MAPELASTIC TURBO

Two-component, rapid-drying elastic cementitious mortar for waterproofing terraces and balconies, including at low temperatures and on substrates not completely dry

WHERE TO USE

Rapid waterproofing of concrete structures, cementitious screeds, and old floor and wall coverings, including at low temperatures.

Some application examples

- Waterproofing balconies, terraces, flat roofs, and swimming pools before bonding ceramic, mosaic, or natural stone floor and wall coverings.
- Waterproofing terraces and balconies by overlaying existing floor coverings before bonding new flooring.

ADVANTAGES

- Suitable for tiling after approx. 4 hours of application of the first coat, in normal weather conditions, and within 24 hours at temperatures down to +5°C.
- Suitable also for sublayers not completely dry but sufficiently cured.
- Rain-fast after just a few hours, including at low temperatures and in high levels of environment humidity.
- CE-marked product according to EN 14891 and EN 1504-2 standards.
- Resistant to UV rays
- Suitable also for overlaying existing ceramic, all types of mosaic and natural stone floor and wall coverings.
- The product is certified EC1 Plus by the GEV Institute (Gemeinschaft Emissions-kontrollierte Verlegewerkstoffe, e.V.) as a product with very low emission of volatile organic compounds.

TECHNICAL CHARACTERISTICS

Mapelastic Turbo is a two-component, made of cementitious binders mortar, fine-grained selected aggregates, special admixtures and synthetic polymers in water dispersion.
Mapelastic Turbo is the result of MAPEI's research laboratories that have developed a special polymer with the capacity to accelerate the drying time of **Mapelastic**. This special formulation allows work to be carried out more quickly than with any other product at low temperatures and on substrates that are not completely dry.

The **Turbo** version has the same resistance to chemical attacks from de-icing salts, sulphates, chlorides, and carbon dioxide that guarantees the durability of **Mapelastic** over the years.
When the two components are mixed together, they form a mix with good workability. It is applied in two coats, with alkali-resistant reinforcement fabric or mesh embedded between the coats (such as **Mapenet 150** or **Mapetex Sel N**), to form a total thickness of at least 2 mm.

Mapelastic Turbo also has excellent adhesion to all concrete surfaces and cementitious screeds, as well as ceramics, mosaics, natural stone and terrazzo, as long as they are well bonded to the substrate and prepared as specified.
The setting time of **Mapelastic Turbo** allows surfaces to be waterproofed and floor and wall coverings to be bonded within 24 hours when used in combination with a rapid adhesive from the MAPEI range, even if the environmental conditions are not ideal.
Mapelastic Turbo 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 1504-2 coating (C) according to principles PI, MC, and IR ("Surface protection systems for concrete").
Mapelastic Turbo meets the requirements of EN 14891 ("Liquid applied water impermeable products for use beneath ceramic tiling bonded with adhesives").

RECOMMENDATIONS

- Do not use **Mapelastic Turbo** for thick layers (more than 2 mm per coat).
- Apply **Mapelastic Turbo** only if the temperature is above +5°C.
- Do not add cement, aggregates, or water to **Mapelastic Turbo**.
- Do not apply **Mapelastic Turbo** on lightweight substrates.
- In hot weather, avoid exposure of the material (powder and liquid) to the sun before use
- Do not apply **Mapelastic Turbo** on substrates that have not been cured as specified.
- Place the reinforcement on the first coat of product while it is still wet.

TECHNICAL INFORMATION FOR PRODUCT PREPARATION	
Mixing ratio:	component A : component B = 1 : 0.8 for ex. one 20 kg bag of component A with one 16 kg tank of component B)
Thickness applied:	final thickness of at least 2 mm *(make reference to the paragraph "Application of the mortar")*
Application temperature:	surrounding and substrate temperature from +5°C to +35°C
Density:	1400 kg/m^3
Pot life of mix:	approx. 45 min (at +20°C)

APPLICATION PROCEDURE

Preparation of the substrate

- CEMENTITIOUS SCREED:
- seal cracks caused by settling of the screed or hygrometric shrinkage with
- **Planitop Fast 330** or **Adesilex P4**;
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- LIGHTWEIGHT SCREEDS: lay a polyethylene sheet over lightweight screeds and then install a reinforced cementitious screed thicker than 3.5 cm (made using **Topcem** or **Topcem Pronto** for example).
- EXISTING FLOOR AND WALL COVERINGS: existing ceramic, stone, terracotta, etc. floor, and wall coverings must be well bonded to the substrate and must be completely free of substances that could affect adhesion, such as grease, oil, wax, varnish, etc. To remove traces of material that can affect the adhesion of **Mapelastic Turbo**, clean the surface with specific products such as **UltraCare HD Cleaner**.

