



# MAPEI



# Planitop 430

**Fine-grained, thixotropic, fibre-reinforced, controlled-shrinkage, medium-strength (30 MPa) mortar for repairing concrete**



## WHERE TO USE

To repair the concrete cover on deteriorated concrete structures following corrosion of the reinforcement rods.

### Some application examples

- Repairing the corners of columns, beams and balcony sills.
- Reconstruction of the concrete cover on reinforced cement structures.
- Evening out surface defects, such as gravel clusters, construction joints and holes left by pitch rods.
- Filling rigid joints.
- Quick repairs to prefabricated concrete elements damaged while being moved.

## TECHNICAL CHARACTERISTICS

**Planitop 430** is a pre-blended mortar in powder form, made up of cementitious binders, fine-grained, graded aggregates, special additives and synthetic fibres, manufactured according to a formulation developed in MAPEI's own research laboratories.

When **Planitop 430** is mixed with water, it forms a thixotropic mortar which is easy to apply, even on vertical surfaces, at a thickness of from 5 to 35 mm without formwork.

If **Planitop 430** is prepared by only adding water, it must be cured under damp conditions in order to ensure that the product's expansive properties develop completely and correctly. These conditions are difficult to obtain on site.

In order to guarantee the expansive properties of **Planitop 430** if air curing is used, 0.25% of **Mapecure SRA**, a special admixture which has the property of reducing both plastic and hydraulic shrinkage, may be used to great advantage by adding it to the mix.

**Mapecure SRA** has a very important role to play in guaranteeing better curing of mortar. When mixed with **Planitop 430**, it may be considered a technologically advanced system, in that the admixture has the capacity of slowing down evaporation of the water from the mortar and of promoting the development of hydration reactions. Basically, **Mapecure SRA** behaves like an internal curing agent and, thanks to its interaction with some of the main components which make up the cement, it helps to reduce shrinkage by between 20% and 50% compared with the standard values of the product without the admix. This will obviously lead to a lower incidence of cracking phenomena.

After hardening, **Planitop 430** has the following properties:

- medium mechanical strength;
- modulus of elasticity, coefficient of thermal expansion and coefficient of permeability to water vapour similar to those of medium-quality concrete;
- waterproof;
- excellent bond with old concrete, if previously dampened with water and with reinforcement rods, especially if treated beforehand with **Mapefer** or **Mapecure 1K**.

# Planitop 430



Preparation of Planitop 430



Application of Planitop 430



Floating Planitop 430

**Planitop 430** 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 1504-3 (*"Structural and non structural repair"*) for structural mortars of class R3.

## RECOMMENDATIONS

- Do not use **Planitop 430** for repair of structures subject to high compressive stress loads or wear and abrasion; in these cases, use **Mapegrout Thixotropic** or **Mapegrout T60**.
- Do not use **Planitop 430** when the material has to be pumped over long distances or in the case of large pumping heads; in these cases use **Mapegrout Easy Flow**.
- Do not apply **Planitop 430** on smooth concrete bases. The surface must be roughened, and dolly rods may also be applied.
- Do not use **Planitop 430** for anchorage purposes; use **Mapefill**.
- Do not use **Planitop 430** for filling purposes with formwork; in these cases, use **Mapegrout High-Flow**.
- Do not add cement or other additives to **Planitop 430**.
- Do not add water once the mix has started to set.
- Do not apply **Planitop 430** if the temperature is lower than +5°C.
- Do not use **Planitop 430** if the bag is damaged or if it has been opened before.

## APPLICATION PROCEDURE

### Preparation of the substrate

- Remove deteriorated concrete and any areas which are at risk of detachment, until a solid, strong and rough substrate is obtained. All previous repair work which is not perfectly bonded must be removed.
- Remove all traces of dust, rust, cement laitance, grease, oil and old paintwork from the concrete and reinforcement rods by sandblasting.
- Saturate the substrate with water. Before carrying out repairs using **Planitop 430**, wait until excess water has evaporated off. If necessary, compressed air may be used to remove free-standing water.

### Preparation of the mortar for manual applications

- Pour 4.4-4.6 l of water into a cement mixer.
- Turn the cement mixer on and slowly and continuously add **Planitop 430**.

