MAPELASTIC

Two-component cementitious mortar, flexible down to -20°C, for waterproofing balconies, terraces, bathrooms, and swimming pools with fully offset Residual Greenhouse Gas emissions





BENEFITS AND FEATURES

- Perfect adhesion to substrates
- Complete waterproofing system
- Remains flexible at low temperatures
- Easy to prepare and apply
- Waterproofing with just 2 mm thickness
- Resistant to UV rays
- Suitable also for existing coverings
- Suitable for new or existing substrates
- EC1 Plus-certified by the GEV Institute. Very low emissions of volatile organic compounds (VOCs)

CO_2e FULLY OFFSET PRODUCTS

Residual Greenhouse Gas emissions measured throughout the life cycle of this product using Life Cycle Assessment (LCA) methodology, verified and certified with EPDs, have been offset for the year 2026 through the acquisition of carbon credits in support of forestry protection projects. For more details on emission calculations and offsetting projects, visit mapei.com

WHERE TO USE

Waterproofing and protection of concrete structures, renders and cementitious screeds.

Some application examples

- Waterproofing of concrete basins used for containing water.
- Waterproofing bathrooms, showers, balconies, terraces, swimming pools, etc., before laying ceramic tile finishes.
- Waterproofing of plasterboard, render or cementitious surfaces, lightweight cement blocks and marine-grade plywood.
- Creating flexible skimming layers on concrete structures with thin sections, including those subjected to small deformations when under load (for example, prefabricated elements).
- Protecting render or concrete with cracks caused by shrinkage to block the penetration of water and aggressive agents present in the atmosphere.

- Protecting against the penetration of carbon dioxide, of concrete pillars and road and railway viaducts decks repaired with products from the **Mapegrout** range, and structures with an insufficient layer of concrete covering on the reinforcement rods.
- Protecting concrete surfaces that come into contact with seawater, de-icing salts such as sodium chloride and calcium chloride, and sulfate salts.

TECHNICAL CHARACTERISTICS

Mapelastic is a two-component mortar made of cementitious binders, fine-grained selected aggregates, special additives and synthetic polymers in water dispersion according to a formula developed in the MAPEI Research & Development Laboratories. When the two components are mixed together, a free-flowing mix is obtained, which is easy to apply also on vertical surfaces in layers up to 2 mm thick per coat.

Due to its high content of quality synthetic resins, the hardened layer of **Mapelastic** maintains its flexibility under all environmental conditions, and is resistant to chemical attacks of de-icing salts, sulphates, chlorides and carbon dioxide.

Mapelastic also has excellent adhesion on all concrete, brickworks, ceramic and marble surfaces, as long as they are sound and sufficiently clean.

This property, together with its resistance to the deteriorating effect of UV rays, a characteristic of this product, ensures that structures protected and waterproofed with **Mapelastic** have a long service life, even if they are located in areas with particularly difficult climatic conditions, in coastal areas with a saline-rich atmosphere or industrial areas where the air is particularly polluted.

RECOMMENDATIONS

- Do not use **Mapelastic** for thick coatings (greater than 2 mm per coat).
- Do not apply **Mapelastic** if the temperature is lower than +8°C.
- Do not add cement, aggregates or water to **Mapelastic**.
- Do not apply to lightweight substrates.
- Do not apply to cementitious substrates that have not been properly cured.
- Protect from rain and accidental water spillages for the first 24 hours after application.
- Do not use **Mapelastic** exposed in a swimming pool.
- In hot weather, do not expose the product to the sun before use (powder and liquid).
- In particularly dry, warm or windy weather, protect the surface with sheets after applying the product to prevent rapid evaporation.

APPLICATION PROCEDURE

TECHNICAL INFORMATION FOR THE APPLICATION	
Mixing ratio:	component A : component B = 3 : 1
Thickness applied:	final thickness at least 2 mm
Recommended application temperature:	surrounding and substrate temperature from +8°C to +35°C
Pot life of mix:	approx. 60 min. (at +20°C)

Preparation of the substrate

A) Protection and waterproofing of concrete structures and pre-cast elements

(e.g., piers and road and rail viaducts decks, cooling towers, chimneys, underpasses, retaining walls, applications in coastal areas, tanks, canals, dam faces, pillars, balcony fronts, string courses, etc.).

The surface to be treated must be sound and perfectly clean.

Remove cement laitance, loose particles, and any traces of dust, grease, and form-release oils by sandblasting or washing with high-pressure water jets.

If the structure to be waterproofed and protected with **Mapelastic** is in poor condition, remove the damaged parts by hand, mechanical demolition, or a hydro-demolition system, or a hydro-scarifier.

