

1. PRODUCT DESCRIPTION

Metakaolin is a product with highly pozzolanic properties obtained by thermal activation of kaolin clays (calcining at controlled temperature in a rotative kiln) and subsequent micronising or ultrafine grinding process of the obtained product.

Metakaolin is a dehydroxylated aluminium silicate. Its general formula is $2\text{SiO}_2 \cdot \text{Al}_2\text{O}_3$, with an amorphous non-crystallised structure, constituted of lamellar particles.

2. PRODUCT USE

Metakaolin is mainly used as **pozzolanic additive for concretes, mortars and coatings made from Portland cement or lime.**

Metakaolin chemically combines with water and calcium hydroxide, a normal cement hydration by-product, to produce silicates, aluminosilicates and additional cementitious compounds that result in a denser, higher strength concrete. The rapid pozzolanic reaction of metakaolin stabilises the calcium hydroxide as a cementitious product which reduces porosity and permeability. Concrete density is also increase by the small, finely divided particles of metakaolin which act as micro aggregates.

Metakaolin improves the properties of concrete and cement products considerably by increasing their compressive and flexural strength while resisting chemical attack, reducing permeability, efflorescence and shrinkage, preventing alkali-silica reactions and corrosion and improving durability.

Typical dosage: Generally Metakaolin is used at 5 – 25 % replacements levels by weight of cement.

3. PHYSICO-CHEMICALS PROPERTIES AND SIZE DISTRIBUTION

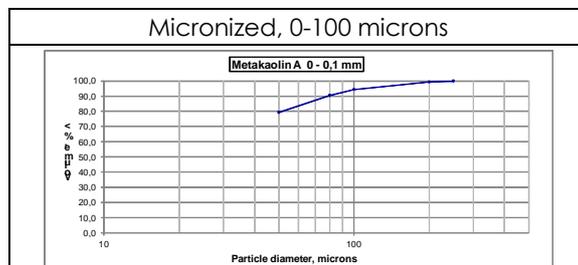
Physical properties

Appearance/Color.....	White to light gray powder
Loss on ignition.....	< 1,50
Pozzolanic Index (Chapelle test)...	831 mg Ca(OH) ₂ /g
Specific surface area.....	800 cm ² /g
Water demand.....	120 %
Strength activity index 28 días	101,0 %
Bulk density:	
– Loose.....	570 kg/m ³
– Tamped.....	660 kg/m ³
Specific gravity.....	2,3 g/cm ³

Chemical Analysis

% SiO ₂ + Al ₂ O ₃	95,08
% CaO libre.....	0.10
% MgO.....	0.05
% Na ₂ O + K ₂ O.....	< 1
% Cl ⁻	0.005
% SO ₄ ²⁻	0.05

Particle size distribution



4. Packaging

- Big – bags.
- Paper bags of 20 kg on pallet / Pallet: 1.000 kg

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