

Mapelastic

Flexible, Cementitious Membrane for Waterproofing and Protecting Concrete and Masonry



DESCRIPTION

Mapelastic® is a two-component, cementitious membrane that waterproofs concrete and masonry. It also offers protection against chemical attack from de-icing salts, sulfates, chlorides and carbon dioxide.

FEATURES AND BENEFITS

- *Mapelastic*'s specially formulated synthetic resins generate a hardened layer that remains flexible under all environmental conditions. The dried mortar remains waterproof up to 50 feet (positive side) of hydrostatic head pressure and resists chemical attack from de-icing salts, sulfates, chlorides and carbon dioxide.
- *Mapelastic* offers excellent protection to structures in coastal areas exposed to high humidity and salt, as well as those located in heavy industrial areas exposed to aggressive airborne chemicals and pollutants.
- Excellent protection against water and aggressive chemicals
- Outstanding bond to horizontal and vertical concrete, masonry and ceramic surfaces
- Available in silver (light gray) and white
- Remains highly flexible under all environmental conditions
- Suitable for irrigation canals, spillways and dams, as well as for balconies, suspended walkways and patios
- *Mapelastic* is carefully engineered to fully cover hairline and micro cracks evident in placed concrete, and to allow adequate flexibility so that cracks up to 1/32" (1 mm) may be bridged. This specific product engineering ensures that *Mapelastic* will not conceal structural cracks that develop in concrete structures.
- Tested per CAN/ULC-S102 for flame spread and smoke development

WHERE TO USE

- Waterproofing of concrete irrigation canals and water containment structures
- Waterproofing of retaining walls, foundations and precast concrete elements embedded in the ground when protected with a drainage board approved by local building codes
- Protection barrier against the effects of carbonation on concrete pillars and concrete beams for road and railway viaducts, etc., after structural repair with MAPEI's *Planitop*®, *Planigrout*® or *Mapecem*® families of repair mortars
- Ideal solution for protecting structures having an insufficient layer of concrete covering on reinforcement steel
- Protection of concrete surfaces that can be exposed to seawater, de-icing salts (such as sodium and calcium chloride) and sulfates
- Protection of cement-based renders and concrete with shrinkage-produced cracks from the infiltration of water and aggressive airborne chemicals
- Flexible smoothing and protective layer for concrete structures, including those subjected to deformation under load (such as precast panels and beams)

SUITABLE SUBSTRATES

- Properly prepared concrete, masonry and ceramic surfaces

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

SURFACE PREPARATION

Protection and waterproofing of concrete structures and elements (such as pillars and beams for road and railway viaducts, cooling towers, underpasses, retaining walls, applications in coastal areas, fountains, planters, irrigation canals, dams, columns and balconies)

1. The surface to be treated must be sound, stable and clean.
2. Remove all cement laitance, loose material, grease, oil and release agents by sandblasting or high-pressure waterblasting.
3. If *Mapelastic* will be used to waterproof and protect a structure in poor condition, mechanically remove the damaged sections using chipping guns limited to 15 lbs. (6.80 kg), scarifiers, rotomilling or hydrodemolition equipment.
Note: Using high-pressure water for the previous 2 steps avoids damage to the reinforcement rods and prevents vibrations that could cause the onset of small cracks in adjacent concrete.
4. After all rust has been removed by sandblasting and the reinforcement steel has been properly prepared (coated with MAPEI's *Mapecem*™ 1K or *Planibond*® 3C), repair any damage with a suitable MAPEI repair product.
5. Dampen absorbent surfaces with water before applying *Mapelastic*.

Waterproofing of patio decks and balconies (when covered with a suitable wear surface, coating or finish; contact MAPEI's Technical Services Department for questions regarding specific applications)

- Cementitious screed: Repair all cracks caused by plastic shrinkage with a suitable MAPEI epoxy. Use a suitable MAPEI repair mortar to level areas (to create slopes, fill dips, etc., up to 2" [5 cm]). While crack repair is recommended, MAPEI does not warrant that cracks will not reappear when following established repair techniques.
- Existing concrete and ceramic floors: Existing floors and coverings in ceramic must be well-bonded to the substrate and free of substances that could compromise the bonding, such as grease, oil, wax and paint.
- Renders: Cementitious renders must be well cured (at 7 days per 1" [2.5 cm] of thickness in good weather conditions), well bonded to the substrate, and free of all dust and paint. Before treating absorbent surfaces with *Mapelastic*, dampen surface with water.

MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

1. Pour Part B (liquid) into a suitable, clean container. Slowly add Part A (powder) while stirring with a mechanical mixer (do not mix by hand).
2. Carefully mix *Mapelastic* using a low-speed mechanical mixer (a low-speed mixer will help prevent air entrapment) for a few minutes. Make sure that no powder remains stuck to the sides or the bottom of the container.
3. Continue mixing until a homogenous mixture is obtained.
4. *Mapelastic* can also be mixed with a mortar mixer. If this technique is used, make sure that the mix is homogenous and lump-free before pouring it into the hopper of the pump.

