS

**SILICA FUME** is generally considered a nuisance dust. Use and handling of silica fume does not represent a health risk when normal safety rules are observed. Direct contact may cause irritation of eyes. Prolonged contact may cause skin irritation. Inhalation may cause respiratory irritation resulting in coughing and shortness of breath. This product may be harmful if swallowed. Do not get in eyes and avoid prolonged skin contact. Do not take internally. Wash thoroughly with water after handling. For more detail, see our **SDS**.

## WARRANTY STATEMENT

The information given here is based on our best knowledge, and we believe it to be true and accurate. Norchem assumes no responsibility for the use of these statements, recommendations or suggestions, nor are they intended as a recommendation for any use, which would infringe any patent or copyright.



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