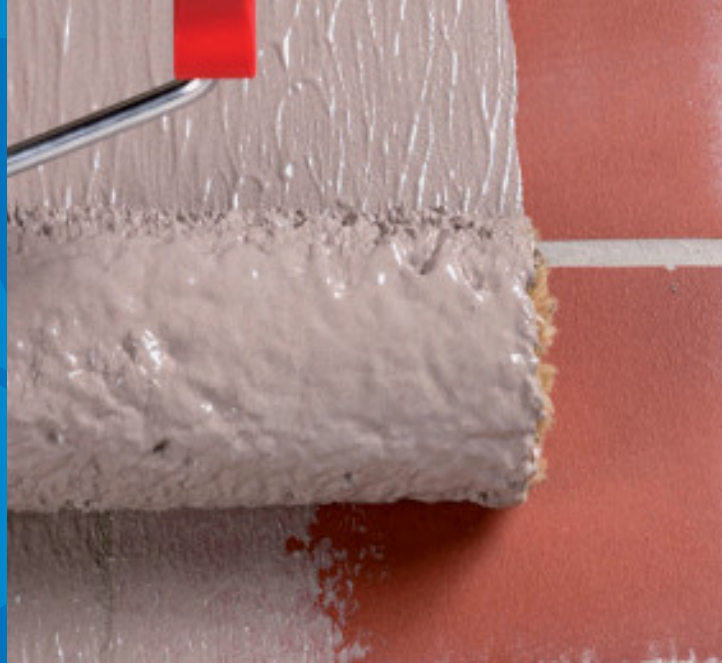
MAPELASTIC SMART

Two-component, high-flexibility cementitious mortar (with crack-bridging capacity up to 2 mm) applied by trowel or roller for waterproofing balconies, terraces, bathrooms and swimming pools



WHERE TO USE

Mapelastic Smart is used for waterproofing hydraulic projects such as channels, faces of dams, swimming pools, basins, storage tanks, etc. and balconies and terraces. Particularly suitable for waterproofing irregular surfaces.
Mapelastic Smart is also used to protect concrete structures, renders with hairline cracks and cementitious surfaces in general which, being subject to vibrations, may suffer from cracking.

Some application examples

· Waterproofing hydraulic channels, concrete water tanks, faces of dams and basins, including those containing potable water.
· Waterproofing bathrooms, showers, balconies, terraces, swimming pools etc. before laying ceramic tiles.
· Waterproofing plasterboard, render or cementitious surfaces, lightweight cement blocks and marine-grade plywood.
· Flexible protection layer of new concrete structures or repaired structures subject to minor deformation under load.
· Protection of cementitious renders or concrete with cracks due to shrinkage, minor movement caused by thermal gradients or dynamic stresses due to the passage of vehicles, against infiltration of water and aggressive elements from the atmosphere.
· Protection of concrete pillars and beams and road and railway viaducts repaired with products from the **Mapegrout** or **Planitop** ranges against the penetration of carbon dioxide.
· Protection of concrete surfaces which may come into contact with sea water, de-icing salts, such as sodium or calcium chloride, and sulphates.

ADVANTAGES

· High performance: a 2 mm thick film has a crack-bridging capacity of >2 mm.
· Excellent mechanical characteristics, especially when reinforced with Mapetex Sel or Mapenet 150 reinforcement.
· CE-certified product in compliance with EN 1504-2 and EN 14891.
· Excellent elongation at failure (170%, Class II AS/NZS 4858).
· Fluid consistency for easy application.
· Resistant to UV rays.
· May also be applied on existing tiles.
· Compatible with ceramic, mosaic and natural stone coverings using MAPEI's line of tile adhesives.
· Approved for contact with potable water. Meets the requirements of AS/NZS 4020:2018, Report ID AAD47762.
· Meets AS/NZS 4858:2004 Class II Wet Area Membrane tested by CSIRO.
· Meets the requirements of AS 4654.1:2012, exposed, non-trafficable waterproofing membrane tested by CSIRO.
· Low VOC content of 0 g/L.
· Product certified EC1 Plus by the GEV Institute (Gemeinschaft Emissions-kontrollierte).

