

# MAPEFER

Two-component, anti-corrosion cementitious mortar for protecting steel reinforcement rods



## WHERE TO USE

- Anti-rust protection of concrete reinforcement rods.
- Bonding promoter for repair mortars of concrete.

### Some application examples

Prevents corrosion and restores alkalinity in reinforcing rods during concrete repair with **Mapegrout** compensating-shrinkage mortars or with normal cementitious mortars modified with synthetic resin latexes. It can be applied both below and above grade.

## TECHNICAL CHARACTERISTICS

**Mapefer** is a two-component mortar based on polymers in water dispersion, cementitious binders and corrosion inhibitors, to be applied on reinforcing rods to prevent rust formation, made according to a formula developed in the MAPEI Research and Development laboratories.

**Mapefer** is supplied ready-to-use, as two pre-dosed components: component A (powder) and component B (liquid). The two components must be mixed without the addition of water or any other ingredients.

Once hardened, it is resistant to saline mist according to EN 15183 standards and impermeable to aggressive water and gases present in the atmosphere.

The anti-rust action of **Mapefer** is provided through:

- the presence of corrosion inhibitors which protect the metal surfaces from oxidation;
- its high level of alkalinity;
- its excellent adhesion to metal.

**Mapefer** complies with the principles defined in 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 use of products and systems*"), and the minimum requirements of EN 1504-7 ("*Reinforcement corrosion protection*").

## RECOMMENDATIONS

- Do not dilute **Mapefer** with water during preparation or when setting has started.
- Do not add cement or aggregates to **Mapefer**.
- Do not leave sandblasted rods without protection for a long time. Apply **Mapefer** immediately after sandblasting.
- Do not apply **Mapefer** when the temperature is below +5°C.

## APPLICATION PROCEDURE

### Preparing the rods

To ensure that **Mapefer** is able to develop its anti-corrosion properties efficiently, it is essential that the rods to be treated are free from all surrounding degraded and carbonated concrete and from loose particles, grease, oil and rust. Sandblasting is recommended to clean the rods down to white metal. If for logistic reasons this is not possible, vigorous brushing of the metal surface should be carefully and thoroughly carried out.

Additional or substitute rods must be prepared in the same way.

## Preparing the product

Pour component B (liquid) into a clean container and while mixing, slowly add component A (powder), then mix vigorously for a few minutes to obtain a homogeneous mix.

Following these procedures, a brushable mortar, with a pot life of 60 minutes, is obtained.

## Application

Apply two coats of **Mapefer** with a brush.

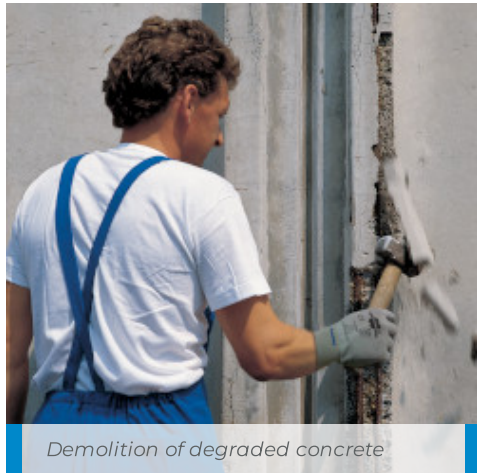
The second coat can be applied approximately 2 hours after the first and preferably within 24 hours.

It is recommended that the surfaces of the rods be completely covered in one homogeneous coat. This is not difficult because brush application with **Mapefer** is extremely easy.

The total thickness of the two coats must be 2 mm.

Inevitably, during the application, the surrounding concrete will also receive treatment. This will not create any problems as **Mapefer** also greatly improves the adhesion of all mortars.

The application of the repair mortar (e.g. products of the **Mapegrout** line) that follows, can be carried out on cured **Mapefer** after approximately 6 hours at +20°C.



