



# Planitop HDM Restauro

**Two-component, pre-blended, fibre-reinforced, high-ductility hydraulic lime (NHL) and Eco-Pozzolan based light-coloured mortar, particularly recommended for “reinforced” structural strengthening of masonry substrates in combination with Mapegrid G 120, Mapegrid G 220 or Mapegrid B 250 and for evening out, stone, brickwork and tuff surfaces**



## WHERE TO USE

Smoothing and levelling layers on stone, brick and tuff surfaces.

For laying **Mapegrid G 120**, **Mapegrid G 220** and **Mapegrid B 250** basalt fibres glass fibre mesh in “reinforced” structural strengthening systems on facing walls, ceilings and masonry elements.

## Some application examples

- Strengthening masonry facing walls, ceilings and general masonry work.
- Levelling and strengthening of structural elements in stone, brickwork and tuff.
- Laying and smoothing **Mapegrid G120**, a system for “localised” structural strengthening in the case of stresses induced by uneven substrates.
- Laying and smoothing **Mapegrid G 220** or **Mapegrid B 250** a system for “reinforced” structural strengthening against stresses induced by seismic activity.

## TECHNICAL CHARACTERISTICS

**Planitop HDM Restauro** is a two-component, pre-blended, fibre-reinforced, light-coloured mortar composed of hydraulic lime (NHL), Eco-Pozzolan, natural sand, special additives and synthetic polymers in water dispersion according to a formula developed in MAPEI's research laboratories. When the two components are mixed together (component A powder and component B liquid) they form a mix which is easy to spread, and which may be applied manually on vertical surfaces at a thickness of up to a maximum of 10 mm per coat.

Thanks to its content of synthetic resin in water dispersion, **Planitop HDM Restauro** has high bonding strength and, once hardened, forms a tough and compact layer which is impermeable to water and aggressive gases present in the atmosphere, but permeable to vapour.

**Planitop HDM Restauro** is classified as an M15 type masonry mortar according to EN 998-2 European Standards and a category CS IV GP type render according to EN 998-1, in that it reaches a compressive strength of  $> 15 \text{ N/mm}^2$  (EN 1015-11) even though it is a mortar composed of lime and Eco-Pozzolan.

## RECOMMENDATIONS

- Do not apply **Planitop HDM Restauro** if the temperature is lower than  $+5^\circ\text{C}$ .
- Do not add cement, aggregates or water to **Planitop HDM Restauro**.

## APPLICATION PROCEDURE

### Preparation of the substrate

To guarantee good adhesion, special care must be taken when preparing the substrate. It must be perfectly clean, sound and free of crumbling parts, dust, oil and old paintwork. Sandblasting, a vigorous cleaning cycle with high-pressure water jets are particularly suitable to eliminate efflorescence and soluble salts from the surface of the masonry. Clean the structure, therefore, with water.

If the product is applied on masonry, stone or tuff surfaces, any defects present must be repaired using **Mape-Antique Strutturale NHL**.



# Planitop HDM Restauro



Application of the first layer of Planitop HDM Restauro by trowel on the outer face of a vaulted ceiling



Positioning Mapegrid G 220 alkali-resistant glass fibre reinforcement mesh



Application of the second layer of Planitop HDM Restauro by trowel on the outer face of a vaulted ceiling to cover the Mapegrid G 220 with an even coat

## Preparation of the mortar

**Planitop HDM Restauro** must be prepared according to the application selected using a mixer or drum mixer (for manual application) for large quantities or in the mixing unit of a rendering machine (for mechanical application).

For manual application, pour component B (liquid) into a suitable clean container and slowly add component A (powder) while stirring with a mechanical mixer. Carefully mix **Planitop HDM Restauro** for several minutes, making sure no powder remains attached to the sides or bottom of the container. Keep mixing until the blend is completely homogenous (with no lumps). A low-speed mechanical mixer is recommended for this operation, to avoid too much air being entrapped in the mix.

If the mortar is applied by spray, on the other hand, a rendering machine with a separate mixing unit must be used.

## Applying of the mortar when laying Mapegrid G 120, Mapegrid G 220 or Mapegrid B 250

1. Apply a uniform, 4-5 mm-thick layer of **Planitop HDM Restauro** using a flat, metal trowel (or with rendering machine).
2. While the product is still "fresh", insert **Mapegrid G 120, Mapegrid G 220 or Mapegrid B 250** by pressing it lightly with a flat trowel so that it adheres perfectly to the mortar.
3. Apply a second uniform layer of **Planitop HDM Restauro** approximately 4 mm thick in order to completely cover the mesh.
4. Smooth the surface while still "fresh" using a flat trowel.

Adjacent longitudinal and transversal strips of **Mapegrid G 120, Mapegrid G 220 or Mapegrid B 250** must overlap by at least 15 cm at the junction points.