TECHNICAL CHARACTERISTICS

Mapelastic Smart is a two-component mortar based on cementitious binders, fine-grained selected aggregates, special admixtures and synthetic polymers in water dispersion, blended according to a formula developed in MAPEI's own research laboratories.
When the two components are mixed, a blend with a plastic consistency is obtained. It may be applied by brush, by roller or by spraying with a worm screw rendering machine on both horizontal and vertical surfaces at a thickness of approximately 2 mm. Due to the content and high quality of the synthetic resins, the hardened layer of **Mapelastic Smart** remains constantly flexible under all environmental conditions.
Mapelastic Smart is waterproof and resistant to the penetration of aggressive substances which are present in the atmosphere, such as carbon dioxide, sulphur dioxide and sulphuric anhydride, and soluble salts such as chlorides and sulphates, which are present in seawater or in the ground.
Mapelastic Smart has excellent bonding properties on all cementitious, ceramic and marble surfaces as long as they are sound, sufficiently clean and properly prepared.
These properties, together with its resistance to the deteriorating effect of UV rays, a characteristic of this product, ensure that structures protected and waterproofed with **Mapelastic Smar**t have a long service life, even if they are located in areas with particularly rigid climatic conditions, in coastal areas with a saline-rich atmosphere or in industrial areas where the air is particularly polluted.

RECOMMENDATIONS

· Do not apply **Mapelastic Smart** at temperatures lower than +8°C.
· Do not add cement, aggregates or water to **Mapelastic Smart**.
· Protect from rain and water spillages for the first 24 hours after application.
· Do not leave **Mapelastic Smart** exposed in swimming pools.
· Do not apply on cementitious substrates not sufficiently cured.
· During hot weather, it is advisable to keep the product out of direct sunlight before use (power and liquid).

APPLICATION PROCEDURE

Preparation of the substrate

A) Protection and waterproofing of concrete structures and elements
(eg. pillars and beams for road and railway viaducts, cooling towers, chimneys, underpasses, retaining walls, applications in coastal areas, basins, channels, faces of dams, columns, faces of balconies, skirt roofs, etc.)
The surface to be treated must be sound and perfectly clean. Remove all cement laitance, flaky parts and traces of powder, grease, oil and removing compounds by sand-blasting or washing down with high-pressure water.
If the structure to be waterproofed and protected with **Mapelastic Smart** is in a poor condition, remove the damaged parts by hand or mechanical means, or by using a water jet blasting which uses high pressure water and is particularly recommended, because the reinforcement rods are not damaged and the structures are not subject to vibration which could cause hairline cracks to form in adjacent concrete.
Once the rust has been completely removed by sandblasting, carry out the repair with **Mapefer 1K** and a ready-mixed mortar from the **Mapegrout** or **Planitop** range.
B) Waterproofing of terraces, balconies and swimming pools
· *CEMENTITIOUS SCREEDS:*
– settlement cracks caused by plastic or hygrometric shrinkage must be sealed beforehand with **Eporip**; – if thicknesses of up to 20 mm have to be levelled out (to create slopes, fill out dips, etc.) use **Adesilex P4** or **Planitop Fast 330.**
· *EXISTING FLOORS:*
– existing floors and coverings in ceramic, gres, klinker or terracotta etc. must be well bonded to the substrate and free from substances which could compromise the quality of the bond, such as grease, oil, wax, paint, etc. Use mechanical means if necessary. – Remove all traces of material that could affect the adhesion of **Mapelastic Smart.** Use mechanical means if necessary.
· *RENDERS:*
– new, cementitious-based renders or lime-cement renders must be well cured (in good weather, we recommend at least 7 days per cm of thickness applied), bonded to the substrate, resistant and free of powder or all kinds of paint.
· *PVC STRUCTURAL WALL SYSTEMS:*
– The PVC structural wall system substrate must be mechanically scratched using a course diamond disk on a low speed grinder to create a keyable finish. Ensure the grinder does not burnish the substrate due to high speeds.
– Apply a patching coat of the membrane along all non-structural movement joints. This is not to be considered as one of the 2 main coats required.