The last two techniques require the use of high-pressure water. They are particularly recommended because they do not damage the reinforcing steel and structures are not subjected to vibrations that could provoke the formation of micro-cracking in the surrounding concrete.

Once the rust has been completely removed by sandblasting, carry out the repair with a pre-blended mortar from the **Mapegrout** or **Planitop** range.

Absorbent surfaces to be treated with **Mapelastic** must be slightly dampened with water beforehand.

B) Waterproofing terraces, balconies and swimming pools

CEMENTITIOUS SCREEDS:

- setting cracks or cracks caused by plastic or hygrometric shrinkage must be filled beforehand with **Eporip**;
- if thicknesses of up to 30 mm have to be levelled out (to create slopes, fill in dips, etc.) use **Planitop Fast 330**.

EXISTING FLOORS:

- existing floors and coverings in ceramic, porcelain tiles, clinker or terracotta, etc. must be well bonded to the substrate and free of substances that could compromise the bonding, such as grease, oil, wax, paint, etc. To remove material that could affect the adhesion of **Mapelastic**, clean the floor with **UltraCare HD Cleaner**, then rinse thoroughly with water only to eliminate any residue.

RENDERS:

- cementitious renders must be sufficiently cured (7 days per cm of thickness in good weather conditions), well bonded to the substrate, resistant, and free from all dust and paint;
- dampen absorbent surfaces to be treated beforehand with water.

Waterproofing details

In the waterproofing industry, more than in any other industry, it is essential to pay attention to the details, which alone can make the difference. For this reason, it is essential to use products from the **Mapeband** and **Drain** lines in combination with **Mapelastic**.

Mapeband TPE is used to seal structural joints and joints subject to high dynamic stress. **Mapeband**, **Mapeband Easy,** and **Mapeband SA** are used to waterproof fillet joints between horizontal and vertical elements and control joints. The special kits from the **Drain** range are used to seal drain holes.

Special care must be taken in these critical areas after levelling 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 **Mapelastic** for a few minutes, carefully removing all traces of dust from the sides and the bottom of the container.

Keep mixing 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.

Avoid mixing the product manually.

Mapelastic may also be prepared with a paddle mixer, which is usually supplied with rendering machines.

It is recommended to check that the mortar is evenly mixed and free of lumps before pouring it into the pump hopper.

Applying the mortar by hand

Apply **Mapelastic** within 60 minutes of mixing.

Skim the prepared surface to a feather-edge with a layer of **Mapelastic** with a straight trowel, then, while still fresh, apply a second layer to form a total thickness of at least 2 mm.

When waterproofing terraces, balconies, basins, and swimming pools, it is always recommended that the alkali-resistant fiberglass mesh **Mapenet 150** be embedded in the first fresh layer of **Mapelastic** as reinforcement.

The mesh should also be used in micro-cracked or particularly stressed areas.

After embedding the mesh, finish off the surface with a flat trowel and apply the second layer of **Mapelastic** when the first layer has hardened (after 4-5 hours).

After the application of **Mapelastic** wait at least 5 days of curing before laying ceramics.

In good weather and temperature conditions, and if the product is applied over a dry substrate, this period may be reduced to 24 hours.

Laying ceramic tiles on Mapelastic

BALCONIES AND TERRACES:

- bond in place the tiles with C2 cement adhesive, such as **Keraflex**, **Keraflex Maxi S1,** or, alternatively, for more rapid setting, a C2F adhesive (**Granirapid**);
- grout the joints with a CG2 cementitious product, such as **Keracolor FF** mixed with **Fugolastic** or **UltracolorPlus**;
- seal the joints with the appropriate MAPEI elastic sealants (such as **Mapeflex PU 45 FT**, **Mapesil AC,** or **Mapesil LM**). Depending on the specific operating condition, different types of sealants may be recommended: consult MAPEI Technical Service.

SWIMMING POOLS:

- bond in place the ceramic coverings with a C2 cementitious adhesive to be selected depending on the type and size of tiles, such as, for example, **Keraflex** or **Keraflex Maxi S1**, or a minimum C2F class rapid adhesive (**Granirapid**). For mosaic coverings, use **Adesilex P10** + **Isolastic** mixed 50 percent with water (class C2E S1);
- grout the joints with a CG2 cementitious product (**Keracolor FF** mixed with **Fugolastic**, **Ultracolor Plus**) or with an RG epoxy product from the **Kerapoxy** range;
- seal the joints with a silicone sealant, **Mapesil AC**.

