MAPEGROUT THIXOTROPIC

Shrinkage-compensated fibre-reinforced mortar for concrete repair





BENEFITS AND FEATURES

- Easy to apply
- High crack resistance
- Excellent workability
- Structural repair
- Easy to apply, even by spray
- High abrasion resistance
- Very low VOC emissions

CO_2e FULLY OFFSET PRODUCTS

Residual Greenhouse Gas emissions measured throughout the life cycle of this product using Life Cycle Assessment (LCA) methodology, verified and certified with EPDs, have been offset for the year 2026 through the acquisition of carbon credits in support of forestry protection projects. For more details on emission calculations and offsetting projects, visit mapei.com.

WHERE TO USE

Surface repair of deteriorated concrete structures on both vertical and horizontal surfaces.

Some application examples

- Repairing deteriorated areas of concrete, corners of pillars and beams, edges of balconies damaged by the oxidation of reinforcing steel.
- Reconstruction of reinforcing rod covers in reinforced concrete structures.
- Smoothing surface defects, such as gravel nests, new casting joints, holes created by formwork spacers, exposed rods, etc.
- Filling of rigid joints.
- Repair of surfaces subjected to heavy abrasion (canals, industrial floors, ramps, etc.).
- Smoothing of diaphragm walls and tunnels.
- Repairing viaducts for highways, roads and railways.

TECHNICAL CHARACTERISTICS

Mapegrout Thixotropic is a ready-mixed powdered mortar composed of high-strength cements, selected aggregates, special additives and synthetic fibres prepared according to a formula developed in the MAPEI Research & Development laboratories.

Thanks to its particular formulation the product has excellent fatigue behaviour up to at least 300,000 cycles, which gives repaired structures a high level of resistance to cracking, including when subject to dynamic loads induced during normal service conditions.

This particular characteristic, together with the requirements of EN 1504, helps increase the durability of elements restored with **Mapegrout Thixotropic** .

When mixed with water, **Mapegrout Thixotropic** becomes an easily workable mortar with high thixotropic properties that can be applied on vertical surfaces without sagging even in great thicknesses and with no need for formwork.

If **Mapegrout Thixotropic** is prepared by only adding water, it must be cured under damp conditions in order to guarantee that the product expansive properties develop completely and correctly. Unfortunately, it is not easy to guarantee that these conditions are created on site.

However, to guarantee that the expansive properties of **Mapegrout Thixotropic** are carried out in the open air, 0.25% of **Mapecure SRA**, a special additive which has the property of reducing both plastic and hydraulic shrinkage, may be used to great advantage when added to the mix.

Mapecure SRA has a very important role to play, in guaranteeing better curing of mortar. Also, when mixed with **Mapegrout Thixotropic** , it may be considered a technologically advanced system, in that the additive has the capacity of slowing down evaporation of the water and of promoting the development of hydration reactions.

Basically, **Mapecure SRA** behaves like an internal curing agent and, thanks to its interaction with some of the main components which make up the cement, it helps to reduce shrinkage by between 20% and 50% compared with the standard values of the product without the additive. This will obviously lead to a reduced risk of cracking.

Once hardened, **Mapegrout Thixotropic** has the following properties:

- very high flexural and compressive strength;
- modulus of elasticity, coefficient of thermal expansion and permeability to water vapour similar to those of high quality concrete;
- waterproof;
- high adhesion to old concrete, provided it has been soaked with water beforehand, and also to reinforcing rods, especially if they have been treated with **Mapefer** or **Mapefer 1K**
- high resistance to abrasion.

Mapegrout Thixotropic is a product with very low emission of volatile organic compounds (VOC), which safeguards the health and safety of installers and final users. It is certified as EC1 Plus by the German association GEV.

Mapegrout Thixotropic helps earn important LEED credits.

Mapegrout Thixotropic 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 R4.

RECOMMENDATIONS

- Do not use **Mapegrout Thixotropic** on smooth concrete surfaces: roughen them well, and if necessary add reinforcing rods.
- Do not use **Mapegrout Thixotropic** for anchors (use **Mapefill**).

- Do not use **Mapegrout Thixotropic** to repair structures by pouring into formwork (use **Mapegrout Hi_Flow**).
- Do not add cement, aggregates or additives to **Mapegrout Thixotropic** .
- Do not add water after the mix has started to set.
- Do not apply **Mapegrout Thixotropic** at temperatures below +5°C.
- Do not use **Mapegrout Thixotropic** if the packing has been damaged or if it has been opened beforehand.

APPLICATION PROCEDURE

TECHNICAL APPLICATION INFORMATION	
Composition of mix:	100 kg of **Mapegrout Thixotropic** 15.5-16.5 kg of water 0.25 % of **Mapecure SRA** *(optional*)*
Minimum thickness per layer:	10 mm
Maximum thickness per layer:	50 mm
Application temperature:	Surrounding temperature and temperature of substrate +5°C to +35°C
Pot life of mix:	approx. 60 mins. (at +20°C)

** To enable its expansive properties to develop correctly in open air*

Preparing the substrate

- Remove deteriorated, detached and contaminated concrete until a solid, resistant, and rough substrate is obtained. Any previous restoration work and any other coatings that are not perfectly adherent must be removed using suitable equipment (mechanical breakers, hydro-scarification, etc.).
- Clean the concrete from residues of previous milling operations, and the reinforcement rods from dust, rust, cement slurry, grease, oil, paint, and other harmful materials, by sandblasting and treating with high-pressure water.
- After preparation, the concrete surface to be repaired must be visibly clean and rough, with a roughness of no less than 5 mm, and with the inert fraction open and completely exposed to allow the mortar to properly set and adhere to the sub-layer.
- Treat reinforcement rods with **Mapefer** or **Mapefer 1K** , according to the procedure illustrated in the relative Technical Data Sheet for each product.
- Wait until **Mapefer** or **Mapefer 1K** has dried.
- Saturate the substrate with water.
- Before carrying out repairs with **Mapegrout Thixotropic** , wait until excess water has evaporated. If necessary, use compressed air to help remove excess water. The substrate must be saturated with water but with a dry surface.

