MAPEI

Planitop HDM Maxi



Two-component ready-mixed high ductility pozzolan-reaction fibre-reinforced mortar for structural "reinforced" reinforcement when used in combination with mesh from the Mapegrid range and for smoothing and levelling concrete and masonry

WHERE TO USE

Planitop HDM Maxi is used in combination with **Mapegrid G 120** and **Mapegrid G 220** primed alkali-resistant A.R. glass fibre mesh or **Mapegrid B 250** primed alkali-resistant basalt fibre mesh to structurally "reinforce" stone, brick, tuff and mixed masonry structures.
The system complies with the approach defined by the guidelines for the approval of FRCM (Fibre Reinforced Cementitious Matrix) systems.

Planitop HDM Maxi may also be used on its own to restore the texture of masonry or to level and even out the surface of reinforced concrete and masonry.

Moreover, **Planitop HDM Maxi** is part of **Mapetherm Tile System**, for installing tiles and slabs on external wall insulation systems for façades.

Some application examples

- Cladding facing walls, vaulted ceilings and masonry in general after patching them up.
- Used in combination with mesh from the **Mapegrid** range to increase the shear/tensile strength of bay walls for structures in seismic zones and for structural consolidation.
- Used in combination with mesh from the **Mapegrid** range to structurally strengthen the internal and external face of arched and vaulted masonry elements.
- Levelling and repairing reinforced concrete structures.

TECHNICAL CHARACTERISTICS

Planitop HDM Maxi is a two-component, high-strength cement-based mortar with glass fibres, selected aggregates in a granulometric curve, special admixtures and synthetic polymers in water dispersion according to a formula developed in the MAPEI Research Laboratories. When the two components are mixed together (component A powder and component B liquid) they form a plastic-thixotropic mix which may be applied by trowel or spray in layers up to 25 mm thick on horizontal and vertical surfaces.
Planitop HDM Maxi has high adhesion strength and when hardened forms a compact layer that is impermeable to water and aggressive gases present in the atmosphere while remaining permeable to water vapour.

Planitop HDM Maxi meets the requirements of EN 1504-9 (*"Products and systems for protecting and repairing concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems"*) and the minimum requirements of EN 1504-3 *("Structural and non-structural repairs")* for R2-class mortars.
Furthermore, **Planitop HDM Maxi** is classified as M25 masonry mortar according to EN 998-2 and as GP render, category CS IV according to EN 998-1.

RECOMMENDATIONS

- Do not apply **Planitop HDM Maxi** if the temperature is lower than +5°C.

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- Do not add cement, aggregates or other admixtures to **Planitop HDM Maxi**.

- Use **Planitop HDM** for layers less than 6 mm thick.

APPLICATION PROCEDURE

Preparation of the substrate

To ensure good adhesion of the system particular care must be taken when preparing substrates, which must be perfectly clean, sound and free of crumbling areas, dust, oil and old paint. Sandblasting or a thorough cleaning with high-pressure water jets is particularly suitable. Before applying the product wet the substrate so it is saturated with a dry surface (s.s.d. condition). For absorbent or weak surfaces we recommend priming the substrate with **Primer 3296** or with **Primer G** if gypsum is present.

Preparation of the mortar

Pour component B (liquid) into a suitable clean container and slowly add component A (powder) while stirring with a mixer. Carefully mix **Planitop HDM Maxi** for several minutes, making sure no powder remains attached to the sides or bottom of the container. Keep mixing until thoroughly blended (completely lump-free). A mechanical mixer at low speed is recommended for this operation to prevent entraining too much air into the mix. Avoid mixing the product manually. Large quantities of mortar may be prepared with a cement mixer. When applying the product by spray use a rendering machine with a worm-gear pump such as a Putzmeister SP11. In hot weather the consistency of the mix may be modified by adding extra water up to 2% in weight of the powder.

Application of the mortar

1. If the surface is particularly uneven level it off with layers of **Planitop HDM Maxi** up to 25 mm thick applied with a smoothing trowel, trowel or by spray.

2. Leave it to harden for 18-24 hours.

3. Apply an even layer of **Planitop HDM Maxi** around 5-6 mm thick with a flat metal smoothing trowel.

4. While the product is still “wet”, place **Mapegrid** mesh on the surface and press it down with a flat smoothing trowel so that it adheres to the mortar.

5. Apply a second layer around 5-6 mm thick of the same mortar used for the first layer so that it completely covers the **Mapegrid** mesh.

6. Smooth over the surface of the mortar with a smoothing trowel.

Overlap adjacent pieces of **Mapegrid** by at least 15 cm both lengthways and widthways.

PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

- No particular precautions need to be taken if the temperature is around +20°C.

- After application **Planitop HDM Maxi** must be very carefully cured if the weather is particularly dry, hot or windy and we recommend protecting the surface to prevent the mixing water evaporating too quickly.

Cleaning

Because of the high adhesion strength of **Planitop HDM Maxi**, including on metal, we recommend washing tools with water before the mortar starts to set. Once hardened, cleaning must be carried out mechanically.

