شركة أسس الشرق الأوسط لتجارة المواد الإنشائية ذ.م.م
MIDDLE EAST FOUNDATIONS Co.
FOR CONSTRUCTION MATERIALS TRADING W.L.L.
الرقم الوطني 200214967

OSOS-3M Silica Fume MS-75

Product Description

OSOS-3M SilicaFume MS-75 is a powder mineral admixture composed of submicron particles of silicon dioxide and manufactured as a co-product from the production of silicon and ferrosilicon metal. When added to concrete, **OSOS-3M SilicaFume MS-75** acts as both a micro filler, improving the physical structure by occupying the spaces between the cement particles and as a 'pozzolan,' reacting chemically to impart far greater strength and durability to concrete.

When added to precast and ready-mixed concrete, **OSOS-3M SilicaFume MS-75** produces high-performance, high-strength concrete with an increased life-span and improved structural economics.

OSOS-3M SilicaFume MS-75 is ideal for use in structures exposed to chemical and environmental attack.

OSOS-3M SilicaFume MS-75 conforms to ASTM C-1240 for use in concrete applications.

Technical Specifications / Astm Standards

Parameter	OSOS-3M SilicaFume MS-75	ASTM C-1240
pH	7.1–7.8	8.20 max
Moisture	0.2–1.9%	3.0% max
Surface Area	20–27 m^2/g	15 m^2/g
Bulk Density	600–700 kg/m^3	—
SiO_2	85–93% min.	85.00% min
Al_2O_3	0.62–0.78%	—
Fe_2O_3	0.21–0.35%	—
CaO	0.37–0.88%	1.0% max
MgO	0.65–0.88%	5.0% max
SO_3	0.1–2.2%	3.0% max
Loss on Ignition	1.5–3.0%	6.0% max
Na_2O	0.2–0.5%	1.5% max
K_2O	0.3–0.50%	—
Cl^-	0.04–0.50%	1.0% max
C	0.08–1.5%	4.0% max

Advantages

- Prevents reinforcing steel corrosion in concrete due to its extremely low permeability to chloride ion intrusion and high electrical resistivity.
- Greater impermeability, barring the ingress of moisture, chemicals, and other contaminants.
- High early strengths, ensuring increased efficiency and greater cost effectiveness in the production of pre-stressed and precast concrete.
- High ultimate compressive strengths (8,000 to 20,000 psi), proportionate to the amount of **OSOS-3M SilicaFume MS-75** and the water-to-cementitious ratio.
- Substantially greater resistance to corrosion, abrasion and erosion, chemical attack, and freeze/thaw damage.

Dosages

OSOS-3M SilicaFume MS-75 typical dosage levels range from 7.0 to 10% by weight of cement. With an addition of 15 percent, the potential exists for very strong, brittle concrete. It increases the water demand in a concrete mix; however, dosage rates of less than 5 percent will not typically require a water reducer. High replacement rates will require the use of a high range water reducer.

Compatibility/Addition

Although **OSOS-3M SilicaFume MS-75** is compatible with other concrete admixtures, but as known each admixture has to be added separately to the concrete using suitable equipment.

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Applications

Effects on Air Entrainment and Air-Void System of Fresh Concrete

The dosage of air-entraining agent needed to maintain the required air content when using **OSOS-3M SilicaFume MS-75** is slightly higher than that required for conventional concrete because of the high surface area and the presence of carbon. This dosage increases with increasing amounts of **OSOS-3M SilicaFume MS-75** content in concrete.

Effects on Water Requirements of Fresh Concrete

OSOS-3M SilicaFume MS-75 added to concrete by itself increases water demand, often requiring the addition of a water-reducing admixture. This issue can easily be compensated for by using one of the concrete admixture products from OSOS-3M

Effects on Consistency and Bleeding of Fresh Concrete

Concrete incorporating more than 10% **OSOS-3M SilicaFume MS-75** becomes sticky; in order to enhance workability, the initial slump should be increased. **OSOS-3M SilicaFume MS-75** reduces bleeding because of its effect on rheologic properties.

Effects on Freeze-Thaw Durability of Hardened Concrete

Experimental results indicate that the use of **OSOS-3M SilicaFume MS-75** has no significant effect on the production and stability of the air-void system. Freeze-thaw testing conducted in accordance with ASTM C666 on silica fume concrete has demonstrated acceptable performance.

Effects on Permeability of Hardened Concrete

The addition of **OSOS-3M SilicaFume MS-75** to concrete reduces its permeability. Rapid chloride permeability testing conducted on silica fume concrete containing 8% product replacement showed that the addition of silica fume significantly reduces chloride permeability. This reduction is primarily attributed to the increased density of the concrete matrix resulting from the presence of silica fume.

Packaging

OSOS-3M SilicaFume MS-75 is available in 1000 kg to 1500 KG UV-coated, moisture-resistant bags on pallets. Bulk tankers with capacities of 20 to 25 tons are also available upon request.

HEALTH, SAFETY & HANDLING

OSOS-3M SilicaFume MS-75 is unlikely to cause harmful effects when handled and stored as advised. However, like other chemicals, the product should not be swallowed, inhaled, or allowed to come into contact with the body and eyes. Protective clothing should be worn when handling the product, such as goggles and gloves.

If swallowed, seek medical consultation immediately and do not induce vomiting.

If inhaled, remove the exposed person from dusty areas to fresh air. If discomfort persists, seek medical attention.

Eye and skin splashes should be washed thoroughly with plenty of water and a mild detergent.

FIRE RISKS

Although **OSOS-3M SilicaFume MS-75** is non-flammable, it should be stored away from combustible materials.

Please refer to the MSDS for further details.

STORAGE & DISPOSAL

OSOS-3M SilicaFume MS-75 is not flammable but should be stored away from acids in a well-ventilated place below 50°C.

OSOS-3M SilicaFume MS-75 is not classified as hazardous waste.

Please contact the local waste regulatory authority for guidance on disposal methods.

TECHNICAL SUPPORT

For further information about the product, addition, storage, mixing, concrete field advice, please contact your OSOS-3M consultant or local agent