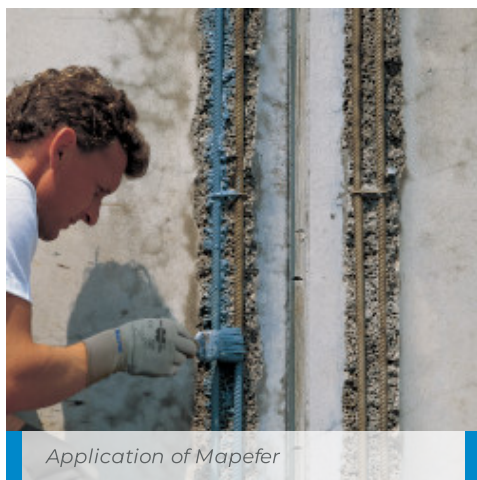
Demolition of degraded concrete



Cleaning reinforcing rods with hydro-sandblasting



Mixing Mapefer



Application of Mapefer

## PRECAUTIONS TO BE OBSERVED DURING APPLICATION

The product can be applied when the temperature is between +5°C and +35°C. However, in hot weather the mixed material should not be exposed to direct sunlight, as the pot life will be reduced.

## CLEANING

While still fresh, **Mapefer** can be removed from brushes and tools with water. Once hardened, it can only be removed mechanically.

## CONSUMPTION

120 g/m of **Mapefer** for 8 mm diameter rebar and 240 g/m of **Mapefer** for 16 mm diameter rebar (2 mm thick coat of product applied).

## PACKAGING

Mapefer is available in 2 kg buckets (A+B).

## STORAGE

Mapefer may be stored for up to 12 months in its original packaging in a dry place. Store the product at a temperature of at least +5°C.

Mapefer component A complies with the conditions of Annex XVII to Regulation (EC) N° 1907/2006 (REACH), item 47.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Mapefer component A contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions to those predisposed.

It can cause damage to eyes.

Mapefer component B is not considered dangerous according to the current regulations regarding the classification of mixtures.

It is recommended to wear protective gloves and goggles and to take the usual precautions for handling chemicals.

In case of contact with eyes or skin wash immediately with plenty of 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.

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)		
PRODUCT IDENTITY		
	component A	component B
Consistency:	powder	fluid liquid
Maximum size of aggregate (mm):	0.5	–
Density (EN 2811-1) (g/cm <sup>3</sup> ):	–	1.02
Dry solids content (EN 480-8) (%):	100	11
pH (ISO 4316):	–	9.5
APPLICATION DATA OF PRODUCT (at +20°C – 50% R.H.)		
Colour of mix:	light blue	
Mixing ratio:	component A : component B = 3 : 1	
Consistency of mix:	plastic-brushable	
Density of mix (kg/m <sup>3</sup> ):	1,850	
pH of mix:	> 12.5	
Application temperature range:	from +5°C to +35°C	
Pot life of mix:	approximately 1 hour	
Waiting time between each coat:	approximately 2 hours	

Waiting time before applying repair mortar:	6-24 hours		
Minimum thickness of Mapefer (mm):	2		
<b>FINAL PERFORMANCE</b>			
Performance characteristic	Test method	Requirements according to EN 1504-7	Performance of product
Bond strength on concrete (substrate in MC 0.40 – w/c ratio = 0.40) according to EN 1766 (MPa):	EN 1542	not required	≥ 2
Pull-out strength of steel reinforcement bars – load required for 0.1 mm of slip:	EN 15184	Load equal to at least 80% of the load on steel reinforcement without protection	meets specifications
Resistance to corrosion: – 10 condensation cycles in water; – 10 cycles in sulphur dioxide according to EN ISO 6988; – 5 days in saline mist according to EN 60068-2-11	EN 15183	After the series of cycles, the protected rods must be corrosion-free. Penetration of rust at the ends of the steel plates with no protection must be < 1 mm	meets specifications

## 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.com](http://www.mapei.com)

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