

# MAPELASTIC FOUNDATION

Two-component, flexible cementitious mortar for waterproofing concrete surfaces subject to both positive and negative water pressure



## WHERE TO USE

Waterproofing concrete and masonry structures subject to positive or negative hydrostatic pressure. It is recommended for foundation walls, car-parks and underground environments, basins, channels and swimming pools.

### Some application examples

- Waterproofing concrete retaining walls.
- Waterproofing underground car-parks, cellars, sunken swimming pools and basins and lift pits against the counter-pressure of water.
- Waterproofing breeze-block walls pre-treated with a suitable MAPEI mortar.

## TECHNICAL CHARACTERISTICS

**Mapelastic Foundation** is a two-component mortar based on cementitious binders, fine-grained selected inert materials, inorganic fibres, special additives and synthetic polymers in water dispersion, blended according to a formula developed in MAPEI's own Research & Development laboratories. When the two components are mixed together, a plastic consistency is obtained. It may be applied with a roller or by spray on both horizontal and vertical surfaces, at a thickness of at least 2 mm. Thanks to the high content and quality of the synthetic resins, the hardened layer of **Mapelastic Foundation** is highly flexible and remains stable under all environmental conditions. When mixed, the product is highly thixotropic, which reduces waste to a minimum during the application phase with a roller.

**Mapelastic Foundation** is completely waterproof against positive pressure, and is waterproof against negative pressure of up to 1.5 atm (15 m column of water). Once cured, it is resistant to soluble salts which are present in sea water or in the ground, such as chlorides and sulphates.

**Mapelastic Foundation** also has excellent bonding strength on all cementitious substrates if they have been suitably prepared. All these properties keep structures protected and waterproofed with **Mapelastic Foundation** perfectly dry over the years.

**Mapelastic Foundation** fulfils all the main criteria for the EN 1504-9 Standards (*"Products and systems for the protection and repair of concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems"*) and the requirements for EN 1504-2 Standards according to PI-MC-IR principles (*"Protection systems for concrete surfaces"*).

Product certified EC1 Plus by the GEV Institute (Gemeinschaft Emissions-kontrollierte Verlegewerkstoffe, e.V.) as a product with very low emission of volatile organic compounds.

## RECOMMENDATIONS

- Do not use **Mapelastic Foundation** for coatings with a high thickness (more than 2 mm per coat).
- Do not apply **Mapelastic Foundation** at temperatures below +5°C.
- Do not apply **Mapelastic Foundation** on substrates saturated with water (surfaces must dry off before application).
- Do not add cement, aggregates or water to **Mapelastic Foundation**.
- Protect from rain and water contact for the first 24 hours after application.

## APPLICATION PROCEDURE

### TECHNICAL INFORMATION FOR APPLICATION

Mixing ratio:	component A : component B = 2.2 : 1 (one 22 kg bag of component A with one 10 kg can of component B)
Layer thickness:	final thickness not less than 2mm (See section 'Applying the mortar')
Permissible application temperature:	room and substrate temperature from +5°C to +35°C
Density:	1650 kg/m <sup>3</sup>
Mixing time:	approx. 60 min. (at +20°C)

### Preparation of the substrate

#### A) Positive pressure (water under pressure directly onto the finish)

The surface to be treated must be sound and perfectly clean. Remove all cement laitance, flaky parts and traces of powder, grease, oil and mould oil by sand-blasting or washing with high-pressure water. If the structure to be waterproofed and protected with **Mapelastic Foundation** is in a poor condition, remove the damaged parts by hand or mechanical demolition, or by using a hydro-demolition system or a hydro-scarifier. Then carry out repairs with ready-mixed mortar from the **MapegROUT** range.

#### B) Negative pressure (water under pressure seeping through the substrate onto the finish)

Remove all cement laitance, paint, flaky parts and traces of powder, grease, oil and mould oils by sand-blasting or washing down with high-pressure water. Remove any gravel clusters and then fill using **MapegROUT 430**. Construction joints, cracks in reinforced concrete, spacers, pipe-work and other objects which pass through the concrete must be sealed using **Mapectool Swell**. To seal cracks in the concrete and construction joints, demolish the area to be repaired around the said cracks or construction joint using mechanical means up to a depth of at least 6 cm. Apply **Mapectool Swell** and then limit its expansion with a 6 cm border of **MapegROUT 430**.