Priming

Mapelastic Smart does not require the use of a primer on properly prepared substrates. Simply dampen surfaces with water.
The following are exceptions:
· For excessively porous substrates use **Primer 3296** to seal the surface.
· For very damp substrates, **Planiseal MR** may be used.
· Metal and PVC details (non-immersed), existing ceramic and natural stone substrates must be primed with **Eco Prim Grip Plus** to provide a good bond. For immersed applications, prime metal and PVC details with **Eporip** and sand seed with Q**uartz 0.5 AU**.

Waterproofing detail

Mapeband TPE or **Mapeband Flex Roll** is used to seal structural joints and joints subject to high dynamic stress. Expansion joints, construction joints, and junctions (e.g. floor-wall, wall-wall) can be locations of movement and as such, require special preparation. MAPEI's highly flexible polymer band products **Mapeband**, **Mapeband Easy** and **Mapeband SA** (self adhesive) have been developed to provide rapid installation and dependable in-service performance for treatment of these areas. Refer to specific technical data sheets for installation details.

Preparation of the mortar

Pour component B (liquid) into a suitable, clean container. Then slowly add 75% of component A (powder) while stirring with a mechanical mixer.
Carefully mix **Mapelastic Smart** for a few minutes, making sure that no powder remains stuck to the sides or the bottom of the container. Add the remaining 25% of Part A (powder) and continue stirring until a perfectly homogenous mix is obtained.
Use a low-speed mechanical mixer for this operation to avoid too much air entering the mix.
Do not prepare the mix by hand.
Preparation of **Mapelastic Smart** may also be carried out with a mortar mixer, which is usually supplied with mortar sprayers. If this technique is used, make sure that the mix is homogenous and has no lumps before it is poured into the hopper of the pump.

APPLICATION

Mapelastic Smart can be applied with brush, trowel, spray or long haired roller to a 1 mm wet film thickness (WFT) per coat. It must be applied in at least two even coats. The final dry film thickness (DFT) must never be less than 1.6 mm
Wait until the first coat is dry before applying the second coat at a right angle to the first (approximately 4-5 hours at 23°C and 50% relative humidity. Note that low temperatures and/or high humidity can extend dry times). When used for waterproofing terraces, balconies, basins and swimming pools, and for protecting substrates which have hairline cracks or elements which are particularly stressed, we recommend to embed **Mapenet 150** alkali-resistant glass fibre mesh in the first layer of fresh **Mapelastic Smar**t, to act as a reinforcement. After the mesh has been laid, finish the surface with a flat trowel and apply a second layer of **Mapelastic Smart** when the first one has set (after 4-5 hours).
To further improve the crack-bridging of **Mapelastic Smart** on horizontal surfaces, we recommend inserting **Mapetex Se**l non-woven macro-holed polypropylene fabric. While it is still fresh, carefully lay Mapetex Sel on the surface, and press it in using a flat-bladed trowel to make sure that it is perfectly buttered. Then apply the second coat of Mapelastic Smart to completely cover the fabric, and smooth over the surface using a flat-bladed trowel.
For absorbent substrates with good weather and normal temperatures, tiling over **Mapelastic Smart** may occur after waiting 24-48 hours.
Always allow a minimum 3 days prior to flood testing and a minimum 5 days prior to full immersion.
In cold climatic conditions, non-porous substrates, and at high humidities, curing can be significantly longer.