PRODUCT APPLICATION

Mapelastic must be applied within 60 minutes of being mixed. Read all installation instructions thoroughly before installation.

Application by trowel without fabric or mesh reinforcement

1. Smooth the prepared surface by applying a thin layer of *Mapelastic* with a smooth trowel.
2. Apply a second coat on the first layer while it is fresh, for a final thickness of about 80 mils.

Application with MAPEI's *Mapetex Sel* for membrane reinforcement

1. Utilizing *Mapetex Sel* provides additional dimensional stability and crack-bridging capability of greater than 1/8" (3 mm).
2. Apply (by trowel or spray) an initial coat of *Mapelastic* at 40 to 60 mils thick to the substrate. While the material is still wet, lay *Mapetex Sel* into the material and run a flat-bladed trowel across the fabric until it is completely buttered with the first coat of *Mapelastic*. Ensure that any air pockets are removed.
3. Immediately apply a second coat of *Mapelastic* at 40 mils thick and finish to the desired finish.
4. If fabric is covered (encapsulated in *Mapelastic* with a final thickness of 80 mils or greater), no third coat is required.
5. During waterproofing operations, use MAPEI's *Mapeband*™ TPE around expansion joints and joints between horizontal and vertical surfaces.

Alternative application by trowel with MAPEI's Fiberglass Mesh (2-coat system)

1. When waterproofing terraces, balconies and basins, insert a 3/16" x 3/16" (4.5 x 4.5 mm) layer of *Fiberglass Mesh* into the first layer of *Mapelastic*, to act as a reinforcement. The mesh must also be used in areas with

either small cracks or in areas that are particularly stressed.

2. Key *Mapelastc* into the surface by applying a thin layer with the flat side of a 3/16" x 3/16" (4.5 x 4.5 mm) V-notched trowel.
3. Immediately apply additional *Mapelastc* and comb, using the V-notched side of the trowel, to ensure the proper thickness.
4. Embed *Fiberglass Mesh* into the freshly combed *Mapelastc*. Lap all seams and ends in the *Fiberglass Mesh* by 2" (5 cm).
5. Immediately after laying the mesh, smooth the *Mapelastc* with the trowel's flat side.
6. To ensure a continuous membrane, wait 4 to 5 hours until the first coat of *Mapelastc* has set. Using the trowel's flat side, apply another coat of *Mapelastc* up to 80 mils in thickness, to completely encapsulate the *Fiberglass Mesh*. Do not exceed 80 mils per coat.
7. During waterproofing operations, use MAPEI's *Mapeband* around expansion joints and joints between horizontal and vertical surfaces.

Application by spray method

1. After preparing the surface, apply *Mapelastc* with a low-pressure spray gun. Apply at a maximum thickness of 80 mils per coat.
2. If a thicker coat is required, *Mapelastc* must be applied in several coats.
3. Successive coats can only be applied once the previous one is dry (after 4 to 5 hours).
4. In areas with small cracks or that are highly stressed, insert *Mapetex Sel* non-woven fabric or a 3/16" x 3/16" (4.5 x 4.5 mm) square *Fiberglass Mesh* into the *Mapelastc*. See the corresponding instructions above to complete installation with the selected fabric/mesh. If the fabric/mesh needs additional coverage, apply another layer of *Mapelastc* with a spray gun.
5. During waterproofing operations, use MAPEI's *Mapeband* around expansion joints and joints between horizontal and vertical surfaces.

Application verification

Before applying covering surfaces over *Mapelastc*, perform a flood test to verify the integrity of the application.

TREATMENT OF CRACKS AND/OR MOVEMENT JOINTS

- Repair cracks with engineer-approved methods before installation of *Mapelastc*.
- If significant movement is expected along a crack, out-of-plane joint or movement joint, utilize MAPEI's *Mapeband TPE* flexible waterproof tape (see the Technical Data Sheet for installation design and use).

CURING

- After applying *Mapelastc*, wait until it is dry before applying a subsequent finish.
- Let *Mapelastc* cure for 8 to 12 hours at an ambient temperature of 73°F (23°C) before applying bonded mortar toppings. Curing times depend on ambient and substrate temperatures, substrate porosity and jobsite humidity. Expect shorter drying times in warmer jobsite conditions, and longer drying times in cooler jobsite conditions.
- If flood-testing the complete *Mapelastc* system, wait at least 72 hours at 73°F (23°C) after the last application of *Mapelastc* before flood-testing (per ASTM standard).

CLEANUP

- Due to the high bonding strength of *Mapelastic*, wear protective gloves when working with it.
- Wash hands and tools with water immediately after use and before the mortar sets. Note that once the product has set, it can only be removed by mechanical means.

