CONCRETE TECHNOLOGY COMPANY

Densified Silica Fume

Description:

SILICA FUME is a by-product of producing silicon metal or ferrosilicon alloys. **SILICA FUME** consists primarily of amorphous (non-crystalline) silicon dioxide SiO_2. The individual particles are extremely small, approximately $1/100^{th}$ the size of an average cement particle. Because of the fine particles, large surface area, and the high SiO_2 content, **SILICA FUME** is very reactive pozzolan contributing to high strength and enhanced durability of concrete elements.

Properties:

Chemical properties	
Silica SiO_2	>85%
Loss on Ignition	<6.0%
Physical properties	
Moisture content (%)	<3.0%
Over size (% retained on 45 micron sieve)	<10%
Pozzolanic activity index (%) – 7 days accelerated curing	>105%
Specific surface area (m^2/g)	>15 m^2/g
Bulk density kg/m3	500-700

Standards Compliance:

SILICA FUME complies with ASTM C1240.

Influence on Concrete Properties:

Due to the nature and size of the silica fume, a small addition to a concrete mix will produce marked changes in both chemical and physical properties:

- Increased cohesiveness of concrete
- Greater mobility of the mix
- Less susceptibility to segregation and less bleed water produced
- Enhanced constructability (fast –track finishing)
- Improved bond between fresh newly placed concrete and old hardened concrete
- Increased concrete strength reduced permeability and improved resistance to chlorides and chemical attacks.

Dosage:

The dosage varies between 5% to 15% by weight of cement depending on its application.

Estimating Supply:

SILICA FUME is supplied in 900 or 950 kg jumbo bags.

Shelf Life/ Storage:

SILICA FUME product shall be stored in a dry place and protected from environment effects.

Safety Precautions:

Care should be taken in all operations involving silica fume before its addition into the concrete to avoid creating dust. **SILICA FUME** may cause irritation; therefore, avoid contact with skin and eyes.

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