



## Product information

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### Metaver<sup>®</sup> R

**Metakaolin -  
pozzolanic hardening admixture for hydraulic building materials**

#### Description

Metaver<sup>®</sup> R is produced by calcination of kaolin and is a reddish, mostly amorphous aluminium silicate reacting with Portlandite (calcium hydroxide) to build cementitious CSH-phases.

#### Chemical composition (M.-%, approx.)

SiO <sub>2</sub>	67-69
Al <sub>2</sub> O <sub>3</sub>	25-27
Fe <sub>2</sub> O <sub>3</sub>	< 2,5
K <sub>2</sub> O	< 0,2

#### Physical characteristics (approx.)

<i>Appearance:</i>		
Colour		reddish
Whiteness (Dr. Lange)		ca. 42
Specific density		2,5 g/cm <sup>3</sup>
Bulk density		0,5 – 0,7 g/cm <sup>3</sup>
Specific surface (BET)		ca. 16 m <sup>2</sup> /g
Particle size distribution	D <sub>10</sub>	~ 2 µm
	D <sub>50</sub>	~ 30 µm
	D <sub>90</sub>	~ 100 µm

#### Function

Metaver<sup>®</sup> R is mostly composed of calcined kaolinite and has residual quartz.

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<sup>®</sup> R special feature is its capacity to bind large amount of free lime by forming new stable CSH-phases. Reactivity and amount of this reaction may be controlled through chemical and construction adequate methods

With respect to its reactivity Metaver<sup>®</sup> R can be qualified as „very reactive“.



## Application

Metaver<sup>®</sup> R is a pozzolanic mineral additive that may improve many performances of hydraulic cementitious mortars, concrete and analogous products.

Metaver<sup>®</sup> R is easily mixed in. It gives a soft plastic consistence with good workability in the final product. Through its particle size distribution, no big increase in water demand is given.

Metaver<sup>®</sup> R has shown its advantages in applications where strength, density and resistance are requested.

Metaver<sup>®</sup> R is approved for usage in concrete according to NF 18-513.

In the following applications Metaver<sup>®</sup> has been shown to be very useful:

Lime binding	cement free mortars, coatings, reddish mortars for antique buildings
Efflorescence	roofing tiles, facade precast
Strength	with silicates for geopolymers, renders based on lime and cement
Resistance	coatings of waste water or see water constructions
Durability	reduced 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 20 kg and 1200 kg, bulk.

The above information and recommendations are based upon our experience and are offered merely for advice. They do not absolve the consumer from making his own tests. Responsibility for damage arising from the use of our products cannot be derived from the recommendations given. The observance of any intellectual property rights of third parties is the responsibility of the consumer in each case.

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