Laying ceramic tiles on Mapelastic Smart

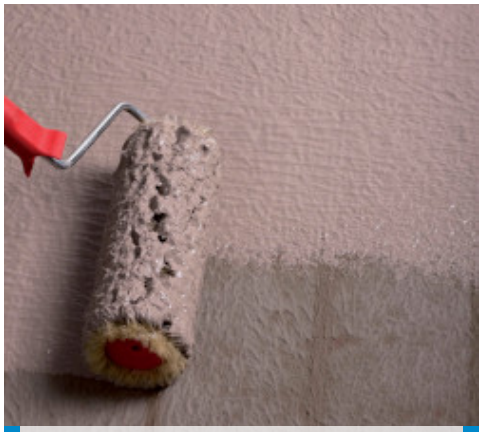
– Bond in place with a C2 class cementitious adhesive such as **Keraflex** or **Keraflex Maxi S1** or, for quickening installation times, a C2F class adhesive such as **Granirapid** or **Keraquick Maxi S1**;
– Grout all joints with a CG2 class cementitious product such as **Keracolor FF** or **Keracolor GG**, **Kerapoxy** or **Ultracolor Plus**;
– Seal all expansion joints with a specific MAPEI flexible sealant (such as **Mapeflex PU 45 FT**, **Mapeflex AC**, **Mapeflex PU 40** or **Mapesil LM)**.

Painting over Mapelastic Smart

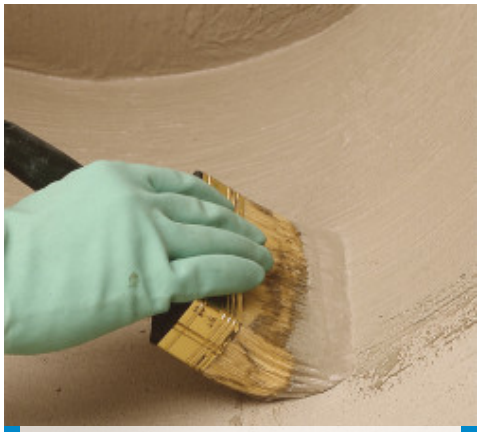
If **Mapelastic Smart** is used, for protecting bridge piles and beams, railway underpasses or façades on buildings etc., the product may be painted over using products from the **Elastocolor** range, acrylic resin-based paint in water dispersion available in a wide array of colours obtained using the **ColorMap**® automatic colouring system.
If **Mapelastic Smart** is used for protecting horizontal concrete surfaces not for pedestrian use such as on flat roofs, the product may be painted over with **Elastocolor Waterproof** flexible acrylic resin-based paint in water dispersion.
Elastocolor Waterproof is available in a wide range of colours obtained using the **ColorMap**® automatic colouring system and must be applied at least 20 days after applying **Mapelastic Smart**.

PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION

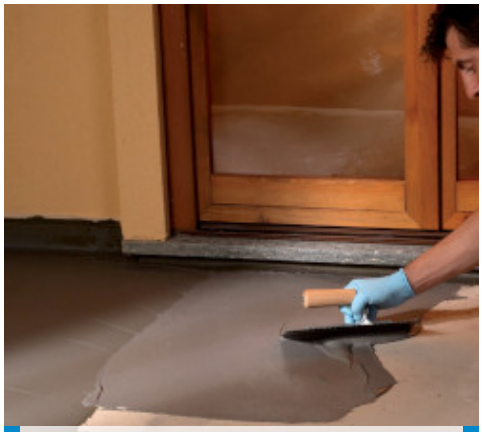
· No special precautions need to be taken when the temperature is around +20°C.
· During hot weather, it is advisable to keep the product out of direct sunlight before use (powder and liquid).
· After application, and in particularly dry, hot or windy weather, we recommend that the surface is protected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



Waterproofing of details by roller



Waterproofing of details by brush



Waterproofing of terraces by trowel

CLEANING

Due to the high bonding strength of **Mapelastic Smart**, even on metals, we recommend that work tools are washed with water before the mortar sets. Once it has set, cleaning may only be carried out by mechanical means.