Applying the mortar by spray

After preparing the surface (see paragraph on “Preparation of the substrate”), apply **Mapelastic** by spraying with a rendering machine equipped with a skimming lance, ensuring a minimum thickness of at least 2 mm.

If a greater thickness is required, **Mapelastic** should be applied in several coats.

Apply additional layers when the previous layer has dried (after 4-5 hours).

In areas with micro-cracks or under significant stress, it is recommended to embed **Mapenet 150** into the first layer of **Mapelastic** while still fresh.

Smooth over **Mapelastic** with a flat trowel immediately after embedding the mesh.

If the mesh needs additional coverage, apply another layer of **Mapelastic** by spraying.

In cases where **Mapelastic** is used for the protection of piers and bridge decks, railway underpasses, building facades, etc., the product can be painted with products from the **Elastocolor** range based on acrylic resins in water dispersion, available in a wide range of colours through the **ColorMap**®colouring system.

When **Mapelastic** is used to protect horizontal surfaces that are not subject to foot traffic, such as flat roofs, the product can be painted with **Elastocolor Waterproof**, an elastic paint based on acrylic resins in water dispersion. **Elastocolor Waterproof**, which is available in a wide range of colours through the **ColorMap**®coloring system, should be applied at least 20 days after the application of **Mapelastic**.



*Waterproofing screeds with **Mapelastic** and **Mapeband***



*Laying ceramic tiles with **Kerabond** + **Isolastic***



Private terrace in Cereseto (Alessandria) - Italy



*Application of **Drain Vertical** on **Mapelastic***



*Application of **Mapelastic** on **Mapenet 150***



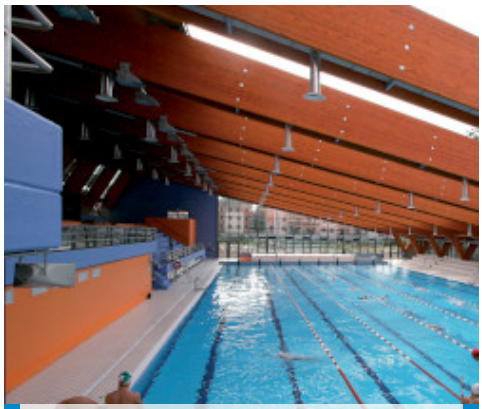
*Application of **Granirapid** on terrace waterproofed with **Mapelastic***



*Waterproofing a swimming pool with **Mapelastic***



*Application of ceramic coating on **Mapelastic***



*Pool waterproofed with **Mapelastic** - Piscina Scarioni - Milan - Italy*





*Example of spray application of **Mapelastic** in a viaduct*



*Example of spray application of **Mapelastic** in a dam*

DURABILITY

Figures 1, 2, 3, and 4 show some features of **Mapelastic**.

Fig. 1 shows the loading scheme to assess crack-bridging capabilities. The specimen on which **Mapelastic** has been applied to the underside of the beam is subject to increasing loads in the centerline. The crack-bridging of **Mapelastic** is assessed by determining the maximum crack width of the concrete at the point where **Mapelastic** fractures. The protection offered by **Mapelastic** to the concrete substrate is not limited to a simple "covering" of cracks caused by dynamic loads, shrinkage, thermal variations, etc. **Mapelastic** is very resistant to chemical aggression, as demonstrated by the tests outlined below, and effectively protects the concrete from carbonation and thus the reinforcing bars from the resulting corrosion.

Fig. 2 comparatively shows the accelerated carbonation curve (in 30% CO_2-enriched air environment) and highlights the absolute impermeability of **Mapelastic** to this aggressive agent. The membrane of **Mapelastic** protects concrete from the action of sodium chloride (found, for example, in seawater).

Fig. 3 shows how **Mapelastic** completely blocks salt penetration into a very porous concrete, which is otherwise easily penetrable. Even against calcium chloride-based de-icing salts ($CaCl_2$), which are destructive to even the highest quality concrete, **Mapelastic** offers an impenetrable barrier.

Fig. 4 shows the reduction in mechanical strength (originally 65 N/mm²) of concrete permanently immersed in a 30% $CaCl_2$ solution. Also, in this case, **Mapelastic** effectively protects the concrete by preventing the salt from attacking and deteriorating the concrete structure.