## Finishing the mortar

After applying **Planitop HDM Restauro**, if a smooth finish is required, use a MAPEI product such as **Mape-Antique FC Ultrafine** or **Mape-Antique FC Civile** or **Mape-Antique FC Grosso** (cement-free mortars of different grain size, made from lime and Eco-Pozzolan). Further protective coatings may be applied after complete hardening of the finishing layer. Use **Elastocolor Paint** (protective and decorative elastic paint based on acrylic resins in water dispersion) after applying a coat of **Elastocolor Primer** (solvent-based fixing primer with high penetration properties), or one of the silicate-based products from the **Silexcolor** range or one of the silicone resin-based products from the **Silancolor** range.

All covering materials are available in a wide range of colours, which may be created using the **ColorMap®** automatic colouring system.

## PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

- No special precautions need to be taken when the temperature is around +20°C.
- In particularly dry, hot or windy conditions, **Planitop HDM Restauro** must be cured carefully; we recommend protecting the surface against quick evaporation of water.

## Cleaning

Due to the high bonding strength of **Planitop HDM Restauro**, even on metals, we recommend that work tools are washed with water before the mortar sets. Once it has set, cleaning may only be carried out by mechanical means.

## CONSUMPTION

1.9 kg/m<sup>2</sup> per mm of thickness.

## PACKAGING

29.75 kg kits:  
component A: 25 kg sacks;  
component B: 4.75 kg cans.

## STORAGE

**Planitop HDM Restauro** component A may be stored for up to 12 months when contained in its original packaging in a dry place.

**Planitop HDM Restauro** component B may be stored for up to 24 months. Both components must be stored at a temperature of at least +5°C.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instructions for the safe use of our products can be found on the latest version of the Safety Data Sheet, available from our website [www.mapei.com](http://www.mapei.com).

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)

## LEGAL NOTICE

*The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the*

**Planitop HDM Restauro: two-component, fibre-reinforced mortar made from natural hydraulic lime (NHL) and eco-pozzolan compliant with the requirements of EN 998-1 (GP - CS IV) and EN 998-2 (G - M15)**

## TECHNICAL DATA (typical values)

### PRODUCT IDENTITY

#### Comp. A

Appearance:	powder
Colour:	light beige
Bulk density (kg/m <sup>3</sup> ):	1,400
Max diameter of aggregate (mm) (EN 1015-1):	1.5
Chloride content (EN 1015-17) (%):	≤ 0.05

#### Comp. B

Appearance:	fluid liquid
Colour:	white
Bulk density (g/cm <sup>3</sup> ):	1.02
Dry solids content (%):	10
Chloride content (EN 1015-17) (%):	≤ 0.05

### APPLICATION DATA

Mixing ratio:	25 kg of <b>Planitop HDM Restauro</b> comp. A with 4,75 kg of <b>Planitop HDM Restauro</b> comp. B and 0-0,5 kg of water
Consistency of mix:	fluid-trowable
Density of mix (EN 1015-6) (kg/m <sup>3</sup> ):	1,900
Thickness applied (mm):	from 3 to 10 mm per coat
Application temperature range:	from +5°C to +35°C
Pot life of mix:	approx. 1 hour
Setting time (start / finish):	10 hours / 20 hours

### FINAL PERFORMANCE (19% component B and 1% water; mixing according to the note with\*)

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/mm <sup>2</sup> ):	EN 1015-11	CS I (from 0.4 to 2.5)	from Class M 1 (> 1 N/mm <sup>2</sup> ) to Class M d d ≥ 25 N/mm <sup>2</sup> or multiple of 5	> 15 (Category CS IV) (Class M 15)
		CS II (from 1.5 to 5.0)		
		CS III (from 3.5 to 7.5)		
		CS IV (≥ 6)		
Bond strength to substrate (N/mm <sup>2</sup> ):	EN 1015-12	declared value and failure mode (FP)	not required	≥ 0.8 Failure mode (FP) = B
Initial shear strength (f <sub>vk</sub> ) (N/mm <sup>2</sup> ):	EN 1052-3	not required	chart value	0.15
Compressive modulus of elasticity (GPa):	EN 13412	not required	not required	8.000
Capillary action water absorption [kg/(m <sup>2</sup> ·min <sup>0.5</sup> )]:	EN 1015-18	W <sub>c</sub> 0 not declared W <sub>c</sub> 1 ≤ 0.40 W <sub>c</sub> 2 ≤ 0.20	declared value	Category W <sub>c</sub> 2 ≤ 0.2
Coefficient of permeability to water vapour (μ)	EN 1015-19	declared value	–	≤ 60
Thermal conductivity (λ <sub>10,dry</sub> ) (W/m·K):	EN 1745	chart value	chart value	0.71 (P = 50%)
Reaction to fire (Euroclass):	EN 13501-1	Euroclass	value declared by manufacturer	A2-s1, d0



**Freshly-mixed Planitop HDM Restauro**



**Application of Planitop HDM Restauro by spray on a brick wall**



**Application of Planitop HDM Restauro system with Mapegrid G 220 on a brick wall**

\* Mix with a drill at high-speed for around 1' 30" to form a smooth, even paste with the required density

# Planitop HDM Restauro

resulting document shall not supplement or replace requirements per the TDS in force at the time of the MAPEI product installation.

The most up-to-date TDS can be downloaded from our website [www.mapei.com](http://www.mapei.com).

ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR

DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

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



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