

DENSIFIED MICROSILICA

Description

FCSC Microsilica is composed of silicon dioxide (SiO₂), collected from silicon metal and ferrosilicon. FCSC Microsilica will react with the Calcium Hydroxide from the cement, which will form more of the Calcium Silicate hydrate, increasing the strength of the concrete. Using FCSC Microsilica will also increase the durability of the concrete.

Uses

- Shotcrete concrete
- Structural concrete
- Readymix concrete
- Project requiring High strength/High performance Concrete
- FCSC Microsilica used where high demands are imposed on the quality of fresh and Hardened concrete.

Advantages

- Increased cohesiveness and reduced bleeding
- Increased ultimate strength
- Increased modulus of elasticity.
- Eliminate steam curing, savings on heating cost
- Shotcrete usage.
- Less material wastage and greater efficiency of product use.
- High impermeability and significantly less rebound
- Reduced chloride penetration and increased resistance to sulphate attack and alkali silica reactivity.

Consumption/dosage

Typical 5 to 10% by weight of cement

Technical Data

| | |
|------------------------|---------------------------|
| State | Grey powder |
| SiO ₂ | >85% |
| Specific gravity | 2.1 to 2.4 |
| Dry bulk density | 500-700 kg/m ³ |
| Loss on ignition | Max 4% |
| Retention on 45 micron | Max 10% |
| Available alkalis | Max 1.5% |
| Surface area(BET) | 15-28 m ² /g |

Application Method

FCSC Microsilica is recommended for use in concrete and wet shotcrete application at typical dose of 5-10% by weight of cement. Dosage can be adjusted as per various mix design requirement. Concrete trial must be carried out to determine the exact dosage.

FCSC Microsilica is compatible with most concrete admixtures including FCSC High water reducing admixture

Reaction

FCSC Microsilica when added to concrete, initially it remains inert, once cement and water start reacting by hydration, produces two chemical compound, Ca silicate hydrate (CSH) which is responsible for strength enhancement and Ca hydroxide (Free Lime) as by product which is responsible for nothing much other than lining available pores with in concrete as a filler. Pozzlonic reaction occurs between silica fume and the Ca hydroxide (Free Lime) producing additional Ca silicate hydrate (CSH) in many of the voids around hydrated cement particles. This additional CSH increasing the compressive strength and durability of concrete.

Packaging

FCSC Microsilica is supplied 25 kg HDPE bag

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Fire

FCSC Microsilica is non-flammable.

Storage & shelf life

FCSC Microsilica has a minimum shelf life of 12 months when stored under room temperatures. It should be protected from extreme temperatures and Preferably stored in shade.

Safety precautions

User must read Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

Note

All Technical Data Sheets of FIRST CHOICE SPECIALITY CHEMICALS are updated on regular basis; it is the user's responsibility, to obtain the most recent issue. Field services where provided, does not constitute supervisory responsibility, for additional information contact our local representative.

Disclaimer

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labour involved in the application are beyond our control.

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