

## **Silica Fume (Microsilica)**

### **Technical Data Sheet**

#### **Description**

Silica Fume(microsilica) is a high performance concrete additive. Densified silica fume powdered product, is derived as a by-product from the production of Ferro Silicon using the arc furnace method. Silica fume is used in pre-mixed concrete for enhancing mechanical properties of concretes with special performance requirements, including increased strength, reduced permeability, improved abrasion resistance and increased corrosion resistance.

There are two forms of silica fume according to production process, one is full densified, the bulk density is 500kg-700kg/cbm, and another form is half densified, the bulk density is 300-400kg/cbm.

And the SiO<sub>2</sub> content in the silica fume is 92%.min

#### **Typical Uses.**

Silica Fume can be used to produce all grades of concretes. The chemical and physical properties of Silica fume can greatly enhance the strength performance and the bonding properties of concrete.

Silica fume can be used in various applications and projects: Commercial, Civil, Mining and Marine projects. Silica Fume is suitable for inclusion in general concrete mix designs and in particular has application in high strength performance concretes and shotcrete/spray mixes.

#### **Advantages**

The addition of Silica Fume can provide;

- Increase compressive strength
- Increase abrasion resistance
- Enhanced sulphate resistance
- Reduces chloride ion permeability
- Enhanced resistance to chemical attack and deterioration
- Improved durability
- Increase bond strength

#### **Dosages**

The dosage rate for Silica fume will vary depending on the mix design requirements. Users should determine applicable rates of usage for their purpose. This is best achieved by trial mixes. Typical dose rates range from 5% – 10%. Some users will consider the material a cement replacement, others will consider as additional pozzolanic material

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## Compatibility

Silica Fume is compatible and effective in concrete containing all types of Portland, and blended cement which may include Supplementary Cementitious Materials such as fly ash and Granulated Ground Blast Furnace Slag. Silica fume is also suitable for use with chemical admixtures such as water-reducing, accelerating and retarding admixtures which comply to AS 1478.1

## Specification

| Items                                    | Full densified            | Half Densified            |
|--|---------------------------|---------------------------|
| Appearance                               | Gray and off-white powder |                           |
| SiO <sub>2</sub> (%)                     | ≥92%                      | ≥92%                      |
| LOI                                      | 3%max                     | 3%max                     |
| Bulk Density(densified)                  | 500-700kgs/m <sup>3</sup> | 300-400kgs/m <sup>3</sup> |
| Moisture (%)                             | 3%max                     | 3%max                     |
| Specific Surface Area(m <sup>2</sup> /g) | 15                        |                           |
| Retained on 45 micron sieve (%)          | 10%max                    | 3%max                     |

## Packing

Silica Fume is supplied in;  
1000 kg bulk bags(jambo bag),2bags/pallet  
Quantity in FCL:20MT/20' (Full densified)

## Safe Handling

Silica Fume is classified as hazardous according to the NOHSC criteria and represents a dust hazard that may cause irritation. Users should consult the MSDS for information regarding health and safety.

## Warranty

The products supplied to be free of material defects and to be of a consistent quality. Should any product be proven to be defective, the liability of the manufacturer shall be limited to the replacement of the product ex-factory. The manufacturer gives no warranty as to the fitness of the products for any particular purpose. The user shall determine the suitability of the product for its intended use;

## Contacts

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