CONSUMPTION

Application by trowel or roller:
Approx. 1.6 kg/m² per mm of thickness.
Spray gun application:
Approx. 2.2 kg/m² per mm of thickness.
N.B.: the consumption figures indicated are for a seamless film on a flat surface and are higher if applied on uneven substrates.

PACKAGING

Units of 30 kg:
component A: 20 kg bags;
component B: 10 kg drums. (Yield 18.75 Litres / 30 kg kit)

STORAGE

Mapelastic Smart component A may be stored for up to 12 months when contained in its original sealed packaging in a dry place.
Mapelastic Smart component B may be stored for up to 24 months.
Store **Mapelastic Smart** in a dry place and at a temperature of at least +5°C.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

For complete information about the safe use of our product please refer to the latest version of our Safety Data Sheet available for download from our website www.mapei.com.au.
PRODUCT FOR PROFESSIONAL USE.

Mapelastic Smart: two-component flexible cementitious membrane for waterproofing balconies, terraces, bathrooms and swimming-pools, and for protecting concrete in compliance with the requirements of EN 14891 (CM01P) and EN 1504-2, coating (C) principles PI, MC and IR		
TECHNICAL DATA (typical values)		
PRODUCT IDENTITY		
	comp. A	**comp. B**
Consistency:	powder	liquid

Colour:	grey	white
Bulk density (g/cm³):	1.4	–
Density (g/cm³):	–	1.0
Dry solids content (%):	100	53

APPLICATION DATA OF PRODUCT (at +20°C - 50% R.H.)	
Colour of mix:	grey
Mixing ratio:	component A : component B = 2 : 1
Consistency of mix:	fluid, may be applied by brush
Density of mix (kg/m³):	1,600
Density after application by spray (kg/m³):	2,200
Application temperature range:	from +8°C to +40°C
Pot life of mix:	1 hour
EMICODE:	EC1 Plus - very low emission

FINAL PERFORMANCE (thickness 2.0 mm)			
Performance characteristic	**Test method**	**Requirements according to EN 1504-2 coating (C) principles PI, MC and IR**	**Performance figures for Mapelastic Smart**
Adhesion to concrete - after 28 days at +20°C and 50% R.H. (N/mm²):	EN 1542	for flexible systems with no traffic: ≥ 0.8 with traffic: ≥ 1.5	1.3
Adhesion to concrete - after 7 days at +20°C and 50% R.H. + 21 days in water (N/mm²):		not required	0.9
Thermal compatibility measured as adhesion according to EN 1542 (MPa): **- freeze-thaw cycles with de-icing salts after storm cycles**	EN 13687-1 EN 13687-2	for flexible systems with no traffic : ≥ 0.8 with traffic : ≥ 1.5	0.9
Elasticity expressed as elongation - after 28 days at +20°C and 50% R.H. (%):	DIN 53504 modified	not required	120
Static crack-bridging at +20°C expressed as maximum crack width - after 28 days at +20°C and 50% R.H. (mm):	EN 1062-7	from class A1 (0.1 mm) to class A5 (2.5 mm)	class A5 (+20°C) (> 2.5 mm)
Dynamic crack-bridging at +20°C expressed as resistance to cracking cycles:		from class B1 to class B4.2	class B4.2 (+20°C) No failure of the test piece after 20,000 crack cycles with movement of crack from 0.20 to 0.50 mm
Permeability to water vapour - equivalent air thickness S_D (m):	EN ISO 7783	Class I (S_D < 5 m) Class II (5 m < S_D < 50 m) Class III (S_D> 50 m)	Class I (permeable to water vapour) S_D = 3.6 | μ = 1800
Impermeability to water, expressed as capillary absorption (kg/m²·h$^{0.5}$):	EN 1062-3	< 0.1	< 0.05