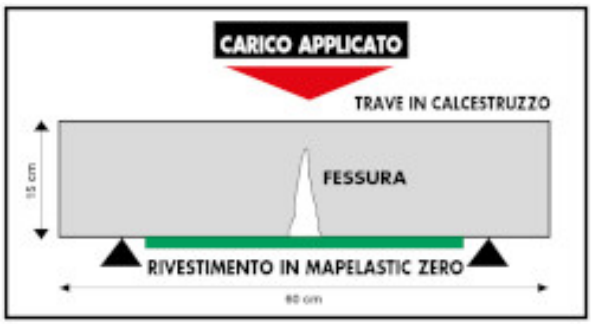


*Fig.1: Protection with **Mapelastic** of a crack at the underside of a concrete beam subjected to a flexural stress*

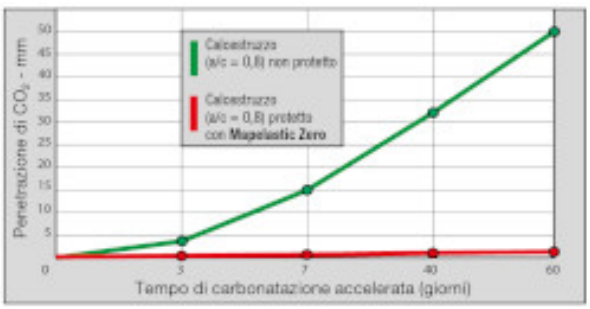


*Fig. 2: Effect of **Mapelastic** on accelerated carbonation (30% CO_2) in a porous concrete*

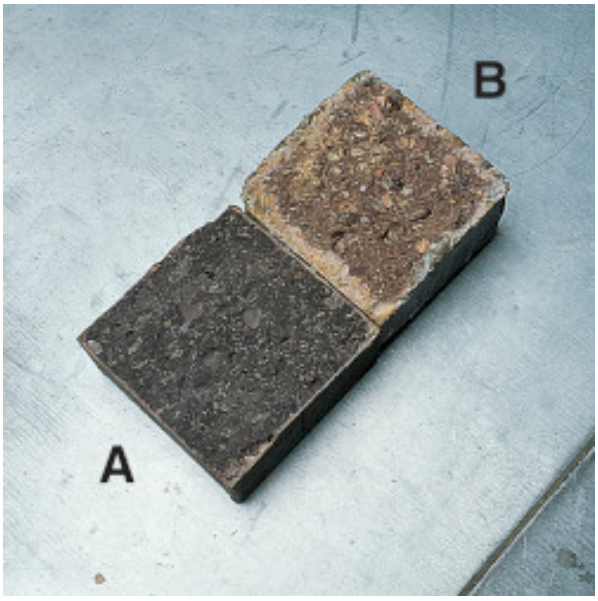


*Fig. 2 B - Chloride ion penetration tests (UNI 9944). Specimen A, coated with **Mapelastic**, appears to be unpenetrated; specimen B, as-is, shows an advanced penetration of several millimetres*

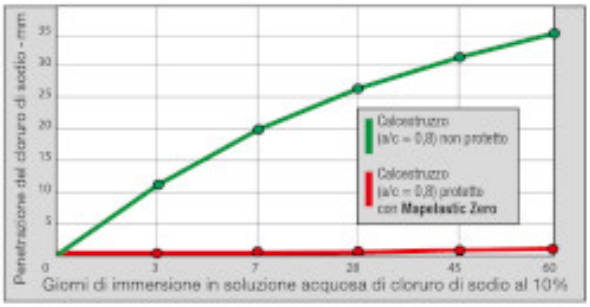


*Fig.3: Effect of **Mapelastic** on the penetration of sodium chloride into a porous concrete*

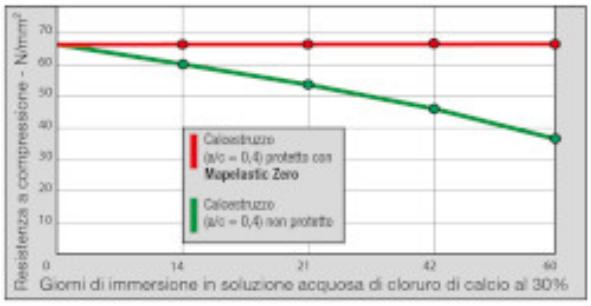


*Fig.4: Effect **Mapelastic** on the reduction in mechanical strength of concrete due to calcium chloride de-icing salts*

CLEANING

Due to the high adhesion of **Mapelastic**, 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

- Manual application:
  - about 1.7 kg/m² per mm thickness.
- Spray application with rendering machine:
  - approximately 1.85 kg/m² per mm of thickness on flat surface.
  - approximately 2.2 kg/m² per mm thickness on rough surface with irregularities.

