PLANITOP RASO MAX

Smooth-textured, bre-reinforced, waterproof, lime cement smoothing and levelling mortar applied in layers 2 to 10 mm thick over cementitious render, concrete and plastic coatings





EN 1504-3 R2 REPAIR MORTAR

EN 998-1 GP-CS IV RENDERING AND PLASTERING MORTAR

NEW FORMULA

GEV-EMICODE EC 1 PLUS very low emission

BENEFITS AND FEATURES

- Fibre-reinforced
- Extra white
- Water repellent

WHERE TO USE

Fine-textured levelling/skim coats on internal and external concrete, cementitious render, old quartz paint and scratch-effect plastic coatings.

Some application examples

- Levelling and finishing concrete elements and particularly strong cementitious render before painting.
- Smoothing walls, even over existing paints such as washable acrylic paints, quartz paints, plastic coatings, etc. as long as they are consistent, clean and well anchored.
- Smoothing and levelling plasterboard panels (previously treated with **Primer G**).
- Smoothing and levelling internal glass coatings (previously treated with **Eco Prim Grip Plus**).

TECHNICAL CHARACTERISTICS

Planitop Raso Max is a one-component, fine-textured, ready-mixed, fibre-reinforced, normal-setting and hardening, waterproof, white smoothing and levelling mortar made from aerated and hydraulic binders, selected limestone sand, special additives and synthetic polymers according to a formula developed in MAPEI research laboratories. When **Planitop Raso Max** is mixed with just water, its special composition forms a highly adhesive mortar with high workability, which makes it easier to spread with a smooth trowel and makes finishing operations with a sponge float easier.

Planitop Raso Max may be applied in layers from 2 to 10 mm thick.

MAPEI

In good weather, coloured finishing products from the **Silexcolor**, **Silancolor**, **Quarzolite**, **Elastocolor** or **Colorite** ranges may be applied 1 week after applying **Planitop Raso Max** and after treating the surface of the mortar with their relevant primers. On internal surfaces, use paint from the **Dursilite** range after treating the surface with **Malech** or **Dursilite Base Coat**.

Planitop Raso Max has extremely low VOC (Volatile Organic Compounds) emissions, with a view to protecting the health of both applicators and end-users, and is EC1 Plus certified by the German association GEV.

Planitop Raso Max contributes to the achievement of significant LEED credits and complies with the CAM (Minimum Environmental Criteria).

Planitop Raso Max complies with the principles defined in 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 of EN 1504-3 ("*Structural and non-structural repair*") for class R2 non-structural mortars and is classified as GP ("*General purpose mortar for internal/external render*"), category CS IV according to EN 998-1.

RECOMMENDATIONS

- Do not apply **Planitop Raso Max** if the temperature is lower than +5°C.
- Do not add cement or admixtures to **Planitop Raso Max**.
- Before applying the product make sure the substrate is sound and that there are no traces of dust.
- Do not use or apply **Planitop Raso Max** if there are strong winds or if surfaces are exposed to direct sunlight.
- Apply a coat of suitable primer on gypsum-based substrates (such as **Primer G**).
- Do not apply on de-humidifying render (use a smoothing/skimming product from the **Mape-Antique** range or **PoroMap** or a coloured finishing product from the **Silexcolor** or **Silancolor** ranges).

APPLICATION PROCEDURE

TECHNICAL INFORMATION FOR THE APPLICATION	
Mix composition:	100 kg of **Planitop Raso Max** 22-24 kg of water
Application thickness:	2-10 mm
Recommended application temperature:	surrounding and substrate temperature from +5°C to +35°C
Pot life of mix:	approx. 1 hour (at +20°C)
Minimum re-coat time before painting with a coloured finishing product from the Silexcolor, Silancolor, Elastocolor, Quarzolite, Colorite or Dursilite ranges:	7 days

Preparation of the substrate

Surfaces must be perfectly clean and solid and old paintwork must be sound and well-bonded to the substrate. It is recommended, therefore, that substrates are prepared carefully by mechanically removing all loose or detached areas of existing finish and then cleaning the surface where the mortar is to be applied with water to remove any traces of dust which could affect the mortar's adhesion. Before applying **Planitop Raso Max**, wait until the surface film of water has evaporated or dry it off with compressed air.

Absorbent substrates, such as render and concrete, must be wetted with water. Non-absorbent substrates such as old paintwork, on the other hand, must be perfectly dry when applying **Planitop Raso Max**.

If the substrate remains dusty after cleaning, which indicates a lack of surface cohesion, treat the surface with **Primer 3296** as a precaution (please refer to the respective Data Sheet). Then make sure the substrate is compact and suitable to be smoothed/skimmed with a high performance product such as **Planitop Raso Max**.

When applying the product on internal glass coatings, apply a coat of **Eco Prim Grip Plus** beforehand and, once dry, apply **Planitop Raso Max**.

Preparation of the mortar

Pour 5.5-6.0 litres of water into a suitable clean container and slowly add a 25 kg bag of **Planitop Raso Max** while mixing. Accurately stir **Planitop Raso Max** for a few minutes, carefully removing all traces of dust from the sides and the bottom of the container.

