Product information

PowerPozz® white

Thermal treated pure kaolin (metakaolin)
pozzolanic hardening admixture for cementitious building materials

Description

PowerPozz® white is produced by calcination of purified kaolin and is a white, mostly amorphous alumosilicate reacting with Portlandite (calcium hydroxide) to build cementitious CSH-phases.

PowerPozz® conforms to ASTM C-618 (Specifications for Natural and Calcined Pozzolans)

Chemical composition (M.-%, approx.)

SiO_2	54-56	CaO	< 0,1	SO_3	< 0,05
Al_2O_3	40-42	MgO	< 0,1	P_2O_5	< 0,2
Fe_2O_3	< 1,4	Na_2O	< 0,05		
TiO_2	< 3,0	K_2O	< 0,4	LOI	< 1,0

Physical characteristics

Specific density		2,6 g/cm³
Particle size distribution	D 10	~2 µm
	D 50	~ 5 µm
	D 90	~ 25 µm
Specific surface (Blaine)		ca. 26 000 cm²/g
Specific surface (BET)		ca. 20 m²/g
Colour		white
Whiteness (Dr. Lange)		ca. 77
Apparent density	freely settled	0,3 – 0,4 g/cm³
	tapped	ca. 0,5 g/cm³

Function

PowerPozz® is mostly composed of the mineral Kaolinit – a layered silicate mineral with a distance of 7,2 Å between the layers. Between the layers of SiO_2 and Al_2O_3 in proportions of 1:2 water is imbedded in the layers that can be evaporated through heat treatment by calcination. The kaolin is then activated.

Portland cement develops 25 % calcium hydroxide (free lime) in its hydration. This alkaline by-product is very soluble and is primarily attacked and dissolved in the presence of acids or sulphates.

PowerPozz® special feature is its capacity to bind large amount of free lime in the form of stable CSH-phases. Speed and amount of this reaction may be controlled through chemical and construction adequate methods

In relation to its reactivity PowerPozz™ can be qualified as „rapid“. Together with lime and water the setting will occur in about 7 hours (method Newchem).

Application

PowerPozz® is a pozzolanic mineral additive that may improve many performances of hydraulic cementitious mortars, concrete and analogous products.

PowerPozz® is easily mixed in and gives a soft plastic consistence that is easy to work (buttery effect).

PowerPozz® has shown its advantages in applications where strength, density and resistance are requested. Because of the finesse, high specific surface and reactivity it is well suited to replace silica fume.

In the following applications PowerPozz® has been shown to be very useful:

Plasticity	shotcrete, repair mortars, coatings
Stability	self-compacting mortar and concrete, self-levelling compounds
Strength	high performance concrete (HPC) or mortars (HPM)
Lime binding	tile adhesive, coating of water pipes, precast
Resistance	coatings of waste water or see water constructions
Pigmentation	better dispersion in precast or visible concrete
Efflorescence	roofing tiles, facade precast
Durability	improved alkali silicate reaction

Dosage

5 to 15 % replacement of cement by weight.

Stability

unlimited in dry conditions.

Storage

in protected and dry rooms.

Packaging

in bags of 20 kg or in big bags of 1000 kg.

Newchem GmbH, Flamminggasse 79, A-2500 Baden, Austria – www.newchem.info