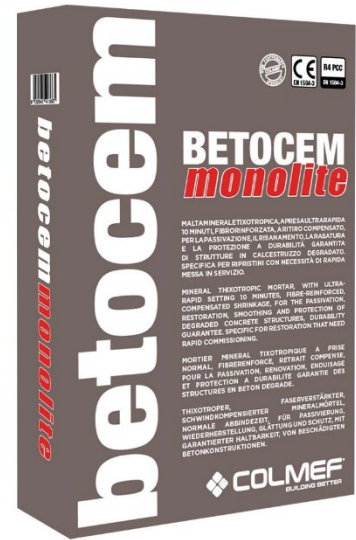




COLMEF[®]
BUILDING BETTER

Betocem Monolite

THIXOTROPIC, NORMAL-SETTING, FIBRE-REINFORCED, SHRINKAGE-COMPENSATED MINERAL MORTAR FOR PASSIVATING, RENOVATING, SMOOTHING AND PROTECTING DEGRADED CONCRETE STRUCTURES WITH GUARANTEED DURABILITY.



TECHNICAL DATA SHEET - REV. 01/2023

DESCRIPTION

BETOCEM MONOLITE is a powder mortar with normal setting and compensated shrinkage, composed of high-strength hydraulic binders, siliceous aggregates, special additives and synthetic fibres. When mixed with water, it becomes a mortar of excellent workability with a thixotropic effect, which can be applied in large thicknesses, even vertically, without the risk of dripping and without the need for formwork. BETOCEM MONOLITE does not require prior treatment of reinforcement rods and is characterised by excellent adhesion on both plaster and concrete. Once hardened, BETOCEM MONOLITE has high mechanical strength and high resistance to carbonation. It is also characterised by water impermeability, elastic modulus, thermal expansion coefficient and water vapour permeability coefficient similar to high-quality concrete.

Can be used for renovations and levelling in thicknesses between 2 and 40 mm in a single coat.

Complies with European Standard EN 1504-3 ("Non-structural structural repair") for class R4 structural mortars (PCC) according to the CR principle (concrete repair).

APPLICATION FIELDS

BETOCEM MONOLITE is used for passivating, restoring and smoothing degraded concrete works, both horizontally and vertically, such as beam and pillar edges, cornices and mouldings in architectural restoration operations, balcony frontals and parapets damaged due to oxidation of reinforcing bars. BETOCEM MONOLITE, is also suitable for reconstructing the iron covering layer of reinforced concrete works, for levelling off diaphragm walls or tunnels, for levelling off surface defects such as gravel nests or concrete casting joints, and for localised restoration of damaged substrates before laying ceramic tiles.

SUPPORT PREPARATION

Substrates must be perfectly clean, solid, free of dust and greasy substances and suitably roughened. Remove all degraded or detached concrete by peening until the substrate is solid, consistent and rough. Previous restoration work, which is not perfectly consistent, must be removed. Carefully clean the concrete and reinforcement rods using mechanical means (hydro-blasting or brushing), until all oxidation on the rods, surface cement slurry and any other traces of dirt have been removed. If the section of the reinforcement rods is reduced, supplement them with additional rods. Wet the area to be restored to saturation with water, eliminating any stagnation when work begins.

APPLICATION

To prepare the mix, pour approx. 4.5 litres of clean water per 25 kg bag of BETOCEM MONOLITE into a container or concrete mixer and mix for a few minutes, taking care to remove the part of the powder that is not perfectly dispersed

from the sides and bottom of the container, until a homogeneous, lump-free mix is obtained. Let it rest for a few minutes, stirring it briefly before use. This mixture remains workable for about 1 hour at a temperature of +23 °C. BETOCEM MONOLITE does not require prior treatment of reinforcement bars and can be applied directly onto the area to be restored. Apply BETOCEM MONOLITE manually, with a trowel or spatula, for repairing areas of degraded concrete and for repairing edges and fronts, even vertically without the need for formwork. The use of formwork may however be useful to speed up horizontal applications or for interventions such as reconstruction of beams and pillars. Perfect adhesion of the mortar on the substrate is guaranteed by exerting good pressure and reworking the product with the trowel directly on the surface to be restored, wrapping the reinforcement rods, until the desired thickness is reached. If it is necessary to apply a second layer, carry out the operation before the previous one has finished setting, but do not wait more than 4 hours between applications. The minimum applicable thickness is approx. 2 mm and maximum 40 mm, depending on the application. As soon as the mortar begins to stiffen, finish with a sponge trowel or metal trowel, depending on the degree of finish required. The time required to perform this operation is strongly influenced by weather conditions. In addition to BETOCEM MONOLITE, the complete restoration cycle includes decorative protection to be carried out with MANTOCOLOR anti-carbonation elastomeric water paint.

