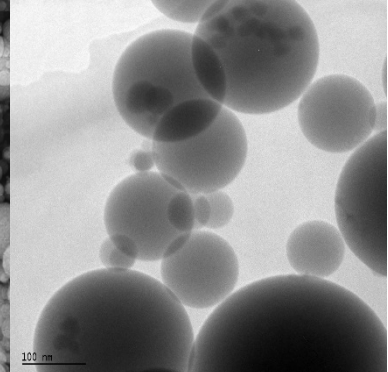
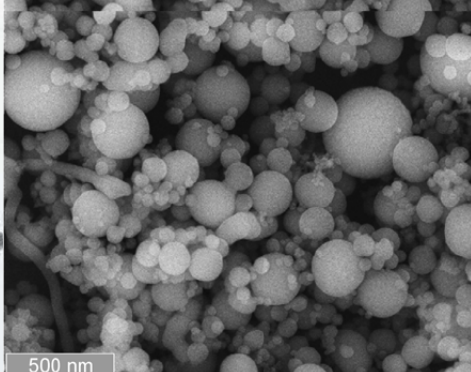




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# SILTEK POWDER

"Silica fume" - Micronized activated silica selected microsiliates with high purity



## DESCRIPTION

SILTEK POWDER is a powdered product consisting of an excellent micronized silica, commonly known as "silica fume".

SILTEK POWDER, due to its high content of silica and active microsiliates and its very large specific surface, is considered today one of the best materials with high pozzolanic activity.

## FEATURES

SILTEK POWDER consists of 93-98% spherical particles of amorphous SiO<sub>2</sub> with a maximum size of a few tenths of a micron, so that its specific surface area is about 220,000 cm<sup>2</sup>/g (Blaine). This characteristic gives it a high ability to capture and fix calcium hydrate [Ca(OH)<sub>2</sub>] and transform it first into a hydrated silicate and then into stable and irreversible calcium silicate. This peculiarity makes it possible to modify the behavior of cement mixtures both in the wet and in the hardened state.

It should be noted that in all mixtures containing cement, in order to obtain good workability, it is necessary to use a quantity of water always higher than that necessary for the hydration of the cement, this leads to the formation of capillaries and cavities in the hardened cement paste that is more numerous the greater the amount of water used. In addition, during the hydration of the cement, a certain amount of free lime is formed and arranged in the available cavities. This behavior makes the hardened conglomerate vulnerable to external agents, reducing its durability.

SILTEK POWDER added to the mixture at the rate of 3 – 5% of the weight of the cement, captures and reacts with the free lime, filling the voids present in the cement paste, which makes the conglomerate more compact, more waterproof and more resistant and consequently more durable over time and with a better appearance.

## APPLICATIONS

SILTEK POWDER finds its main applications in all quality concretes and mortars.

SILTEK POWDER is used in the preparation of:

- protective grouts
- grouts for consolidation injections
- expansive grouts
- mortars or concretes with high mechanical resistance
- mortars or concretes with high impermeability
- prestressed concretes resistant to chemical aggression
- mortars or concretes for underwater applications especially in aggressive environments
- thixotropic mortars for restoration
- anti-shrinkage mortars, both premixed and wet.

However, on any occasion in which superior performance is required of mortar or concrete, such as:

- mechanical resistance
- chemical resistance

SHEET



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- resistance to wear and cavitation impermeability
- stability and cohesion
- overall durability

It is also used to reduce concrete bleeding, in pumpable concretes and in concretes with high mechanical and durability characteristics.

SILTEK POWDER is also particularly recommended for concretes whose construction of the particle size curve has revealed a lack of fineness.

## GRAIN SIZE

In SILTEK POWDER the average particle size is 0.1  $\mu\text{m}$  (microns). The very small particle size of this powder results in a huge specific surface area that requires more water. Therefore, for the smooth operation of SILTEK POWDER in concrete production, it is always recommended to use it in combination with a good superplasticizer from the SUPERIOR or UNICUM line.

## PHYSICAL PROPERTIES

Physical state	dust
Color	Dark silvery
Particle size distribution	0.05 to 0.15 $\mu\text{m}$
Density	ca. 0.5 kg/dm
Water solubility	insoluble

## COMPOSITION

SiO <sub>2</sub>	>96%
CaO	<3%
MgO	<3%
Fe <sub>2</sub> O <sub>3</sub>	<3%
Al <sub>2</sub> O <sub>3</sub>	<3%
Other components	Tracks

## DOSAGE

The dosage of SILTEK POWDER is 3 – 5 % of the weight of the cement depending on the mixture to be added and the desired characteristics. However, dosages other than those recommended may be used after prior orientation tests.

## CONCRETE CURING

The reactions in a pozzolanic environment are quite long and take place in a humid environment; for this reason, proper curing of the mortar or concrete is required in order to avoid drying too quickly.

In this regard, it is advisable to protect the castings, during the first hardening phase, with polyethylene sheets and then apply an anti-evaporating TEKNAPUR 31 film on the exposed surfaces, which will prevent rapid evaporation of the castings, allowing a correct pozzolanic reaction to them.

## PACKS

The packages will be according to the physical characteristics (ND, SD, D version)

Bulk in tanks.

Big-bags da 600 a 1250 kg

Bags from 9 to 12 kg.

## VALIDITY

SILTEK POWDER, if stored in a dry place and in the original perfectly closed bags, is valid for 12 months.



# SILTEK POWDER



Any moisture adsorbed by the product does not affect its effectiveness, but makes its dosage difficult and imprecise as well as a homogeneous distribution in the finished mixture. It is therefore advisable to close the bags carefully after each collection.

SILTEK POWDER is available in bulk, in big-bags or in bags.

The bulk product is transported with the classic torpedoes and can be stored in normal cement silos and dosed with the equipment of the concrete batching plant.

## WARNINGS

SILTEK POWDER is harmless to contact with the epidermis.

It can be easily removed with soap and water from any surface.

Inhalation can cause slight irritation of the upper respiratory tract so the use of a dust mask is recommended.

In the event of accidental leakage, it must be collected in a dry state and disposed of in an authorized landfill.

## LEGAL

The information contained in this technical data sheet, although representing the most advanced stage of knowledge, does not exempt the user from carrying out accurate preliminary tests in his own conditions of use and operation. Therefore, no liability is accepted for improper use of the product.

