Product information

Metaver™ R

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

Description

Metaver™ R is produced by calcination of kaolin and is a reddish, mostly amorphous alumosilicate reacting with Portlandite (calcium hydroxide) to build cementitious CSH-phases.

Chemical composition (M.-%)

SiO_2	67-69	CaO	< 0,8	MnO	< 0,1
Al_2O_3	25-27	MgO	< 0,1	LOI	< 1,5
Fe_2O_3	< 2,5	Na_2O	< 0,1		
TiO_2	< 1,5	K_2O	< 0,2		

Physical characteristics

Specific density		2,6	g/cm^3
Particle size distribution	D 10	~ 2	µm
	D 50	~ 30	µm
	D 90	~ 100	µm
Specific surface (Blaine)		ca. 10 000	cm^2/g
Specific surface (BET)		ca. 17	m^2/g
Colour		reddish	
Whiteness (Dr. Lange)		ca. 42	
Apparent density	freely settled	0,5 – 0,6	g/cm^3
	tapped	ca. 0,9	g/cm^3

Function

Metaver™ R mostly consists of the mineral Kaolinit – a layered silicate mineral with a lattice distance of 7,2 Å between the layers. Between the layers of SiO_2 and Al_2O_3 in proportions of 1:2 there is another layer where water is imbedded that can be evaporated through heat treatment by calcination. The kaolin is then activated.

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

Metaver™ R special feature is its capacity to bind large amount of free lime by forming new stable CSH-phases. Speed and amount of this reaction may be controlled through chemical and construction adequate methods

With respect to its reactivity Metaver™ R can be qualified as „very reactive“. Together with lime and water the setting will occur in about 3 hours (method Newchem).

Application

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

Metaver™ R is easily mixed in and gives a soft plastic consistence that is easy to work. Through its particle size distribution very low increase in water demand is given.

Metaver™ R has shown its advantages in applications where strength, density and resistance are requested.

In the following applications Metaver™ should be very useful:

Plasticity	shot-creet, repair mortars, coatings
Stability	self compacting concrete and mortars, selfleveling compounds
Strength	renders based on lime and cement
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 20 % replacement of cement by weight.

Stability

unlimited in dry conditions.

Storage

in protected and dry rooms.

Packaging

in big bags of 1000 kg.

NEWCHEM AG
Felsenstrasse 12, CH-8808 Pfäffikon, Switzerland – www.newchem.info