Waterproofing construction features

In the waterproofing sector, more than in any other sector, it is essential that particular attention is paid to construction features. For this reason, it is important to use products from the **Mapeband** and **Drain** ranges together with **Mapelastic Turbo** when waterproofing such features.
Mapeband TPE is used to seal structural joints and all other breaks in the covering that are subjected to repeated movements, while **Mapeband**, **Mapeband Easy,** and **Mapeband SA** are used to waterproof fillet joints between horizontal and vertical elements and contraction joints. Special kits are also available from the **Drain** range to seal drainage points.
It is absolutely imperative that special care is taken in these critical areas after levelling off and cleaning the substrate and before applying the cementitious waterproofing mortar.

Preparation of the mortar

Pour component B (liquid) into a suitable clean container, then slowly add component A (powder) while mixing. Accurately stir the mix for a few minutes, carefully removing all traces of dust from the sides and the bottom of the container.
Keep mixing for a minimum of 3 minutes, until a completely blended mix is obtained.
A mechanical mixer at low speed is recommended for this operation, to prevent entraining too much air into the mix.
Do not mix 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

Mapelastic Turbo remains workable in the container for more than 45 minutes.
After preparing the surface, apply a skim coat of **Mapelastic Turbo** using the flat side of a trowel. Apply a coat of product over the skim coat while it is still wet with the notched side of the trowel and embed **Mapenet 150** alkali-resistant, glass fibre reinforcing mesh in this coat. After positioning the mesh, go over the surface with the flat side of the trowel.
When the first layer of **Mapelastic Turbo** has hardened (approx. 1 hour in good weather conditions), apply a second coat using the flat side of the trowel.
To further improve the extension at elongation at break and crack-bridging properties of **Mapelastic Turbo**, we recommend using **Mapetex Sel N** non-woven, polypropylene fabric instead of **Mapenet 150**. Apply a first coat of **Mapelastic Turbo** at least 1 mm thick with the flat side of a trowel and embed **Mapetex Sel N** in this coat while it is still wet, pressing down on it with the flat side of the trowel or with a spiked roller so that it is completely embedded. Once the first coat has completely hardened, apply the second coat so that it completely covers the fabric, then go over the surface with the flat side of the trowel.
After applying the second coat of **Mapelastic Turbo**, the waiting time before bonding the covering varies from 3 to 16 hours, depending on the surrounding conditions.

Bonding coverings on Mapelastic Turbo

BALCONIES AND TERRACES:

- Use minimum C2 class adhesives to be selected depending on the format of the tiles, such as **Keraflex**, **Ultraflex S1 2K, Keraflex Maxi S1 Zero,** or **Ultralite S1 Flex Zero**, alternatively use C2F class adhesives, such as **Keraquick Maxi S1, Ultralite S1 Flex Quick, Ultralite S2 Flex Quick**, or **Elastorapid** for rapid bonding work and at low temperatures.
- Grout the joints with cementitious products with minimum CG2 class, such as **Ultracolor Plus** or **Keracolor FF**, **Keracolor GG** mixed with **Fugolastic**.
- Seal joints with a specific MAPEI flexible sealant (such as **Mapeflex PU45 FT**, **Mapesil AC, Mapesil AC Eco,** or **Mapesil LM**. Other types of sealant may be required, depending on specific service conditions. Please contact MAPEI Technical Services Department).

SWIMMING POOLS:

- Use minimum C2 class adhesives to be selected depending on the format of the tiles, such as **Keraflex**, **Keraflex Maxi S1 Zero,** or **Ultralite S1 Flex Zero**, alternatively minimum C2F class rapid adhesives, such as **Keraquick Maxi S1, Ultralite S1 Flex Quick, Ultralite S2 Flex Quick**, or **Elastorapid**. For mosaic, use **Ultralite S1 Flex Zero** or **Adesilex P10** + **Isolastic** mixed with 50% water (class C2ES1).
- Grout the joints with a CG2 class cementitious product (**Ultracolor Plus** or **Keracolor FF/Keracolor GG** mixed with **Fugolastic**) or with an RG class epoxy product from the **Kerapoxy** range.
- Seal the joints with. **Mapesil AC** or **Mapesil AC Eco** silicone sealant.

Application of the first coat of ***Mapelastic Turbo***

Placing ***Mapenet 150*** *on the first coat of* ***Mapelastic Turbo*** *while till wet*

Placing ***Mapetex Sel N*** *on the first coat of* ***Mapelastic Turbo*** *while till wet*

Application of the second coat of ***Mapelastic Turbo*** *over the first coat reinforced with M****apetex Sel N***

Bonding tiles with ***Elastorapid***

Grouting tiles with ***Ultracolor Plus***

CLEANING

Due to high adhesion of **Mapelastic Turbo** even on metal, it is advisable to wash working tools with water before the mortar starts to set. Once hardened, cleaning can be carried out only mechanically.

CONSUMPTION

Approx. 2.4 kg/m² (for two coats of product with reinforcement embedded between the two coats).
Note: the consumption rates are calculated on the basis of a seamless film on a flat surface, and they will be higher on uneven substrates.

