



Mapegrout T60 ME

Thixotropic, sulphate and chloride resistant, fibre-reinforced structural repair mortar

WHERE TO USE

Repairs to both new and old concrete structures or reinforced concrete elements subject to aggressive atmospheric conditions including chloride and sulphate attack.

Some application examples

- Reinstatement of cover to reinforcing steel and re-establishing structural integrity.
- Repairs and reinstatement of manholes, sewerage structures and other utilities.
- Repairs to industrial facilities including oil and gas, marine and other structures operating under extreme working environments.
- Water retaining and excluding structures, tunnels and canal linings.
- Filling of rigid joints (between base and column, cracks in floors, joints between walls, etc.).
- Repair of precast concrete elements.

TECHNICAL CHARACTERISTICS

Mapegrout T60 ME is a single component, thixotropic cement-based mortar formulated to compensate for hygroscopic shrinkage. **Mapegrout T60 ME** is composed of pre-blended hydraulic binders, synthetic polyacrylonitrile fibres, organic corrosion inhibitors, selected aggregates and special water-retaining additives developed in the MAPEI Research Laboratories.

Under extreme climatic conditions and/or where correct or adequate curing cannot be maintained, the addition of **Mapecure SRA** is highly recommended in order to ensure the required performance criteria are attained.

Mapecure SRA is considered a technologically advanced additive system that has the capability of slowing down the evaporation rate of the mixing water thereby promoting the efficiency of the hydration process. The addition of **Mapecure SRA** in proportions of up to 0.25% by weight has the ability to reduce drying shrinkage between 20% and 50%.

Where concrete repairs are required, particularly as a result of chloride-induced corrosion of the reinforcing steel, the incorporation of **Mapeshield I** internal galvanic protection anodes, should be considered or **Mapeshield E**, external galvanic protection sheet which can be used to protect both repaired and unrepaired areas. Please consult the relevant technical data sheet in order to correctly select the type, size and spacing of the anodes system.

Mapegrout T60 ME 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 T60 ME** on smooth surfaces, roughen the surface and add rebars where necessary.

- Do not add cement or admixtures to **Mapegrout T60 ME**.
- Do not pour **Mapegrout T60 ME** into forms (use **Mapegrout ME 06** or **Mapegrout ME 05**).
- Do not use **Mapegrout T60 ME** for anchoring (use **Mapefill GP ME**, **Mapefill SP ME** or **Planigrout 300** range).
- Do not use damaged or previously opened bags of **Mapegrout T60 ME**.

APPLICATION PROCEDURES

Preparing the substrate

- Remove degraded and/or loose concrete until a sound and solid substrate is achieved.
- Where necessary clean the concrete and reinforcing steel by sweep blasting or other approved mechanical methods, to remove all dirt, any corrosion products, cement laitance, grease, oil, any previous coatings and other deleterious elements.
- Any previous repairs that are no longer thoroughly bonded must also be removed.
- Pre-soak the substrate with clean, potable grade water to obtain a saturated surface dry (SSD) condition.

Preparing the mortar

Pour into the mixer or a rust-free mixing vessel, the pre-gauged amount of potable grade water needed to obtain the required consistency.

Application	Litres of water per 25 kg
Trowel	3.75-4.25
Spray	4.00-4.50

- Start the mixer and slowly add the complete bag of **Mapegrout T60 ME** to the water, in a continuous flow.
- Mix for 1 to 2 minutes; check to make sure the mix is well blended. Scrape any unmixed powder from the bottom and the sides of the mixer. Mix again for a further 2 to 3 minutes.
- For improved open-air curing of the mortar, it is recommended to add **Mapecure SRA** at the end of the mixing phase at a dosage of 0.25% by weight of the mortar (0.25 kg to every 100 kg of **Mapegrout T60 ME**).
- Depending on the amount of mixed material required, a mortar mixer or a slow speed heavy duty drill with an appropriate mixing paddle may also be used. Mix at low speed (300 rpm) to avoid entraining air.
- Avoid mixing manually as this may adversely affect several of the mortar's characteristics, including mechanical strength, shrinkage, impermeability, etc.
- **Mapegrout T60 ME** remains workable for approx. 1 hour at +20°C.
- **Mapegrout T60 ME** can be applied at a minimum thicknesses of 10 mm up to 60 mm in a single layer. Additional buildup can be achieved subject upon the repair area geometry, location and roughness of the concrete substrate.

Reinforcement steel preparation

For repairing concrete elements damaged due to reinforcement corrosion it is recommended to use mechanical means of abrasion in order to remove the corrosion

deposits from the exposed reinforcement prior to coating with **Mapecer** or **Mapecer 1K**.

