

# MONNELI BETOCEM RAPIDO

*Rapidly Setting Non Shrinking Fiber Reinforced Mortar*

## Product Description

A rapidly setting, ready to use by simple addition of water. It is composed of high resistance cements, silica sand, selected aggregates, special additives and synthetic fibers. When mixed with water it transforms into a non-shrinking mortar with thixotropic effect. It is used horizontally up to 75 mm thickness and fit to be applied vertically up to thickness of 30 mm in a single coat.

## Uses

BETOCEM RAPIDO is used for the fast restoration and repair of the following:

- Degraded reinforced concrete
- Edges of beams and pillars
- Risers of balconies
- Terraces
- Parapets

Its particular fine composition and the rapid hardening allow an easy application, and a fast finishing touch.

## Advantages

- Good adhesion to support
- Good Impermeability
- Good resistance against sulphates

## Instructions for Use

### Surface Preparation

#### Concrete preparation

The surface of the concrete to be repaired should be sound, clean and uncontaminated. The decayed or damaged area to be repaired should be marked with a marker.

Cut the marked area to a depth of at least 10mm using a hand held concrete saw or disc grinder to avoid feather edging and to provide a square edge. Break out or chip the complete repair area down to sound base using sharp tools or chipping hammer.

Oil and grease deposits should be removed by stiff-brushing, detergent scrubbing with a heavy duty cleaner/degreaser or steam cleaning.

#### Steel preparation

Any corroded steel in the repair area must be fully exposed. All exposed reinforcement shall be cleaned of corrosion products by wet grit blasting or other approved means to achieve a clean and bright finish.

In case that reinforcing bars section is reduced due to oxidization, integrate them with additional bar reinforcement.

### Priming

#### Steel Priming

The cleaned steel should be coated within 3 hours.

Apply one coat of BETOFER, a corrosion proof cementitious based primer or EPOZINC, a two component Zinc rich Epoxy Primer, continuously with brush onto the cleaned bar reinforcement ensuring that the whole steel surface area is completely covered. Allow to dry before continuing.

#### Concrete Priming

If the concrete deterioration is due to Chloride attack, it is recommended to use EPORIPRESA, an epoxy bonding agent. It will cure to form a barrier against chloride ions.

However if the cause is carbonation, dampen the surface with clean water (avoiding free standing water) and apply thin coat of AR LATEX RIPRESA, an acrylic bonding agent.

BETOCEM RAPIDO must be applied before the bonding agent dries while it's still tacky to achieve a better bond between the fresh and cured section.

### **Mixing**

For mixing process, a slow speed drill (200-300rpm) fitted with a suitable paddle is recommended. Place 4.0-4.5 liters of cold clean water in the mixing bucket. With the drill in operation, add the entire content of the 25 kg bag of BETOCEM RAPIDO while mixing continuously till a uniform lump free consistency mix is achieved. Powder must always be added to water.

Prepare the quantities that can be used within 15 minutes of mixing. Under no circumstances should partial mixing be considered.

### **Application**

Apply the product manually with a trowel or spatula with full compaction, to primed substrate while it is still tacky.

The minimum applicable coat thickness is of about 10 mm and the maximum of about 30 mm for vertical and up to 20 mm for overhead sections or from 10 up to 75 mm for small horizontal sections. Application thickness is dependent on repair size and granulometry. High build applications can be achieved through temporary formwork.

If the application of the second coat is necessary the previous layer should be cross hatched and allowed coat.

Use trowel or sponge for the finishing touch.

### **Curing**

The repaired area shall be cured in accordance with good concrete curing practice and protected from drying winds, sun or excessive heat. Curing shall be done with non-degradable curing compound BETOCURE AR. Alternatively; a wet hessian cloth covered with Polyethylene sheet can also be employed.

Curing should begin as soon as final finish is achieved.

In fast drying conditions, supplementary curing with polythene sheets must be used.

### **Cleaning**

BETOCEM RAPIDO should be removed from tools and equipment and mixers with clean water immediately after use. Cured material should be removed mechanically.

Equipment used for applying EPORIPRESA, the epoxy bonding agent should be cleaned with SOLVENTE 10.

### **Recommendations**

- Do not remix the product once it starts to set because it will lose all chemical and physical properties
- Do not mix with other materials
- Do not mix for a long time
- Variation of temperature increases or reduces the initial and final setting of the mortar
- At low temperature use warm water, while at high temperature use cold water
- Do not expose the bags direct sunlight
- Do not use the material when the temperature is less than +5°C or more than +35°C.
- In warm weather, store the material in cool place. Make sure to use cool water to keep the mixed mortar temperature below 30°C.

### **Yield**

14.0 liters / 25 kg bag with 4.5 liters water addition.

### **Packaging**

BETOCEM RAPIDO is supplied in 25 kg bags.

### **Storage**

Store in dry covered place in the original closed bags, in these conditions its stability is of 12 months.

## Technical Data

Properties	Results
Appearance	Grey powder
Density at 25°C	2.1 kg/L
Max inert granulometry	1.0 mm
Compressive strength after 3 hours after 1 day after 7 days after 28 days (ASTM C579)	14 N / mm <sup>2</sup> 29 N / mm <sup>2</sup> 35 N / mm <sup>2</sup> 41 N / mm <sup>2</sup>
Adhesion to concrete at 28 days (BS 1881 Pt 207)	1.8 N / mm <sup>2</sup>
Drying shrinkage at 28 days (ASTM C 157)	< 500 microstrain
Pot-life time of mixture at 25°C	20 minutes
Initial setting time	30 minutes
Final setting time	60 minutes
Temperature of application	+5°C to +35°C

Test performed at 25°C, 50% of relative humidity and in absence of ventilation.

All values are subject to 5-10 % tolerance

## Health & Safety

BETOCCEM RAPIDO can be harmful to skin as it contains cement powders which may releases alkalis when mixed with water.

During application, wear appropriate protective clothing, goggles, gloves and respiratory equipment if necessary.

In case of contact with skin, rinse with water and again wash thoroughly with soap and water. In case of contact with eyes, rinse with plenty of water and seek medical advice accordingly.

If ingested, obtain medical attention immediately. Do not induce vomiting.

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