PACKAGING

36 kg kit (A+B):

- component A: 20 kg bag
- component B: 16 kg jerrycan

18 kg kit (A+B):

- component A: 10 kg bag
- component B: 8 kg jerrycan

STORAGE

Mapelastic Turbo component A can be stored for 12 months in its original packaging in a dry area.
Mapelastic Turbo component B can be stored for 24 months.
Store **Mapelastic Turbo**in a dry place 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 SDS available from our website www.mapei.com.
PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY Identification according to EN 1504-2 (test methods and principles) Coating (C) – principles PI, MC and IR		
	Component A	**Component B**
Consistency:	powder	liquid
Colour:	light brown	white
EMICODE:	EC1 Plus – very low emission	

PREPARATION OF SAMPLES FOR LABORATORY TESTS	
Mixing ratio:	component A : component B = 1 : 0.8
Preparation of mix:	mix with a paddle mixer for approx. 1.5 min. to form a smooth, even paste with the declared density

CHARACTERISTICS OF FRESH MIX (at +20°C - 50% R.H.)	
Colour of mix:	brown
Consistency of mix:	fluid
Density of mix:	1400 kg/m^3

FINAL PERFORMANCE
Curing at +23°C – 50% R.H. unless otherwise specified by the test methods (Thickness applied 2.0 mm)

Performance characteristic	Test method	Requirements EN 1504-2 (C) MC and IR	Performance of the product with reinforcement
Direct tensile adhesion to concrete:	EN 1542	flexible systems without traffic ≥ 0.8 MPa	**≥ 1.5 MPa**
Thermal compatibility - freeze/thaw cycles with de-icing salts (50 cycles) following storm cycles (10 cycles)	EN 13687-1 EN 13687-2	flexible systems without traffic ≥ 0.8 MPa	**≥ 1.0 MPa**
Bond strength to concrete by pull-off (after 24 days at +5°C and 50% R.H.)	EN 1542	not required	**≥ 0.7 MPa**
Direct tensile adhesion to concrete (after 7 days at +20°C and 50% R.H. + 21 days in water):	EN 1542	not required	**≥ 0.7 MPa**
Elasticity expressed as elongation (after 28 days at +20°C and 50% R.H.):	DIN 53504 mod.	not required	**120 %**
Static crack-bridging at +23°C after conditioning according to EN 1062-11 § 4.1 - 7 days at +70 °C:	EN 1062-7 Method A	from class A1 (0.1 mm) to class A5 (2.5 mm)	**Classe A4 (+23°C) (> 1.25 mm)**
Water-vapour permeability (wet-cup - method B) expressed as equivalent air-layer thickness S_d:	EN ISO 7783	Class I S_d < 5 m Class II 5 m ≤ S_d ≤ 50 m Class III S_d > 50 m	**S_d < 3 m** **Class I** *(permeable to water vapour)*
Impermeability expressed as coefficient of permeability to liquid water (W):	EN 1062-3	W < 0.1 kg/m^2·h$^{0.5}$	***W* < 0.05 kg/m^2·h$^{0.5}$** Class W_3 *(low permeability to water) according to EN 1602-1*

Permeability to carbon dioxide (CO2) – diffusion in equivalent air layer thickness S_D:	EN 1062-6 method B	S_D > 50 m	**S_D> 50 m**
Reaction to fire:	EN 13501-1	Euroclass	**E**

Performance characteristic	Test method	Requirements according to EN 14891 CM O1 P	Performance of the product with reinforcement
Imperto water in pressure:	EN 14891-A.7	no penetration	**no penetration**
Crack-bridging ability at +23°C:	EN 14891-A.8.2	≥ 0.75 mm	**1.25 mm**
Crack-bridging ability at low temperature -5°C:	EN 14891-A.8.3	≥ 0.75 mm	**0.8 mm**
Initial tensile adhesion strength:	EN 14891-A.6.2	≥ 0.5 N/mm²	**0.9 N/mm²**
Tensile adhesion strength after water contact:	EN 14891-A.6.3	≥ 0.5 N/mm²	**0.6 N/mm²**
Tensile adhesion strength after heat ageing*:	EN 14891-A.6.5	≥ 0.5 N/mm²	**1.4 N/mm²**
Tensile adhesion strength after freeze-thaw cycles*:	EN 14891-A.6.6	≥ 0.5 N/mm²	**0.8 N/mm²**
Tensile adhesion strength after contact with lime water*:	EN 14891-A.6.9	≥ 0.5 N/mm²	**0.7 N/mm²**
Tensile adhesion strength after contact with chlorinated water*:	EN 14891-A.6.8	≥ 0.5 N/mm²	**0.65 N/mm²**

** Tensile adhesion strength values determined with **Mapelastic Turbo** and type C2FTES2 cementitious adhesive in compliance with EN 12004*

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

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