YIELD

17 kg/m² per cm of thickness.

RECOMMENDATIONS

- ◆ Do not use BETOCEM MONOLITE on smooth concrete substrates, but strongly roughen the surface to be restored.
- ◆ Never mix the product once the setting process has begun, as it would lose all its chemical-physical properties.
- ◆ Carefully season BETOCEM MONOLITE avoiding, especially on hot or very windy days, the rapid evaporation of the mixing water which could cause small surface cracks due to plastic shrinkage.
- ◆ Keep the surface moist during the first 24 hours after applying the mortar, by spraying it with water or covering it with waterproof sheets.
- ◆ Protect from rain, frost or direct sunlight for the first 24 hours.
- ◆ Do not work at temperatures below +5 °C or above +35 °C.
- ◆ Wash all the equipment used for the preparation and application of the product with water before it hardens. After setting, the mortar can only be removed mechanically.

PACKAGING

BETOCEM MONOLITE is supplied in 25 kg polythene paper bags on 1500 kg pallets. Store the product in dry environments and in the original tightly closed packaging. In these conditions its stability is at least 12 months.

SAFETY INSTRUCTION

The product contains cement which, in contact with body sweat, produces an irritating and sensitizing alkaline reaction for the skin. Use suitable clothing, gloves and protective goggles.
For further information on safe use of the product, consult the relative Safety Data Sheet.

SPECIFICATIONS

Passivation, structural restoration of degraded concrete works and protective smoothing by application of thixotropic mineral mortar, with normal setting, fibre-reinforced, with compensated shrinkage, composed of high-strength hydraulic binders, siliceous aggregates, special additives and synthetic fibres, such as **BETOCEM MONOLITE** of COLMEF Srl. The product must meet the minimum requirements required by the EN 1504-3 standard for class R4 structural mortars.

The supports must be clean, solid and compact, suitably roughened after the removal of inconsistent parts, to be calculated separately. The product must be applied to saturation wet substrate with a trowel or spatula in thicknesses between 2 and 40 mm, respecting a consumption of approximately 17 kg/m² per cm of thickness, then a protective smoothing must be performed, with the same **BETOCEM MONOLITE**, to be created using a metal spatula and finished with a sponge float according to the degree of finish required

TECHNICAL DATA

Conforms to Standard:	EN 1504-3
Class:	R4
Typology:	PCC
Form:	powder
Colour:	grey
Apparent specific weight (kg/m ³):	1300
Mixing ratio:	~ 4,5 litres of water per 25 kg of powder
Mixing density (kg/m ³):	1742
Colour of dough:	grey
Consistency of the mixture:	thixotropic
pH value:	≥ 12
Setting start time:	90 min.
End of setting time:	4 h
Waiting time between coats:	max. 4 h
Waiting time for overcoating:	48 h
Permissible application temperature:	+5 °C to +35 °C

FINAL PERFORMANCE according to EN 1504-3 Class R4-PCC

	Requirements	Results	Text method
Compressive strength after 28 days (MPa)	≥ 45	> 45	EN 12190
Flexural strength after 28 days (MPa):	not required	> 8,0	EN 12190
Chloride ion content (%):	≤ 0,05	< 0,05	EN 1015-17
Direct tensile adhesion (MPa):	≥ 2,0	> 2,0	EN 1542
Carbonation resistance:	dk ≤ control cls [MC(0.45)]	Passes	EN 13295
Elastic modulus in compression (GPa):	≥ 20	> 20	EN 13412
Thermal compatibility measured as adhesion according to EN 1542 - Bond strength after 50 cycles (MPa):			
- freeze-thaw cycles:	≥ 2,0	> 2,0	EN 13687-1
- thunderstorm cycles:	≥ 2,0	> 2,0	
- dry thermal cycles:	≥ 2,0	> 2,0	
Capillary absorption (kg/m ² ·h ^{0,5}):	≤ 0,5	< 0,19	EN 13057
Reaction to fire:	Euroclass	Class A1	EN 13501-1

DATA COLLECTION AT +23 °C - R.H. 50% AND NO VENTILATION

The above information and prescriptions are based on our best experience. However, we cannot accept any liability for the possible misuse of the products. We therefore advise those who intend to use them to assess whether or not they are suitable for the intended use and to carry out preliminary tests in any case. Always refer to the latest version of the technical data sheet, available at www.colmef.com.

FOR MORE INFORMATION OR PARTICULAR USES, PLEASE CONSULT THE COLMEF TECHNICAL SUPPORT SERVICE.

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