PROTECTION

- During hot weather, keep the product's components and the mixed product out of direct sunlight before use.
- After application – and in particularly dry, hot or windy weather – protect the material from rapid evaporation by covering it with sheets.

LIMITATIONS

- Do not add cement, aggregates or water to *Mapelastic*.
- *Mapelastic* is a two-component mortar based on cementitious binders, fine-grained selected aggregates, special additives and synthetic polymers in water dispersion. Combining the two components produces a free-flowing mix that can be easily applied on vertical and horizontal surfaces, at a thickness up to 80 mils in a single coat.
- *Mapelastic* is engineered to bridge hairline and micro cracks in concrete, ensuring that no chlorides use these avenues to penetrate to the reinforcing bar. *Mapelastic* used without *Mapetex Sel* or *Fiberglass Mesh* will not bridge or hide developing cracks beyond 1/32" (1 mm).
- Do not use *Mapelastic* as a high-build coating. Application is limited to 80 mils per coat.
- Apply *Mapelastic* at temperatures between 46°F and 95°F (8°C and 35°C).
- Protect from rain and water spillage for the first 24 hours after application.
- *Mapelastic* may be used as a coating for service conditions of light foot traffic. In such installations, apply the first coat of *Mapelastic* with *Mapetex Sel* fabric. The subsequent coat may be applied with a 1:1 normal mix of *Mapelastic*, or optionally with a 5% to 10% reduction in powder in the mix, and then broom-finished for slip resistance.
- A colored, flexible, water-based acrylic sealer may be applied over *Mapelastic*. Due to the variety of available sealers, complete a mockup and subject it to traffic for at least 14 days to ensure satisfactory performance.

Product Performance Properties

Laboratory Tests	Results
Adhesion to concrete	
After 28 days	158 psi (1.09 MPa)
After 7 days + 21 days in water	87 psi (0.6 MPa)
Elongation (modified) – ASTM D412	
After 28 days	30%

Waterproofing capacity

Hydrostatic pressure test – ASTM D4068	Waterproof
Crack bridging of non-reinforced <i>Mapelastic</i>	
After 28 days	1/32" (1 mm)
After 7 days + 21 days in water	1/42" (0.6 mm)
After 7 days + 24 months in water	1/50" (0.5 mm)
Crack bridging at breakage of <i>Mapelastic</i> membrane reinforced with <i>Mapetex Sel</i> mesh	
After 28 days	1/16" (1.5 mm)
Resistance to strong hydrostatic pressure	Up to 7 bar (234 ft. [71.3 m]) of water head, positive side
Permeability (at 5/64" [2 mm] or 80 mils thickness) – ASTM E96	About 1.4 perms

Performance compliance with ANSI A118.10

Fungus resistance of flexible membrane substrate	Conforms
Seam strength	Conforms
Breaking strength	Conforms
Dimensional stability	Conforms
Waterproofness	Conforms
VOCs (Rule #1113 of California's SCAQMD)	0 g per L

Protect containers from freezing in transit and storage. Provide for heated storage on site and deliver all materials at least 24 hours before work begins.

Shelf Life and Product Characteristics

before mixing

Shelf life	1 year when stored in original, unopened packaging at 73°F (23°C)
Storage	Store in a dry place at a temperature of at least 41°F (5°C).
Colors	Silver and White
Physical state	Part A: Powder Part B: Liquid

Density

Part A: 87.4 lbs. per cu. ft. (1 400 kg per m³)
 Part B: 68.7 lbs. per cu. ft. (1 100 kg per m³)

Application Properties

Mixing ratio	1 Part A to 1 Part B
Consistency	Plastic (applied by trowel)
Mixed density	106 lbs. per cu. ft. (1 700 kg per m ³)
Density after application by spraying	137 lbs. per cu. ft. (2 200 kg per m ³)
Application temperature range	46°F to 95°F (8°C to 35°C)
Pot life	60 minutes

CSI Division Classification

Dampproofing and Waterproofing	07 10 00

Packaging

Size (Part A with Part B: 66.7 lbs. [30.3 kg])	
Bag, Part A: 50 lbs. (22.7 kg), Silver	
Bag, Part A: 50 lbs. (22.7 kg), White	
Jug, Part B: 2 U.S. gals. (7.57 L)	

Approximate Coverage*

per 66.7 lbs. (30.3 kg) mix of Parts A and B

Thickness	Coverage
80 mils	Manual application: 94 sq. ft. (8.73 m ²)
80 mils	Spray gun application: 72 sq. ft. (6.69 m ²)

* Coverage shown is for estimating purposes only. Actual jobsite coverage may vary according to substrate conditions and setting practices.

ADDITIONAL INFORMATION

Refer to the SDS for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability_USA@mapei.com (USA) or sustainability-durabilite@mapei.com (Canada).

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement nor replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at www.mapei.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use, and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

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Edition Date: February 13, 2024 MK 3000331 (23-2739)

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