Preparing the mortar

- Pour the amount of water required into a cement mixer to obtain the consistency required (15.5-16.5% of the weight of powdered mortar).
- Start the concrete mixer and slowly and continuously pour **Mapegrout Thixotropic** into the water.
- If improved open-air curing of the mortar is required, add **Mapecure SRA** to the final mix at a dosage of 0.25% by weight of the mortar (0.25 kg every 100 kg of **Mapegrout Thixotropic**).
- Mix for 1-2 minutes, checking the homogeneity of the mix while scraping any unmixed powder off the sides of the mixer; remix for another 2-3 minutes.

Depending on the quantity being prepared, a mortar mixer or a drilling machine with a stirrer attachment can be used. The mixing must be carried out at low speed to avoid entraining an excess of air into the mix.

Mapegrout Thixotropic has a pot life of about 1 hour at +20°C.

Indications on how to prepare the mortar to make laboratory test samples may be found in the TECHNICAL DATA section.

Applying the mortar

The application is carried out by trowel or putty knife without formwork even on vertical surfaces and ceilings for thicknesses from 10 mm to 50 mm per layer.

Without confining, **Mapegrout Thixotropic** can only be applied in thicknesses greater than 3 cm if the surface has been roughened and reinforcing rods have been placed, taking care to apply at least 2 cm of cover to the reinforcement.
Smaller thicknesses can be applied without reinforcing rods as long as the substrate is sufficiently rough to be able to counter the expansion.

Mapegrout Thixotropic may also be applied by spray with a suitable worm-screw or piston-type mortar pump with a separate mixing unit; continuous-feed type rendering machines are unsuitable.
Apply **Mapegrout Thixotropic** after treating the reinforcing rods with **Mapefer** or with **Mapefer 1K** .
When a further coat of **Mapegrout Thixotropic** is necessary, it must be applied before the previous one has completely set (not more than 4 hours at +23°C).
The repair process is complete when a smoothing coat of **Mapefinish** and a coat of **Elastocolor Paint** have been applied.



Application with trowel



Finishing with a sponge float

PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

- Only use bags of **Mapegrout Thixotropic** which have been stored on their original pallets.
- In hot weather, store the product in a cool place and use only cold water to blend the mortar.
- In cold weather, store the product in a place which is protected from frost, and use tepid water to blend the mortar.
- After applying the product, and particularly in hot or windy weather, it is recommended to cure **Mapegrout Thixotropic** carefully to prevent the mixing water evaporating off too quickly, otherwise surface cracks may appear due to plastic shrinkage. Spray water on the surface during application and, once work has been completed, cover the surface immediately with waterproof sheets for at least 3 days.
- As an alternative to wet curing, surface anti-evaporating products can be applied, which should be chosen according to subsequent processing.

CLEANING

Before hardening, the mortar can be cleaned from tools with water.

After setting, cleaning is very difficult and the mortar can only be removed mechanically.

CONSUMPTION

19 kg/m² per cm of thickness.

PACKAGING

25 kg bags.

STORAGE

Mapegrout Thixotropic may be stored for up to 12 months in its original packaging in a dry place.

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 www.mapei.co.uk

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT DETAILS in compliance to UKCA EN 1504-3	
Class according to EN 1504-3:	R4
Type according to EN 1504-1:	PCC
Consistency:	powder
Colour:	grey
Maximum size of aggregate:	2.5 mm
Chloride ion content - EN 1015-17: (minimum requirement according to EN 1504 ≤ 0.05%):	≤ 0.05%

TECHNICAL INFORMATION FOR PRODUCT PREPARATION	
Composition of mix:	100 parts in weight of **Mapegrout Thixotropic** with 16% of water
Preparation of mix:	mix 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/m^3

FINAL PERFORMANCE PROPERTIES

According to curing defined by testing

Performance characteristic	Test method	Requirement EN 1504-3 R4	Product performance
Compressive strength: - after 1 day - after 7 days - after 28 days	EN 12190	 - - ≥ 45 MPa	 22 MPa 45 MPa 62 MPa
Flexural strength: - after 1 day - after 7 days - after 28 days	EN 196-1	n/a	 4.5 MPa 7.0 MPa 8.5 MPa
Compressive modulus of elasticity:	EN 13412	≥ 20 GPa	26 GPa
Direct tensile adhesion to concrete:	EN 1542	≥ 2.0 MPa	> 2.0 MPa
Resistance to accelerated carbonation:	EN 13295	depth of carbonation ≤ that of reference concrete	meets specifications
Capillary absorption:	EN 13057	≤ 0.5 kg/m^2·h$^{0.5}$	< 0.20 kg/m^2·h$^{0.5}$
Thermal compatibility - freeze-thaw cycles with de-icing salts (50 cycles): - storm cycles (30 cycles): - dry thermal cycles (30 cycles):	 EN 13687-1 EN 13687-2 EN 13687-4	 ≥ 2.0 MPa ≥ 2.0 MPa ≥ 2.0 MPa	 > 2.0 MPa > 2.0 MPa > 2.0 MPa
Reaction to fire:	EN 13501-1	Euroclass	A1

NOTE: Preparation of test samples: compaction according to EN 196-1.

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 www.mapei.co.uk

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