



# Mapefer 1K



## One-component corrosion-inhibiting cement mortar for the protection of reinforcing rods

### WHERE TO USE

- Corrosion-inhibiting protection of concrete reinforcing rods.
- Adhesion improver for concrete repair mortars.

### Some application examples

Re-alkalising corrosion-inhibiting protection for reinforcing rods in the repair of concrete carried out with shrinkage-compensated mortars from the **Mapegrout** range or with standard cement mortars modified with synthetic based latex. It can also be used for underground concrete construction.

### TECHNICAL CHARACTERISTICS

**Mapefer 1K** is a one-component mortar prepared according to a formula developed in the MAPEI Research & Development laboratories based on polymers in powderform, cementitious binders and corrosion inhibitors to be applied on reinforcing rods to prevent rust formation.

Mixed with water, **Mapefer 1K** becomes a highly workable mortar that is easy to apply.

After hardening, **Mapefer 1K** is resistant to saline fog according to EN 15183 and impermeable to water and aggressive gases in the atmosphere.

The corrosion-inhibiting action of **Mapefer 1K** is provided through the following principal factors:

- high alkalinity;

- excellent adhesion to metal;
- presence of corrosion-inhibitors.

**Mapefer 1K** 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 1504-7 (*"Reinforcement corrosion protection"*).

### RECOMMENDATIONS

- Do not further dilute **Mapefer 1K** with water when the product begins to set.
- Do not add cement or aggregates to **Mapefer 1K**.
- Apply **Mapefer 1K** immediately after sandblasting (do not leave clean rods without protection for a long periods).
- Do not apply **Mapefer 1K** when the temperature is below +5°C.

### APPLICATION PROCEDURE

#### Preparing the rods

To ensure that **Mapefer 1K** is able to develop its corrosion-inhibiting properties efficiently, it is essential that the rods are completely cleaned from rust before the treatment.

Sandblasting is recommended to clean the rods down to metal.



# Mapefer 1K



Demolition of degraded concrete



Cleaning reinforcing rods



Applying Mapefer 1K with a brush on reinforcing rods on a reinforced concrete balcony

## TECHNICAL DATA (typical values)

### PRODUCT IDENTITY

Consistency: powder

Maximum size of aggregate (mm): 0.5

Dry solids content (EN 480-8) (%): 100

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

Colour of mix: blue

Mixing ratio: 100 parts of **Mapefer 1K** with 20-22 parts of water (1.0-1.1 l of water per 5 kg bag)

Consistency of mix: thixotropic paste

Density of the mix (kg/m<sup>3</sup>): 1,800

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 1K (mm): 2

### FINAL PERFORMANCE

Performance characteristic	Test method	Minimum requirements according to EN 1504-7	Product performance
Bond strength to concrete (MC 0.40 type substrate water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	not required	≥ 2.0
Slip-resistance of reinforcement rods: - load with reference to a movement of 0.1 mm:	EN 15184	load equal to at least 80% of load on reinforcement with no protection	test passed
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 rods with no protection must be < 1 mm	test passed

If for logistical reasons this is not possible, vigorous brushing of the metal surface should be carefully and thoroughly carried out to remove all rust.

Any additional reinforcement must be treated in the same way.

### Preparing the product

Pour 1.0-1.1 l of clean water into a clean container and, while mixing, slowly disperse 5 kg of **Mapefer 1K**.

Mix the product until a lump-free homogeneous paste is obtained. Once prepared, **Mapefer 1K** must be applied within 1 hour.

### Application

Apply two coats of **Mapefer 1K** with a brush. The second coat can be applied approximately 2 hours after the application of the first coat and preferably within 24 hours.

It is recommended to completely cover the surfaces of the rods in a homogeneous coat. The total thickness of the two coats must be at least 2 mm.

Inevitably, during the **Mapefer 1K** application, the surrounding concrete will also get coated. This will not create problems of bonding of other mortars that will be used for the reconstruction. Repairs with products from the **Mapegrout** range must be carried out once **Mapefer 1K** has dried (approximately 6 hours at +20°C).

### PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

No special precautions need to be taken when the temperature is between +5°C and +35°C. In hot weather do not expose the mixed material to direct sunlight, because the pot life will be reduced.

### Cleaning

While still fresh, **Mapefer 1K** can be removed from brushes and tools with water. Once hardened, it can only be removed mechanically.

### CONSUMPTION

100 g/m per reinforcing rod with an 8 mm diameter and 200 g/m per reinforcing rod with 16 mm (2 mm of applied product).

### PACKAGING

The product is available in cartons each one containing four 5 kg bags.

### STORAGE

**Mapefer 1K** may be stored for up to 12 months in its original packaging in a dry place at a temperature not below +5°C.

The product complies with the conditions of Annex XVII to Regulation (EC) N° 1907/2006 (REACH) - All. XVII, item 47.

### SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

**Mapefer 1K** 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. It can cause damage to eyes. In case of contact with eyes or skin wash immediately with plenty of water and seek medical attention. It is recommended to use protective gloves and goggles.

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.

### 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)

**All relevant references for the product are available upon request and from [www.mapei.com](http://www.mapei.com)**



Reinforcing rods on the front side of a balcony treated with **Mapefer 1K**



**Mapefer 1K**



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