



# 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 under ground concrete construction.

### TECHNICAL CHARACTERISTICS

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

Mixed with water, **Mapefer 1K** becomes an easily 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 ENV 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 time).
- 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.

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

# Mapefer 1K



Demolition of degraded concrete



Cleaning reinforcing rods



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

## TECHNICAL DATA (typical values)

### PRODUCT IDENTITY

Consistency:	powder
Maximum size of aggregate (mm):	0.5
Dry solids content (%):	100
Storage:	12 months in a dry place in its original packaging
Hazard classification according to EC 1999/45:	irritant. Before using refer to the "Safety instructions for preparation and application" paragraph and the information on the packaging and Safety Data Sheet
Customs class:	3824 50 90

### 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 sack)
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
Consumption on 8 mm diam. improved-bonding rebar (g/m):	200
Consumption on 16 mm diam. improved-bonding rebar (g/m):	400

### 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/concrete ratio = 0.40) according to EN 1766 (MPa):	EN 1542	none	> 2.5 (after 28 days)
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

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 approximately 2 mm.

Inevitably, during the **Mapefer 1K** application, also the surrounding concrete will get coated. This will not create problems of the 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 observed 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

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

### PACKAGING

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

### STORAGE

**Mapefer 1K** can be stored for 12 months in a dry place at a temperature not below +5°C.

Manufactured in compliance with the regulations of the 2003/53/EC Directive.

### SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

**Mapefer 1K** contains cement that, in contact with sweat or other body fluids, produces an irritant alkaline reaction and allergies to those predisposed. Wear protective gloves and goggles.

For further information refer to the Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

### WARNING

*Although the technical details and recommendations contained in this 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 applications: 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.*

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



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

# Mapefer 1K

