MAPEGROUT FAST-SET

Fast-setting and drying, shrinkage-compensated, bre-reinforced mortar for concrete repair

CE EN 1504-3

IN COMPLIANCE WITH EUROPEAN STANDARD EN 1504-3 R3 MAPEI REPAIR MORTAR

WHERE TO USE

Repairing exterior vertical and horizontal deteriorated concrete surfaces.

Some application examples

· Restoration of deteriorated concrete structures, edges of pillars, beams, and balconies damaged by the oxidation of reinforcing rods.
· Fast repair of industrial concrete flooring.
· Sealing surface cracks (in all types of buildings) in concrete and cement renders.
· Fast smoothing of surface defects in concrete pour, such as aggregate bridging, shrinkage joints, formwork spacer holes, exposed rods, etc.
· Assembly of concrete pipes.
· Repair of damaged edges of concrete pipes.
· Pointing between bricks on structures to be waterproofed with **Planiseal 88**.

TECHNICAL CHARACTERISTICS

Mapegrout Fast-Set is a pre-blended powder made of special hydraulic binders, selected aggregates, special additives and synthetic fibres in a formula developed in MAPEI's Research Laboratories.
Mixed with water, **Mapegrout Fast-Set** becomes an easily trowellable mortar with excellent thixotropic properties enabling it to be applied up to 2-2.5 cm thick on vertical surfaces without slump.
Mapegrout Fast-Set sets in 30 minutes and can be subjected to loads a few hours after application.
Once hardened, **Mapegrout Fast-Set** has the following properties:
· high compressive and flexural strength;
· excellent impermeability to water;
· excellent adhesion to old concrete;
· good resistance to wear.
Mapegrout Fast-Set meets the requirements defined by EN 1504-9 ("*Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - General principles for the use of products and systems*") and the minimum requirements claimed by EN 1504-3 ("*Structural and non structural repair*") for structural mortars of class R3.

RECOMMENDATIONS

· Do not add more water to the mix after setting has begun in the attempt to make it trowellable again.
· Do not add cement, lime, gypsum or admixtures to **Mapegrout Fast-Set**.
· Do not use **Mapegrout Fast-Set** for restoration work to be done with plaster sprayers (use **Mapegrout Thixotropic**).
· Do not use **Mapegrout Fast-Set** for precision anchors (use **Mapefill** or **Mapefill R**).
· Do not apply **Mapegrout Fast-Set** to dry or dirty surfaces.
· Do not leave bags of **Mapegrout Fast-Set** exposed to direct sun before use.
· Do not apply **Mapegrout Fast-Set** if temperature is lower than +5°C.

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· Do not use **Mapegrout Fast-Set** if the bag has been damaged or previously opened.
· After hardening, **Mapegrout Fast-Set** could change colour, therefore its use is not recommended when it is left as a façade finish.

APPLICATION PROCEDURE

TECHNICAL INFORMATION FOR THE APPLICATION	
Composition of mix:	100 kg of **Mapegrout Fast-Set** 15-16 kg of water
Maximum layer thickness:	20-25 mm
Application temperature range:	Environmental and substrate temperature from +5°C to +35°C
Pot life of mix:	approx. 10 mins. (at +20°C)
Waiting time between each layer:	approx. 15 mins.
Ready for use:	2 – 3 hours

Preparation of the substrate

A) *Restoring deteriorated concrete structures*
Remove all deteriorated, detaching or contaminated concrete until a rough, sound and resistant substrate is obtained. Remove any previous repair work or coating if not perfectly adhering to the substrate, using suitable tools (mechanical demolishing, hydroscarifying etc.).
Clean concrete from previous scarifying works and clean reinforcing rods from dust, cement laitance, rust, grease, oil, paint and other contaminants through sandblasting and high-pressure water jets. After preparation, the concrete surface to be repaired must be rough, with irregularities at least 5 mm deep and inert fraction exposed to allow correct adhesion of the mortar to the substrate.
Protect all reinforcing rods with **Mapefer** or **Mapefer 1K**.
Wet substrate with water.
Wait for any excess water to evaporate before applying **Mapegrout Fast-Set**. Compressed air can be used, if necessary, to facilitate removal of unabsorbed water.
For better adhesion, it is advisable to brush on a coat of bonding slurry composed of 1 part of **Mapegrout Fast-Set** with 0.24-0.25 parts of water.

B) *Repairing concrete flooring*
Remove all damaged or loose concrete. Then chisel the edges of the repair area at right angles and clean it of all residues. After preparation, the concrete surface to be repaired must be rough with irregularities at least 5 mm deep and inert fraction exposed to allow correct adhesion of the mortar to the substrate.
Wet the substrate with water. If the substrate is particularly absorbent, brush on a coat of bonding slurry composed of 1 part **Mapegrout Fast-Set** with 0.24-0.25 parts water to avoid puddles.