PACKAGING

32 kg unit:

- component A: 24 kg bags;
- component B: 8 kg jerrycans.

STORAGE

Mapelastic component A can be stored for 12 months in its original packaging in a dry area.

Mapelastic component B can be stored for 24 months.

Store **Mapelastic** 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 in the latest version of the Safety Data Sheet, available from our website www.mapei.ae.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY		
Identity according to EN 1504-2: (methods and principles)	**Coating (C) – principles PI, MC and IR**	
	comp. A	**comp. B**
Consistency:	powder	liquid
Colour:	grey	white
EMICODE:	EC1 Plus - very low emission	

PRODUCT PREPARATION FOR LABORATORY SAMPLES	
Mixing ratio:	component A : component B = 3 : 1
Preparation of mix:	Mix with a paddle mixer for around 1 minute and 30 seconds to form a smooth, even paste with the required density

CHARACTERISTICS OF FRESH MIX (at +20°C - 50% R.H.)	
Colour of the mix:	grey
Consistency of mix:	plastic-trowellable
Density of the mix:	1700 kg/m³

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 according to EN 1504-2 (C) PI, MC and IR	Product performance
Bond strength to concrete by pull-off:	EN 1542	for flexible systems without traffic ≥ 0.8 MPa	**1.0 MPa**
Thermal compatibility - freeze/thaw cycles with de-icing salts (50 cycles) following storm cycles (10 cycles):	EN 13687-1 EN 13687-2	for flexible systems without traffic ≥ 0.8 MPa	**0.8 MPa**

Bond strength by pull-off (after 7 days at +20°C and 50% R.H. and 21 days in water):	EN 1542	not required	**0.6 MPa**
Flexibility expressed as elongation (after 28 days at +20°C and 50% RH):	DIN 53504 mod.	not required	**30%**
Static crack-bridging at -20°C after conditioning according to EN 1062-11:	EN 1062-7 Method A	from class A1 (0.1 mm) to class A5 (2.5 mm)	**Class A3 (-20°C) (> 0.5 mm)**
Dynamic crack-bridging at +23°C after conditioning according to EN 1062-11:	EN 1062-7 Method B	from class B1 to class B4.2	**class B3.1 (+23°C) no failure of test sample after 1,000 cracking cycles with movements in the crack from 0.2 to 0.30 mm**
Permeability to water vapour (wet-cup - method B) expressed as equivalent air 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 = 2.4 m** **Class I** *(permeable to water vapour)*
Impermeability expressed as coefficient of permeability to free water (W):	EN 1062-3	W < 0,1 kg/m²·$h^{0.5}$	***W* < 0.05 kg/m²·$h^{0.5}$** Class W_3 *(low water permeability) according to EN 1062-1*
Carbon dioxide (CO_2) permeability - diffusion expressed as equivalent air thickness S_D:	EN 1062-6 method B	$S_D > 50$ m	**S_D> 50 m**
Reaction to fire:	EN 13501-1	Euroclass	**C, s1-d0**

Performance characteristic	Test method	Requirements according to EN 14891 CM O2 P	Product performance
Impermeability to 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	**0.9 mm**
Crack-bridging ability at low temperature -20°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	**0.8 N/mm²**
Tensile adhesion strength after water contact*:	EN 14891-A.6.4	≥ 0.5 N/mm²	**0.55 N/mm²**
Tensile adhesion strength after heat ageing*:	EN 14891-A.6.5	≥ 0.5 N/mm²	**1.2 N/mm²**
Tensile adhesion strength after freeze–thaw cycle*:	EN 14891-A.6.6	≥ 0.5 N/mm²	**0.6 N/mm²**
Tensile adhesion strength after contact with lime water*:	EN 14891-A.6.9	≥ 0.5 N/mm²	**0.6 N/mm²**
Tensile adhesion strength after contact with chlorinated water*:	EN 14891-A.6.8	≥ 0.5 N/mm²	**0.55 N/mm²**



IMPORTANT NOTES

While we try to ensure that any advice, recommendations, or information in our literature is accurate and correct, we have no control over the circumstances in which our product is used. It is, therefore, important that installers satisfy themselves that the product and conditions are suitable for the envisaged application. No warranty can be given, nor can responsibility be accepted, other than the product we supply will meet our written specifications. The installer should ensure that our latest product data and safety information sheets have been consulted before use.

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

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into other project-related documents. The 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.ae.

ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED OR DERIVED FROM THIS TDS EXCLUDE THE RESPONSIBILITY OF MAPEI.

All relevant product references are available upon request and at www.mapei.com.

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