APPLICATION

Hand application

Mapegrout T60 ME may be applied by trowel to vertical surfaces in layers up to 60 mm thick, or for overhead applications in layers up to 30 mm thick, without the use of formwork.

Where higher buildup of **Mapegrout T60 ME** is required, leave the surface of the previous layer in a rough condition, allow to harden, then wet the surface with water to SSD condition, prior to applying the second layer.

Spray application

Mapegrout T60 ME can be spray applied using a suitable piston or worm-screw type rendering machine, such as a Turbosol or Putzmeister. Do not use a continuous mixing type rendering machine.

Precautions to be observed during application

In hot working conditions the following precautions should be taken:

- Avoid direct exposure to sunlight for stored material and also mixing equipment;
- Prior to use, the product must be stored in a shaded area out of direct sunlight;
- Use cool water for mixing;
- Avoid application during the hottest time of the day and/or in direct sunlight;
- Mix only sufficient material that can be applied using available labour and equipment;

At low temperatures, prepare the mix with water heated to approx. +20°C.

Curing

In accordance with good concrete practice, all exposed surfaces of **Mapegrout T60 ME** must be immediately cured after application, using wet hessian covered with polythene sheeting; failure to cure the open surfaces can cause the formation of cracks due to plastic shrinkage, especially in hot and/or windy climatic conditions; **Mapecure SRA** should also be considered.

Spray water onto the surface of the application within the first 8-12 hours and repeat the operation for at least the first 48 hours. As an alternative, after finishing the application of the material, apply a coat of curing membrane such as **Mapecure E**, **Mapecure S** or **Elastocolor Primer**. Film forming curing membranes can impair the adhesion of subsequent finishes, please consult your local MAPEI technical representative for further advice.

Cleaning

Before hardening, the mixed material can be cleaned from tools and equipment with water. After setting, cleaning is very difficult and it can only be removed mechanically.

Yield

12.6 litres / 25 kg.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Class according to EN 1504-3:

R4

Type:

CC

Consistency:

powder

Colour:

grey

Maximum size of aggregate (mm):

2.5

Bulk density (kg/m³):

1450

Dry solids content (%):

100

APPLICATION DATA OF PRODUCT (at +20°C - 50% R.H.)

Colour of mix:

grey

Mixing ratio:

100 parts of **Mapegrout T60 ME** with 15 parts of water (approx. 3.75-4.25 l per 25 kg bags) and 0.25% of **Mapecure SRA** (one 0.25 kg bottle for 4 bags of **Mapegrout T60 ME**)

Consistency of mix:

thixotropic

Density of mix (kg/m³):

2280

pH of mix:

> 12.5

Application temperature range:

from +5°C to +50°C

Pot life of mix:

ca. 1 hour

Waiting time between each layer:

max 1-2 hours

FINAL PERFORMANCE (15% mixing water)

Performance characteristic	Test method	Requirements according to EN 1504-3 standards for R4 class mortar	Performance of product
Compressive strength (MPa):	EN 12190	≥ 45 (after 28 days)	> 20 (after 24 hours) > 50 (after 7 days) > 60 (after 28 days)
Flexural strength (MPa):	EN 196/1	none	> 5 (after 24 hours) > 6 (after 7 days) > 8 (after 28 days)
Bond strength on concrete (substrate in MC 0.40 - water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	> 2	> 2
Drying shrinkage according to ASTM C157-93 (mad):		< 500 microstrain	

Mapegrout T60 ME



PACKAGING

25 kg bags.

STORAGE

When stored in dry conditions in the original, unopened bags, **Mapegrout T60 ME** has a shelf life of 12 months. If stored at high temperature and/or high humidity conditions the shelf life may be reduced.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Mapegrout T60 ME is irritant, it contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions to those predisposed. When applying the product, we recommend the use of protective gloves and goggles and to take the usual precautions for handling chemical products. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention. For further and complete information about the safe use of our product please refer to the latest version of our Material Safety Data Sheet.

IMPORTANT NOTES

Whilst we try to ensure that any advice, recommendations or information given in our literature is accurate and correct, we have no control over the circumstances in which our product is used. It is therefore important that installers satisfy themselves that the product and conditions are suitable for the envisaged application. No warranty can be given or responsibility accepted other than, that the product supplied by us will meet our written specification. The installer should ensure that our latest product data and safety information sheets have been consulted prior to use.

Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

All relevant references for the product are available upon request and from www.mapei.com