Preparing the mortar

While stirring, pour a 25-kg bag of **Mapegrout Fast-Set** into a container holding 3.75-4 litres (15-16%) of clean water and mix with an electric mixer until the product is smooth with no lumps.
Given **Mapegrout Fast-Set**'s quick setting time, prepare only sufficient product for use within 10 minutes (at +20°C).
Instructions for the preparation of mortar for Lab testing samples can be found in the TECHNICAL DATA section.

Applying the mix

A) *Restoring deteriorated concrete structures*
Apply the mix with a float or a trowel to the freshly slurried surface. Maximum thickness is 2-2.5 cm per layer. When particularly deep areas are to be repaired, apply several layers of **Mapegrout Fast-Set** at intervals of approx. 15 minutes, working each coat with a 10 mm notched trowel to improve adhesion between layers.
Once the repair work is finished, keep the restored patches damp for at least 24 hours.
Mapegrout Fast-Set can be painted with the products of the **Elastocolor** range after 3 days at +20°C.

B) *Repairing concrete flooring*
Lay **Mapegrout Fast-Set** with a trowel on the freshly slurried surface and finish with a plastering trowel.
After the application, protect the repaired surface from rapid water evaporation with sheets of polyethylene or wet bags.
Mapegrout Fast-Set can be set for light traffic after approx. 3 hours at +20°C.

PRECAUTIONS TO BE TAKEN DURING AND AFTER PREPARATION

· In warm weather do not expose material to direct sun and use cold water for preparing the mix.
· In low temperatures, use lukewarm water to prepare the mix and store the product in heated areas, since initial setting and curing is delayed at low temperatures.
N.B. - *After hardening, **Mapegrout Fast-Set** could change colour, therefore its use is not recommended when it is left as a façade finish.*

CLEANING

Before it hardens, **Mapegrout Fast-Set** can be cleaned from tools with water. After setting, residues can be removed by mechanical means.

CONSUMPTION

18 kg/m² per cm of thickness.

PACKAGING

25 kg bags.

STORAGE

Mapegrout Fast-Set may be stored for up to 12 months in its original packaging.
The special 25 kg vacuum-packed polyethylene bags offer better protection of the product from rainfall.
It is advisable to stock the product in a dry and covered area at a temperature between +5°C and +35°C, in its original unopened packaging.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instructions for the safe use of our products can be found on the latest version of the Safety Data Sheet, available from our website . .
PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	
Strength class according to EN 1504-3:	R3
Type according to EN 1504-1:	PCC
Consistency:	powder
Colour:	grey
Maximum size of aggregate:	1 mm
Ion-chloride content according to EN 1015-17: (minimum requirement according to EN 1504 ≤ 0.05%)	≤ 0.05 %

TECHNICAL INFORMATION FOR THE PREPARATION OF PRODUCT	
Composition of mix:	100 parts by weight of **Mapegrout Fast-Set** with 15.5 % water
Preparation of mix:	mixing of product according to EN 196-1

CHARACTERISTICS OF FRESH MIX (at +20°C - 50% R.H.)	
Colour of mix:	grey
Consistency of mix:	thixotropic
Density of mix:	2150 kg/m³
Setting time:	< 30 mins.

FINAL PERFORMANCE
According to curing de ned in test methods

Performance characteristic	Test method	Requirements EN 1504-3 R3	Product performance
Compressive strength:	EN 12190		
- 3 hours		-	**> 10 MPa**
- 1 day		-	**> 20 MPa**

- 7 days - 28 days		- ≥ 25 MPa	> 28 MPa > 40 MPa
Flexural strength: - 3 hours - 1 day - 7 days - 28 days	EN 196-1	Not required	 > 4.0 MPa > 4.5 MPa > 5.0 MPa > 8.0 MPa
Compressive modulus of elasticity:	EN 13412	≥ 15 GPa	24 GPa
Bond strength by pull-off:	EN 1542	≥ 1.5 MPa	> 1.5 MPa
Capillary absorption:	EN 13057	≤ 0.5 kg/m²·h$^{0.5}$	< 0.05 kg/m²·h$^{0.5}$
Thermal compatibility – freeze-thaw cycles using de-icing salts (50 cycles):	EN 13687-1	≥ 1.5 MPa	> 1.5 MPa
Reaction to fire:	EN 13501-1	Euroclass	A1

WARNING

Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In every case, the user alone is fully responsible for any consequences deriving from the use of the product.
Please refer to the current version of the Technical Data Sheet, available from our website

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