Continue mixing until a homogeneous, lump-free mix is obtained. Use a low-speed electric mixer to avoid entraining too much air into the mix.

Avoid mixing the product manually.

The instructions for the preparation of the mortar to be used for the creation of concrete samples for laboratory tests are reported in the TECHNICAL DATA table.

Application of the mortar

Spread a layer of mortar between 2 mm and 10 mm thick on the surface prepared as specified using a smooth metal trowel. If the surface is even a notched trowel be used to apply the thickness required. If the substrate is irregular and uneven, it is recommended to embed **Mapenet 150** alkali-resistant glass fibre mesh with a mesh size 4 x 5 mm (in compliance with 040083-00-0404 EAD) between the first and second coat of **Planitop Raso Max**.

The surface of **Planitop Raso Max** may be finished off with a traditional damp sponge float a few minutes after application, depending on the thickness applied.

PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

No particular precautions need to be taken if the temperature is around +20°C. If the temperature is particularly high or low, or if there are strong breezes, adopt the usual precautions for cementitious materials.

To get an optimum finish and protective surface, it is recommended to apply a coloured finishing product from the **Silexcolor**, **Silancolor**, **Elastocolor**, **Quarzolite** or **Colorite** ranges. On internal surfaces use paint from the **Dursilite** range.

CLEANING

Because of the high adhesion of **Planitop Raso Max** it is recommended to clean tools with water before the mortar starts to set. Once the mortar has set, tools must be cleaned using mechanical means.

COLOUR

White.

CONSUMPTION

Approximately 1.45 kg/m^2 per mm of thickness.

PACKAGING

25 kg bags.

STORAGE

Planitop Raso Max can be stored for 12 months in its original packaging in a dry area.

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.

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	
Class according to EN 1504-3:	R2
Identity according to EN 1504-1:	PCC
Definition according to EN 998-1:	GP
Consistency:	powder
Colour:	white
Maximum size of aggregate:	≤ 0.6 mm
Ion chloride content: – minimum requirements ≤ 0.05% - according to EN 1015-17:	≤ 0.05 %
EMICODE:	EC1 Plus - very low emissions

TECHNICAL INFORMATION FOR PRODUCT PREPARATION	
Mix composition:	100 parts by weight of **Planitop Raso Max** with 23% of water
Preparation of the mix:	mix with a paddle mixer for around 1 minute to form a smooth, even paste with the required density

CHARACTERISTICS OF FRESH MIX (at +20°C - 50% R.H.)	
Colour of mix:	white
Consistency of mix:	thixotropic spreadable
Density of mix:	1700 kg/m³

FINAL PERFORMANCE
According to the curing times defined in the test methods

Performance characteristic	Test method	Requirements according to EN 1504-3 R2	Requirements according to EN 998-1 GP – CS IV	Product performance
Compressive strength:				
- 1 day	EN 12190	≥ 15 MPa	not required	**3 MPa**
- 7 days				**12 MPa**
- 28 days				**16 MPa**
Modulus of elasticity in compression:	EN 13412	not required	not required	**12 GPa**
Bond strength to concrete by pull-off:	EN 1542	≥ 0.8 MPa	not required	**≥ 1.0 MPa**
Thermal compatibility – freeze-thaw cycling with de-icing salt (50 cycles):	EN 13687-1	≥ 0.8 MPa	not required	**> 0.8 MPa**
Capillary absorption:	EN 13057	≤ 0.5 kg/m²·h$^{0.5}$	not required	**≤ 0.5 kg/m²·h$^{0.5}$**
Compressive strength:	EN 1015-11	not required	CS I (0.4 to 2.5 MPa) CS II (1.5 to 5.0 MPa) CS III (3.5 to 7.5 MPa) CS IV (≥ 6 MPa)	**Category CS IV**
Adhesion to substrate:	EN 1015-12	not required	declared value and failure pattern (FP)	**≥ 1.0 MPa failure pattern (FP) = B**
Adhesion to substrate (plastic coatings) (N/mm²):	-	not required	not required	**> 0.8 MPa** (*)
Water absorption due to capillary action:	EN 1015-18	not required	W_C 0 not specified W_C 1 ≤ 0.40 kg/(m²·min$^{0.5}$) W_C 2 ≤ 0.20 kg/(m²·min$^{0.5}$)	**Category W_C2**
Water-vapour permeability coefficient:	EN 1015-19	not required	declared value	**μ ≤ 35**

Thermal conductivity ($\lambda_{10,dry}$):	EN 1745	not required	chart value	**0.57 W/m-K (P = 50%)**
Reaction to fire:	EN 13501-1	Euroclass	Euroclass	**E**

NOTES:

Preparation of samples according to EN 1504-3: compaction according to EN 196-1.

(*) Adhesion may vary according to the nature of the plastic coating.

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.

The values declared in the TECHNICAL DATA table (typical values) were obtained in compliance with test methods and curing cycles defined in the technical standards referenced therein. Therefore, please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.

Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

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The most up-to-date TDS can be downloaded from our website www.mapei.com. www.mapei.com.

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