CONSUMPTION

1.85 kg/m^2 per mm of thickness.

PACKAGING

31.25 kg kit:
component A: 25 kg bags;
component B: 6.25 kg canisters.

STORAGE

Planitop HDM Maxi component A may be stored for 12 months in its original packaging in a dry place.
This product complies with the prescriptions of Reg. (EC) N. 1907/2006 (REACH) - Annex XVII, article 47.

Planitop HDM Maxi component B may be stored for 24 months.
Store both components at a temperature of at least +5°C.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Planitop HDM Maxi component A contains cement that, when in contact with sweat or other body fluids causes irritant alkaline reactions and allergic reactions to those predisposed. It can cause damage to eyes. **Planitop HDM Maxi** component B is not considered dangerous according to current regulation regarding the classification of mixtures. During use wear protective gloves and goggles and take the usual precautions for handling chemicals. If the products comes in 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 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

Planitop HDM Maxi: *two-component high ductility fibre-reinforced cementitious mortar used for structural strengthening and levelling substrates in compliance with the requirements of EN 1504-3 class R2, EN 998-1 category CS IV and EN 998-2 class G-M25*

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	
Type:	PCC
COMPONENT A:	
Consistency:	powder
Colour:	grey
Maximum size of aggregate (mm):	1
Bulk density (kg/m³):	1,200
Dry solids content (%):	100
Chloride ion content - EN 1015-17 (%) – minimum requirement ≤ 0.05%:	≤ 0.05
COMPONENT B:	
Consistency:	fluid liquid
Colour:	white
Density (g/cm³):	1.07
Dry solids content (%):	14
Chloride ion content - EN 1015-17 (%) – minimum requirement ≤ 0.05%:	≤ 0.05
APPLICATION DATA OF PRODUCT (at +20°C - 50% R.H.)	
Colour of mix:	grey
Mixing ratio:	25 kg of **Planitop HDM Maxi** component A with 6.25 kg of **Planitop HDM Maxi** component B and 0.5 kg of water
Consistency of mix:	plastic-thixotropic
Density of wet mix (kg/m³):	1,850
Maximum applicable thickness (mm):	25
Application temperature:	from +5 to +35°C
Pot life of mix:	approx. 1 hour

FINAL PERFORMANCE (25% comp. B and 2% water; mixing according to EN 196-1)

Performance characteristic	Test method	Requirements according to EN 1504-3 for R2-class mortar	Performance of product
Compressive strength (MPa):	EN 12190	≥ 15 (after 28 days)	> 15 (after 7 days) > 25 (after 28 days)
Flexural strength (MPa):	EN 196-1	not required	> 6 (after 7 days) > 8 (after 28 days)
Compressive modulus of elasticity (GPa):	EN 13412	not required	10 (after 28 days)
Adhesion on concrete (substrate in MC 0.40 - water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	≥ 0.8 (after 28 days)	≥ 2 (after 28 days)
Thermal compatibility measured as adhesion according to EN 1542 (MPa): **– freeze-thaw cycles with de-icing salts:** **– storm cycles:** **– dry thermal cycles:**	 EN 13687-1 EN 13687-2 EN 13687-4	 ≥ 0.8 (after 50 cycles) ≥ 0.8 (after 30 cycles) ≥ 0.8 (after 30 cycles)	 ≥ 0.8 ≥ 0.8 ≥ 0.8
Capillary absorption (kg/m²·h$^{0.5}$):	EN 13057	≤ 0.5	< 0.3
Reaction to fire:	EN13501-1	Euroclass	A2 - s1, d0

FINAL PERFORMANCE (25% comp. B and 2% of water; mixing according to EN 1015-2)

Performance characteristic	Test method	Requirements according to EN 998-1	Requirements according to EN 998-2	Performance of product
Compressive strength after 28 days (N/mm²):	EN 1015-11	CS I (from 0.4 to 2.5) CS II (from 1.5 to 5.0) CS III (from 3.5 to 7.5) CS IV (≥ 6)	from Class M 1 (≥1 N/mm²) to Class M d (d ≥ 25 N/mm² or multiples of 5)	> 25 (Category CS IV) (Class M25)
Adhesion to substrate (N/mm²):	EN 1015-12	declared value and failure pattern (FP)	not required	≥ 1.0 Failure pattern (FP) = B
Initial shear strength (N/mm²):	EN 1052-3	not required	chart value	0.15
Capillary action water absorption [kg/(m²·min$^{0.5}$)]:	EN 1015-18	W_C 0 not specified W_C 1 ≤ 0.40 W_C 2 ≤ 0.20	declared value	Category W_C 2 ≤ 0.1
Coefficient of permeability to water vapour (μ)	EN 1015-19	declared value	–	≤ 50
Thermal conductivity ($\lambda_{10,dry}$) (W/m·K):	EN 1745	chart value	chart value	0.76 (P=50%)
Reaction to fire (Euroclass):	EN 13501-1	Euroclass	Euroclass	A2-s1, d0

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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

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