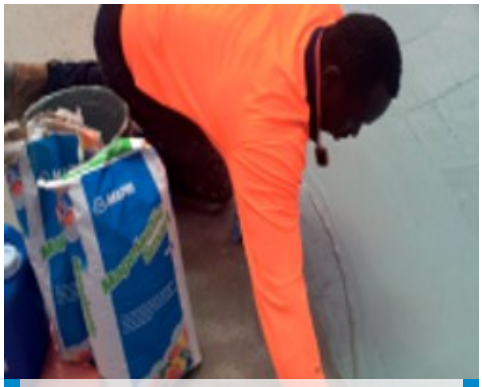
Permeability to carbon dioxide (CO_2) - diffusion in equivalent air layer thickness S_{DCO2} (m):	EN 1062-6	> 50	> 50
Reaction to fire:	EN 13501-1	Euroclass	E
		Requirements according to EN 14891	**Performance figures for Mapelastic Smart**
Impermeability to water under pressure (1.5 bar for 7 days of positive lift):	EN 14891-A.7	no penetration	no penetration
Crack-bridging ability at +23°C (mm):	EN 14891-A.8.2	≥ 0.75	2.8
Crack-bridging ability at -5°C (mm):	EN 14891-A.8.3	≥ 0.75	0.8
Initial adhesion strength (N/mm²):	EN 14891-A.6.2	≥ 0.5	1.1
Adhesion after immersion in water (N/mm²):	EN 14891-A.6.3	≥ 0.5	0.65
Adhesion after application of heat source (N/mm²):	EN 14891-A.6.5	≥ 0.5	1.3
Adhesion after freeze-thaw cycles (N/mm²):	EN 14891-A.6.6	≥ 0.5	0.7
Adhesion after immersion in basic water (N/mm²):	EN 14891-A.6.9	≥ 0.5	0.7
Adhesion after immersion in chlorinate water (N/mm²):	EN 14891-A.6.8	≥ 0.5	0.7

*Adhesion values according to EN 14891 measured on **Mapelastic Smart** and C2-type cementitious adhesive in compliance with EN 12004*

WARNING

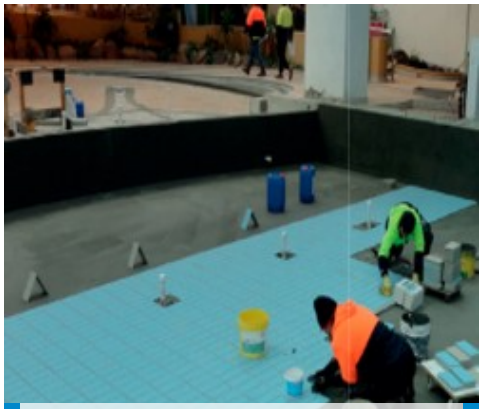
Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application; for this reason, 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.au.

LEGAL NOTICE

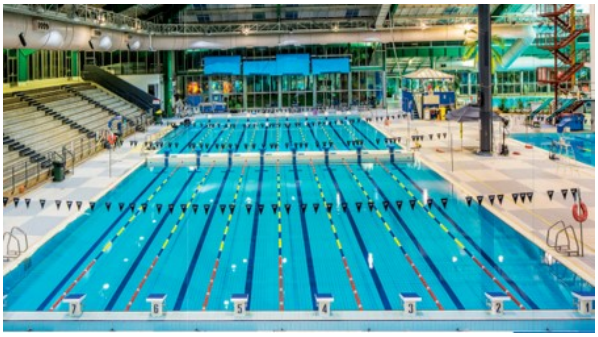


Installing Mapelastic Smart in the 50 metre pool at the Adelaide Aquatic Centre

Installing pool tiles over Mapelastic Smart waterproofing membrane



Installing pool tiles over Mapelastic Smart waterproofing membrane



Completed 50 m pool at the Adelaide Aquatic Centre

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