



NORCHEM, INC.

www.norchem.com

985 Seaway Drive, Suite A • Ft. Pierce, Florida 34949-2744
Tel (772) 468-6110 • Fax (772) 468-8702

P.O. Box 5537 • Hauppauge, New York 11788-0132
Tel (631) 724-8639 • Fax (631) 724-8645

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 cementitious products such as concrete, grouts, and mortars as well as elastomer, polymer, refractory, ceramic and rubber 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 | 2.10 to 2.40 |
| Solubility | Insoluble |
| Bulk Density - Densified | 38 to 45 lb/ft ³ (608 to 720 kg/m ³) |
| Bulk Density - Undensified "as produced" | 12 to 20 lb/ft ³ (192 to 320 kg/m ³) |
| SPECIFICATIONS | |
| Silicon Dioxide (SiO ₂) % | Minimum 85 % |
| Moisture Content % | Maximum 3.0 % |
| Loss on Ignition (LOI) % | Maximum 6.0 % |
| Oversize percent retained on 45-μm (325 sieve) | Maximum 10.0 % |
| 7 day Pozzolanic strength activity index | Minimum 105 % |
| Specific Surface | Minimum 15 m ² /g |

MECHANISM OF SILICA FUME'S 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 (CaOH₂) to form calcium silicate hydrates (CSH). This reaction is called the *pozzolanic reaction*.

SILICA FUME - DATA SHEET

PACKAGING, STORAGE AND HANDLING

| PRODUCT FORM | PACKAGING | WEIGHT |
|---------------------------|-------------------------|-------------------|
| Silica Fume – Densified | Bulk Truckload | 40 to 44,000 lbs. |
| | Super Sack - Short Ton | 2,000 lbs. |
| | Super Sack - Metric Ton | 2,200 lbs. |
| | Paper Bag | 50 lbs. |
| | Paper Bag | 25 lbs. |
| Silica Fume - Undensified | Super Sack | 900 to 1300 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. 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 **MSDS**.

WARRANTY STATEMENT

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



Where Ideas Are Concrete!