In the presence of water which continuously seeps through, seal off the flow using **Lamposilex** and then continue as described above. For pipe-work and other penetrating objects, demolish the reinforced concrete around these objects, extrude **Mapectool Swell** and limit its expansion as described above. In the case of localised seeping water, seal the flow using **Lamposilex** hydraulic mortar.

In both cases, seal structural joints with **Mapectape TPE** tape bonded to the substrate with **Adesilex PG4** epoxy adhesive dusted with **0.5 Quartz**.

### Preparation of the product

Pour component B (liquid) into a suitable, clean container. Then slowly add component A (powder) while stirring with a mechanical mixer. Carefully mix **Mapelastic Foundation** for a few minutes, making sure that no powder remains stuck to the sides or the bottom of the container. Keep stirring for approximately 3 minutes until a perfectly homogenous mix is obtained.

Leave the mix standing for approximately

2 minutes so that the polymer is completely dispersed, and then mix again for up to 2 minutes.

Use a low-speed mechanical mixer for this operation to avoid too much air entering the mix.

The instructions for the preparation of mortar to make samples for laboratory tests are given in the Technical Data table.

**Do not prepare the mix by hand.**

## Manual application

**Mapelastic Foundation** must be applied with a roller or a trowel within 60 minutes of it being mixed in at least two coats, to give a final thickness of at least 2 mm. The second coat may be applied approximately 6 hours after the first coat. In all cases, the first coat must be perfectly dry.

## Spray application

**Mapelastic Foundation** may also be applied by spray using a rendering machine with a smoothing and finishing lance with a nozzle up to 10 mm diameter, and an air compressor with a capacity of at least 800 l/min. The final thickness must be at least 2 mm. After applying the first layer, wait until it has cured (approximately 6 hours) and then apply a second layer. If there is water under negative pressure, finish off the surface of each coat with a trowel to form an even, well sealed layer. For water under positive pressure, we recommend finishing off at least the first coat with a trowel.



*Application of Mapelastic Foundation by roller on a substrate evened out using Planitop HDM Maxi*



*Through element sealed using Mapeproof Swell*



*Retaining wall waterproofed after casting using Mapelastic Foundation*



*Mapelastic Foundation spread on by roller to waterproof against water in negative pressure*



*Mapelastic Foundation spread on by trowel to waterproof against water in negative pressure*

## PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

- No special precautions need to be taken when the temperature is around +20°C.
- During hot weather, it is advisable to keep the product out of direct sunlight before use (powder and liquid).
- After application, and in particularly dry, hot or windy weather, we recommend protecting the surface against rapid evaporation with sheets.

## CLEANING

Due to the high bond strength of **Mapelastic Foundation**, including to metal surfaces, we recommend washing work tools with water before the mortar sets. Once it has set, cleaning may only be carried out by mechanical means.

## CONSUMPTION

Roller application:

- approx. 1.65 kg/m<sup>2</sup> per mm thickness.

Spray application with rendering machine:

- approx. 1.75 kg/m<sup>2</sup> per mm thickness on flat surfaces
- approx. 2.1 kg/m<sup>2</sup> per mm thickness on rough surfaces with irregularities

## PACKAGING

32 kg kits:

- component A: 22 kg bags;
- component B: 10 kg tanks.

## STORAGE

**Mapelastic Foundation** component A may be stored for 12 months in its original packaging in a dry place.  
**Mapelastic Foundation** component B may be stored for 24 months.

## 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](http://www.mapei.com).

PRODUCT FOR PROFESSIONAL USE.

## TECHNICAL DATA (typical values)

**Mapelastic Foundation: two-component flexible waterproof mortar for protecting concrete. Complies with the requirements of EN 1504-2 Standards, PI, MC and IR principles and of EN 14891 (CM01P)**

### PRODUCT IDENTITY

	comp. A	comp. B
<b>Consistency:</b>	powder	fluid
<b>Colour:</b>	grey	white
<b>EMICODE:</b>	EC1 Plus - very low emission	

### PRODUCT PREPARATION FOR LABORATORY TEST

<b>Mixing ratio:</b>	component A: component B = 2,2:1
<b>Mix preparation:</b>	mixing by drill for about 1' 30" until a homogeneous stock of the stated density is obtained

