



Mapegrout Thixotropic

**Shrinkage-compensated
fibre-reinforced
thixotropic mortar for
concrete repair**



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 rods.
- 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 powder mortar composed of high-strength cements, selected aggregates, special additives and synthetic fibres prepared according to a formula developed in the MAPEI research laboratories.

When mixed with water, **Mapegrout Thixotropic** becomes an easily workable mortar with such high thixotropic properties that can be applied on vertical

surfaces without sagging even in great thicknesses and with no need for formwork.

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;
- is waterproof;
- has 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**;
- high resistance to abrasion.

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**.

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

Preparing the substrate

- Remove deteriorated and loose concrete until the substrate is solid, strong and rough. Any previous restoration work which is not soundly bonded should also be removed.
- Clean the concrete and reinforcing rods until free of dust, rust, cement laitance, grease, oils and previously applied paints by sand-blasting.
- Soak the substrate with water. Before repairing with **Mapegrout Thixotropic** allow the excess water to evaporate. If necessary, use compressed air or sponges to facilitate the removal of water.

Preparing the mortar

- Pour into the mixer the amount of water corresponding to the consistency required for the application:

APPLICATION METHOD	LITRES OF WATER PER 25 KG BAG
Flat trowel	3.9-4.1
Spray	4.0-4.3

- Start the concrete mixer and slowly and continuously pour **Mapegrout Thixotropic** into the water.
- 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 stirring an excess of air into the mix.
- Only in exceptional circumstances should the slurry be mixed by hand. In this case prepare small quantities and mix for at least 5-6 minutes until the slurry is completely smooth and even.

It should be remembered that manual preparation requires greater quantities of water which are detrimental to some characteristics of **Mapegrout Thixotropic**, such as mechanical strength, shrinkage, waterproofing, etc.

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

The expansion of **Mapegrout Thixotropic** has been calculated to compensate for hygrometric shrinkage.

In order to be effective, the expansion must be countered with suitable reinforcement or formwork around the structure.

Without formwork, **Mapegrout Thixotropic** can only be applied in thicknesses greater than 2 cm if the surface has been roughened and reinforcing rods have been placed, taking care to apply at least 1 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. This expansion phase is completed during the first days of curing.

Applying the mortar

The mix can be applied with a flat or gauging trowel with no need for formwork even on vertical surfaces or ceilings; the maximum thickness allowed is 30-35 mm per coat.

Mapegrout Thixotropic can also be sprayed with a suitable shaft or screw type rendering machine (Turbosol - Putzmeister - Continental). Apply **Mapegrout Thixotropic** after treating the reinforcing rods with **Mapefer**.

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.

Precautions to be observed during application and curing

- No special precautions need to be taken when the temperature is around +20°C. In hot weather, prevent the material's being exposed to sunlight and use cold water for preparing the mix.
- In cold weather, the water used for the mix should be around +20°C.
- After its application, **Mapegrout Thixotropic** must be cured very carefully. Avoid rapid evaporation of water as this can cause surface cracks due to plastic shrinkage. Spray water onto the surface during the first 24 hours of curing or apply a suitable anti-evaporant.
- Anti-evaporation sealants can only be used if no further coatings are foreseen.

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.

COVERAGE

19 kg/m² per cm of thickness.

PACKAGING

25 kg paper bags.

STORAGE

Store in a dry and sheltered place.

SAFETY INSTRUCTIONS FOR THE PREPARATION AND APPLICATION

Contains cement. We remind you that the cement in contact with sweat or other body fluids produces an irritant alkaline reaction and allergic reactions to those predisposed.



Application with trowel



Shaping the screed



Finishing with a sponge float

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Type:	powder
Colour:	grey
Specific gravity (kg/dm ³):	1.25
Maximum aggregate diameter (mm):	2.5
Dry solid content (%):	100
Storage life:	12 months in original packing in a dry place
Hazard classification according to 99/45/EC:	irritant. Before use refer to the "Safety Instructions for the preparation and application" paragraph and the information on the packing and safety data sheet
Custom class:	3824 50 90

APPLICATION DATA

Colour of the mix:	grey
Mixing-ratio:	100 parts of Mapegrout Thixotropic with 16-17 parts of water
Consistency of the mix:	plastic-thixotropic
Slump according to UNI 7044/72 (%):	45-55
Specific gravity of the mix (kg/dm ³):	2.1
pH of the mix:	12-13
Application temperature range:	from +5°C to +35°C
Pot life at +23°C with 50% R.H.:	approx. 1h
Waiting time between one coat and another at +23°C with 50% R.H.:	maximum 4 hours
Maximum application thickness per coat (mm):	30-35

FINAL PERFORMANCES

Compressive strength (MPa) (according to EN 196/1 - Mixing water 16%):	
- after 1 day:	25
- after 7 days:	45
- after 28 days:	60
Flexural strength (MPa):	
- after 1 day:	5
- after 7 days:	8
- after 28 days:	9
Adherence to substrate (measured damp concrete) (MPa):	
- after 28 days at +23°C and 50% R.H.:	≥ 2 (concrete failure)
- after 7 days at +23°C and 50% R.H. + 21 days at +60°C:	≥ 2 (concrete failure)
- after 7 days at +23°C and 50% R.H. + 21 days in water at +20°C:	≥ 2 (concrete failure)
Coefficient of elasticity in compression at 28 days (MPa):	25000



Flow test
(UNI 7044/72 norm)



SATTEC adhesion test