- If improved open-air curing of the mortar is required, add **Mapecure SRA** at the end of the mixing phase at a dosage of between 0.25% in weight of the mortar (0.25 kg every 100 kg of **Planitop 430**).
- Mix for a further 1-2 minutes, to make sure that it is well blended. Remove any residual powder from the sides of the mixer, and mix for a further 2-3 minutes.
- Either a cement mixer or a drill equipped with a mixing attachment may be used, according to the amount of material to be prepared. Mixing must be carried out at low speeds, to avoid air being entrapped in the mix. **Planitop 430** remains workable for approximately 1 hour at +20°C.

### Preparation of mortar applied using a rendering machine

The mortar may be prepared using a continuous-feed rendering machine, such as a Putzmeister MP 25 or a G4 or G5 version PFT.

Pour the contents of the sacks into the hopper and, according to the type of rendering machine employed, set the flow-meter to obtain consistent, free-flowing mortar.

| Type              | Stator-regulated rotor | Mixing rotor | Flow-meter type (l/h) |
|-------------------|------------------------|--------------|-----------------------|
| Putzmeister MP 25 | D6 - Power             | standard     | 330-380               |
| PTF G4 or G5      | D6 - 3                 | standard     | 330-380               |

### Application of the mortar

The product is applied by trowel or sprayed or with a render machine without formwork, even on vertical surfaces or on ceilings, at a maximum thickness of up to 35 mm per layer. If there is insufficient boundary support, filling layers of more than 20 mm must only be applied after inserting dolly rods and roughing the surface of the concrete. A layer of at least 20 mm thick must be applied over the rods.

Thinner layers may be applied if there are no reinforcement rods, but the surface of the substrate must be well roughened before application.

Treat reinforcement rods with **Mapefer** or **Mapefer 1K** before application of **Planitop 430**.

If a second coat of **Planitop 430** is required, it must be applied before the first one has completely set (within 4 hours at +20°C). If the newly repaired surface needs to be smoothed over, use one of the following products: **Monofinish**, **Planitop 200**, **Mapefinish**, **Planitop 100**, **Mapelastic** or **Mapelastic Smart**; the product to use must be chosen according to specific requirements. After hardening, the product may be painted over using **Elastocolor Paint**.

### PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

- Only use bags of **Planitop 430** which have been stored on their original pallets and covered and stored in a dry place.

## TECHNICAL DATA (typical values)

### PRODUCT IDENTIFICATION

|   |   |
|---|---|
| <b>Class according to EN 1504-3:</b>  | R3  |
| <b>Type:</b>  | CC  |
| <b>Consistency:</b>   | powder  |
| <b>Colore:</b>  | grey  |
| <b>Maximum aggregate size (mm):</b>   | 1.0   |
| <b>Bulk density (g/cm<sup>3</sup>):</b>   | 1,250   |
| <b>Dry solids content (%):</b>  | 100   |
| <b>Chloride ions content: – minimum requirements ≤ 0.05% - according to EN 1015-17 (%):</b> | ≤ 0.05  |
| <b>Storage:</b>   | 12 months in original packaging in a dry place  |
| <b>Hazard classification according to EC 1999/45:</b>                                       | irritant.<br>Before using refer to the “Safety instructions for preparation and application” paragraph and the information on the packaging and Safety Data Sheet |
| <b>Customs class:</b>   | 3824 50 90  |

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

|   |  |
|---|--|
| <b>Colour of mix:</b>   | grey   |
| <b>Mixing ratio:</b>  | 100 parts of <b>Planitop 430</b> with 17.5-18.5 parts water (approx. 4.4-4.6 l per 25 kg sack) |
| <b>Consistency of mix:</b>                                    | thixotropic  |
| <b>Density of mix according to 1015-6 (kg/m<sup>3</sup>):</b> | 2,000  |
| <b>pH of mix:</b>   | > 12.5   |
| <b>Application temperature range:</b>                         | from +5°C to +35°C   |
| <b>Pot life of mix:</b>                                       | ca. 1 h  |
| <b>Waiting time between one layer and the next:</b>           | max 4 h  |