### CHARACTERISTICS OF THE FRESH MIXTURE (at +20°C - 50% R.H.)

<b>Colour of the mix:</b>	light grey
<b>Mix consistency:</b>	thixotropic
<b>Mix density:</b>	1650 kg/m <sup>3</sup>

## APPLICATION DATA (at +20°C - 50% R.H.)

Colour of the mix:	light grey
Mixing ratio:	component A : component B = 2,2 : 1
Consistency:	thixotropic
Density of mix (kg/m <sup>3</sup> ):	1.650
Recommended application temperature range:	from +5°C to +40°C
Pot life of mix:	approx. 60 mins.
EMICODE:	EC1 Plus - very low emission

## FINAL PERFORMANCE

Cured at 23°C - 50% R.H. unless otherwise specified in the test methods  
(Application thickness 2.0 mm)

Performance characteristic	Test method	Requirements according to EN 1504-2 (C) PI, MC and IR	Performance results
Adhesion to concrete by direct traction:	EN 1542	for flexible systems without traffic ≥ 0.8 MPa	≥ 1,0 MPa
Thermal compatibility - freeze-thaw cycles with de-icing salts (50 cycles) after storm cycles (10 cycles):	EN 13687-1 EN 13687-2	for flexible systems without traffic ≥ 0.8 MPa	≥ 0.8 MPa
Adhesion to concrete by direct traction (after 7 days at +20 °C and 50% RH and 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	80%
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)	Class A4 (+23°C) (> 1,25 mm)
Water vapour permeability (wet-cup - method B) expressed as equivalent air thickness S <sub>d</sub> :	EN ISO 7783	Class I S <sub>d</sub> < 5 m Class II 5 m ≤ S <sub>d</sub> ≤ 50 m Class III S <sub>d</sub> > 50 m	S <sub>d</sub> < 3 m Class I (permeable to water vapour)
Impermeability expressed as water permeability coefficient (W):	EN 1062-3	W < 0,1 kg/m <sup>2</sup> ·h <sup>0,5</sup>	W < 0,07 kg/m <sup>2</sup> ·h <sup>0,5</sup> Class W <sub>3</sub> (low water permeability) according to EN 1062-1)
Carbon dioxide permeability (CO <sub>2</sub> ) - diffusion in equivalent air thickness S <sub>D</sub> :	EN 1062-6 metodo B	S <sub>D</sub> > 50 m	S <sub>D</sub> > 200 m
Impermeability to water under pressure (5 bar for 3 days) of positive lift expressed as water penetration:	EN 12390-8 mod.	not required	no penetration
Impermeability to water under pressure (1.5 bar) of negative lift expressed as water penetration:	UNI 8298-8	not required	no penetration
Reaction to fire:	EN 13501-1	Euroclass	E

Performance characteristic	Test method	Requirements EN 14891 CM O1 P	Product performance with reinforcement
Impermeability to water under pressure:	EN 14891-A.7	no penetration	no penetration
Crack-bridging ability at +23°C:	EN 14891-A.8.2	≥ 0,75 mm	2,0 mm
Crack-bridging ability a low temperature -5°C:	EN 14891-A.8.3	≥ 0,75 mm	1,2 mm
Initial adhesion:	EN 14891-A.6.2	≥ 0,5 N/mm <sup>2</sup>	1,1 N/mm <sup>2</sup>
Adhesion after immersion in water:	EN 14891-A.6.4	≥ 0,5 N/mm <sup>2</sup>	0,65 N/mm <sup>2</sup>
Adhesion after application of heat source*:	EN 14891-A.6.5	≥ 0,5 N/mm <sup>2</sup>	1,2 N/mm <sup>2</sup>
Adhesion after freeze-thaw cycles*:	EN 14891-A.6.6	≥ 0,5 N/mm <sup>2</sup>	0,7 N/mm <sup>2</sup>
Adhesion after immersion in basic water*:	EN 14891-A.6.9	≥ 0,5 N/mm <sup>2</sup>	0,75 N/mm <sup>2</sup>
Adhesion after immersion in chlorinated water*:	EN 14891-A.6.8	≥ 0,5 N/mm <sup>2</sup>	0,75 N/mm <sup>2</sup>

Adhesion values according to EN 14891 measured on **Mapelastic Foundation** and C2-type 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. In every case, the user alone is fully responsible for any consequences deriving from the use of the product. Please refer to the current version of the Technical Data Sheet, available from our website [www.mapei.com](http://www.mapei.com)

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