PLANITOP BD

One-component rapid-drying highly elastic cementitious waterproofing mortar for concrete road decks and structures

TYPICAL AREAS OF USE

Waterproofing concrete road decks before laying asphalt.
Waterproofing and protecting concrete structures.

ADVANTAGES

- Excellent workability;
- Rapid drying (second layer may be applied after just 2 hours and asphalt may be laid after just 3 days);
- High crack-bridging capacity, including at low temperatures;
- Suitable for contact with asphalt at up to +180°C;
- Perfectly compatible with asphalt. Shear strength with bituminous conglomerate binder at +160°> 0.6 MPa (according to Swiss standard SN 671961);
- Excellent adhesion to substrates prepared as specified;
- Hard-wearing over time.

TECHNICAL CHARACTERISTICS

Planitop BD is a one-component, cementitious waterproofing mortar made from cementitious binders, selected fine-grained aggregates and special highly-flexible acrylic polymers.
Once mixed with water, it forms a paste with excellent workability which is easy to apply with a trowel, rake or by spray on both horizontal and vertical surfaces without running and without waste.
Other characteristics of **Planitop BD** are as follows:

- impermeable to water under positive and negative pressure;
- **Planitop BD** complies with the principles 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 requirements of EN 1504-2 coating (C) according to principles PI, MC, PR and IR (“Concrete surface protection systems”);
- resistant to UV rays.

RECOMMENDATIONS

- Do not add cement, aggregates or gypsum to **Planitop BD**.
- Never apply on particularly damp substrates.
- Do not apply if the temperature is lower than +5°C.
- Do not add more than the recommended amount of water.

- If rain is forecast immediately after application protect the product for the first 24 hours.
- Do not apply on cementitious substrates that have not been cured to the required standard.

APPLICATION PROCEDURE

APPLICATION INFORMATION	
Mixing ratio:	100 parts of **Planitop BD** with 36-40 parts of water (5.4-6.0 litres of water every 15 kg bag)
Thickness applied:	Total wet thickness at least 2.5 mm
Application temperature:	Surrounding temperature and temperature of substrate +5°C to +35°C
Pot life of mix:	approx. 1 hour (at +20°C)
Waiting time between each layer:	At least 2 hours (first layer must be dry before applying second layer)

Substrate preparation

Remove cement laitance, loose and crumbling parts and traces of dust, grease, oil and stripping compound by sandblasting or hydro-blasting.
Before applying the product on the old foundation slab, grind off all the old bituminous membrane and hydro-blast the surface to remove any traces of previous applications. Wait until all excess water has evaporated off before applying **Planitop BD**. If necessary, use compressed air to help remove excess water.
The substrate must be sound, perfectly clean and have a dry surface before applying the product.
If the structure to be waterproofed with **Planitop BD** is badly deteriorated, remove all damaged areas using hand and/or power tools or by hydro-blasting.
If any rusty rebar is left exposed after preparing the substrate, clean the rebar and protect it with a coat of **Mapefer** or **Mapefer 1K.** Then reintegrate the concrete using suitable mortar from the **Mapegrout** line according to the instructions on the product data sheet.

Preparing the product

Pour 5.4-6.0 litres of water into a clean container and slowly add **Planitop BD** while mixing. Mix the product with a drill at low-speed with a suitable mixing attachment for around 2 minutes until the product is completely blended, making sure none of the powder remains stuck to the sides or bottom of the container. Avoid mixing the product manually.
Indications on how to prepare the product to make laboratory test samples may be found in the TECHNICAL DATA TABLE.

Application of the product

Apply **Planitop BD** on the concrete foundation slab of the road deck with a trowel, rake or by spray with a separate screw pump within 60 minutes of mixing; apply one or two coats, according to the condition of the substrate. Wait at least two hours between the first and second coat, and apply the second coat only when the first one is completely dry to form a layer with a total thickness of at least 2.5 mm.
Apply **Planitop BD** so that it also extends to coat the full height of the kerb after creating a fillet between the vertical and horizontal surfaces of the kerb to avoid sharp corners.
Wait at least 72 hours (at around +20 °C) after applying **Planitop BD** before laying asphalt. If the temperature is different, carry out a preliminary test to verify its drying time. For further information, please contact Mapei Technical Services.

CLEANING

Traces of the product may be easily removed from hands and tools while still fresh using water. Once hardened, **Planitop BD** may only be removed mechanically.

CONSUMPTION

1.0 kg/m^2 per mm of thickness of fresh product applied on a smooth substrate.
In general, the indicated consumption rate is for a seamless film on a flat surface and could be higher on uneven sub-layers.

PACKAGING

15 kg bag.