### FINAL PERFORMANCE (18% blending water)

| Performance characteristic   | Test method                            | Minimum requirements according to EN 1504-3 for R3 class mortar   | Product performance  |
|--|--|---|--|
| <b>Compressive strength (MPa):</b>   | EN 12190                               | ≥ 25 (after 28 days)  | > 7 (after 1 day)<br>> 25 (after 7 days)<br>> 30 (after 28 days) |
| <b>Flexural strength (MPa):</b>  | EN 196/1                               | none  | > 2 (after 1 day)<br>> 4 (after 7 days)<br>> 6 (dopo 28 gg)      |
| <b>Modulus of elasticity in compression (GPa):</b>   | EN 13412                               | ≥ 15 (after 28 days)  | > 23 (after 28 days)   |
| <b>Bond strength to concrete (MC 0.40 type substrate - water/concrete ratio = 0.40) according to EN 1766 (MPa):</b>  | EN 1542                                | ≥ 1.5 (after 28 days)   | > 2 (after 28 days)  |
| <b>Resistance to accelerated carbonatation:</b>  | EN 13295                               | Depth of carbonatation ≤ reference concrete (MC 0.45 type with water/concrete ratio = 0.45) according to UNI 1766 | test passed  |
| <b>Capillary absorption (kg/m<sup>2</sup>·h<sup>0.5</sup>):</b>  | EN 13057                               | ≤ 0.5   | < 0.40   |
| <b>Thermal compatibility measured in terms of bond strength according to EN 1542 (MPa):</b><br>– freeze-thaw cycles with de-icing salt immersion:<br>– thunder-shower cycling:<br>– dry cycling: | EN 13687/1<br>EN 13687/2<br>EN 13687/4 | ≥ 1.5 (after 50 cycles)<br>≥ 1.5 (after 30 cycles)<br>≥ 1.5 (after 30 cycles)                                     | > 1.5<br>> 1.5<br>> 1.5  |
| <b>Reaction to fire:</b>   | Euroclass                              | value declared by manufacturer  | A1   |



# Planitop 430



- In hot weather, store the product in a cool place and use only cold water to blend the mortar.
- In cold weather, store the product in a place which is protected from frost at a temperature of +20°C, and use tepid water to blend the mortar.
- After laying **Planitop 430**, we recommend that it is cured carefully, especially in hot or windy weather, to avoid the water evaporating too quickly and causing the formation of surface cracks due to plastic shrinkage. Spray water on the surface 8-12 hours after laying the mortar, and repeat the operation every 3-4 hours for at least the first 48 hours.

As an alternative, after floating the mortar, spread on a layer of either **Mapecure E**, water-based curing compound with a low-pressure pump, **Mapecure S** solvent-based curing film for mortar and concrete or **Elastocolor Primer** solvent-based, high-penetration primer for absorbent substrates and curing agent for repair mortar. **Mapecure E** and **Mapecure S**, as with all the best quality products in the same category which are currently available on the market, can impede bonding of subsequent coatings. Therefore, if a smoothing layer or paint is to be applied later, they must be completely removed by sandblasting. If **Elastocolor Primer** is used as an anti-evaporation treatment, on the other hand, a final protective layer of **Elastocolor Pittura** or **Elastocolor Rasante** may be applied directly on the treated surface without having to remove it.

### Cleaning

The mortar may be removed from tools using water before it hardens. Once set, it is difficult to remove the mortar and cleaning must be carried out using mechanical means.

### CONSUMPTION

17 kg/m<sup>2</sup> per cm of thickness.

### PACKAGING

25 kg bags.

### STORAGE

**Planitop 430** may be stored for 12 months when contained in its original packaging in a dry place.

The product conforms to the requirements of Directive 2003/53/CE.

### SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

**Planitop 430** contains cement that, when in contact with sweat or other bodily fluids, produces an irritant alkaline reaction and allergic reactions in those predisposed. Wear protective clothing, gloves and eye/face protection.

For further information, please refer to the Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

### WARNING

*While the indications and guidelines contained in this data sheet correspond to the company's knowledge and wide experience, they must be considered, under all circumstances, merely as an indication and subject to confirmation only after long-term, practical applications. Therefore, anybody who undertakes to use this product, must ensure beforehand that it is suitable for the intended application and, in all cases, the user is to be held responsible for any consequences deriving from its use.*

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