STORAGE

Planitop BD may be stored for up to 12 months in its original packaging in a dry place.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

For further and complete information about the safe use of our products please refer to the latest version of the Material Safety Data Sheet available on our website www.mapei.it.
PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT DETAILS	
Consistency:	powder
Colour:	white
Dry solids content (%):	100

CHARACTERISTICS OF FRESH MIX (at +20°C - 50% R.H.)	
Colour of mix:	white
Consistency of mix:	plastic-trowellable
Density of mix (kg/m³):	1100
Pot life of mix:	1 hour

FINAL PERFORMANCE PROPERTIES (Test sample conditions: +23°C - 50% R.H.)			
Performance characteristic	**Test method**	**Requirements according to EN 1504-2 coating (C) principles PI, MC, PR and IR**	**Performance of product**
Adhesion to concrete (substrate in MC 0.40 – water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	For flexible systems with no traffic ≥0.8 with traffic: ≥ 1.5	≥ 1.5 (after 28 days)

Thermal compatibility to freeze/thaw cycles with de-icing salts, measured as adhesion (N/mm^2):	EN 13687-1 - EN13687-2	For flexible systems with no traffic ≥0.8 with traffic: ≥ 1.5	≥ 0.8
Adhesion after contact with bituminous conglomerate type binder at +160° (MPa):	SN 671961	not required	> 0.6
Static crack-bridging at +23°C after conditioning according to EN 1062-11 § 4.1 - 7 days at +70 °C (mm):	EN 1062-7 Method A	from class A1 (0.1 mm) to class A5 (2.5 mm)	class A4 (23°C) (> 1.25 mm)
Static crack-bridging at -10°C after conditioning according to EN 1062-11 § 4.1 - 7 days at +70 °C (mm):	EN 1062-7 Method A	from class A1 (0.1 mm) to class A5 (2.5 mm)	class A4 (-10°C) (> 1.25 mm)
Static crack-bridging at +23 °C after conditioning according to EN 1062-11 § 4.2 - 2000 hours of cycles with UV radiation and moisture (mm):	EN 1062-7 Method A	from class A1 (0.1 mm) to class A5 (2.5 mm)	class A3 (23°C) (> 0.5 mm)
Static crack-bridging at +23°C after contact with bituminous conglomerate at +160°C (mm):	EN 1062-7 Method A	none	class A4 (23°C) (> 1.25 mm)
Dynamic crack-bridging at +23°C after conditioning according to EN 1062-11 § 4.1 - 7 days at +70°C (mm):	EN 1062-7 Method B	form class B1 to class B4.2	classe B2 (2+3°C) o failure of test sample after 1,000 cracking cycles with movements in crack from 0.10 to 0.15 mm
Dynamic crack-bridging at -10°C after conditioning according to EN 1062-11 § 4.1 - 7 days at +70°C (mm):	EN 1062-7 Method B	form class B1 to class B4.2	class B2 (-10°C) no failure of test sample after 1,000 cracking cycles with movements in crack from 0.10 to 0.15 mm
Dynamic crack-bridging at +23 °C after conditioning according to EN 1062-11 § 4.2 - 2000 hours of cycles with UV radiation and moisture (mm):	EN 1062-7 Method B	form class B1 to class B4.2	class B2 (23°C) no failure of test sample after 1,000 cracking cycles with movements in crack from 0.10 to 0.15 mm
Abrasion resistance (mg):	EN ISO 5470-1	loss in weight < 3000 mg with H22 disk after 1000 cycles/load 1000 g	< 1200
Impact strength:	EN ISO 6272-1	No cracks or delamination aftern loading Class I ≥ 4 Nm Class II ≥ 10 Nm Class III ≥ 20 Nm	Class III (no cracks or delamination)
Permeability to carbon dioxide (CO_2) according – diffusion in equivalent air thickness S_{DCO2} (m):	EN 1062-6	> 50	> 100
Permeability to water vapour - equivalent air thickness S_D- (m):	EN ISO 7783-1	Class I S_D < 5 m Class II 5 m ≤ S_D ≤ 50 m Class III S_D > 50 m	S_D < 1,5 Class I (permeable to water vapour)
Impermeability expressed as coefficient of permeability to free water ($kg/m^2 \cdot h^{0.5}$):	EN 1062-3	W < 0.1	< 0.01
Resistance to artificial atmospheric agents (2000 hours of UV rays and condensation):	EN 1062-11	No visible defect	No visible defect No blistering, cracking, flaking or crumbling
Resistance to positive hydraulic pressure (bar):	EN 12390-8	None	5
Resistance to negative hydraulic pressure (bar):	UNI 8298-8	None	2.5
Reaction to fire:	EN 13501-1	Euroclass	E

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.
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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Mapei S.p.A.
Via Cafiero, 22, 20158, Milano
+39-02-376731 www.mapei.com mapei@mapei.it

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