



Mapelastastic Smart

Two-component, highly flexible cementitious mortar, to be applied by brush or with a roller, for waterproofing concrete surfaces such as foundations, retaining walls, balconies, terraces, basins and swimming pools and for protection against aggressive chemical agents



WHERE TO USE

Mapelastastic Smart is used to protect new concrete structures, concrete structures repaired using special mortars from the **Mapegrout** or **Planitop** ranges, renders with hairline cracks and cementitious surfaces in general which, being subject to vibrations, may suffer from cracking, and for waterproofing hydraulic projects such as channels and faces of dams and swimming pools, basins, storage tanks, balconies and terraces.

Some application examples

- Waterproofing hydraulic channels, faces of dams and basins.
- Waterproofing retaining walls and foundations.
- 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 joists and road and railway viaducts repaired with products from the **Mapegrout** or **Planitop** ranges against the penetration of carbon dioxide.
- Protection of structures with an inadequate layer of concrete over the reinforcement rods against the penetration of aggressive elements.
- Protection of concrete surfaces which may come into contact with sea water, de-icing salts, such as sodium or calcium chloride, and sulphates.

TECHNICAL CHARACTERISTICS

Mapelastastic Smart is a two-component mortar based on cementitious binders, fine-grained selected aggregates, special additives 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.

Thanks to the content and high quality of the synthetic resins, the hardened layer of **Mapelastastic Smart** remains constantly flexible under all environmental conditions.

Mapelastastic Smart is completely waterproof up to a pressure of 1.5 bar 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.

Mapelastastic Smart has excellent bonding properties on all cementitious, ceramic and marble surfaces as long as they are solid and sufficiently clean.

These properties mean that structures protected and waterproofed with **Mapelastastic Smart** are hardwearing, even under particularly adverse climatic conditions, in coastal areas with a high salt content in the atmosphere or in industrial areas where the air is particularly polluted.

RECOMMENDATIONS

- Do not apply **Mapelastastic Smart** at temperatures lower than 8°C.
- Do not add cement, aggregates or water to **Mapelastastic Smart**.
- Protect from rain and water spillages for the first 24 hours after application.

Mapelastic Smart

- When **Mapelastic Smart** is used on large terraces or flat roofs that will not be covered with tiles, vapour vents must be appropriately positioned according to the level of moisture in the substrate (generally every 20-25 m²). This operation is indispensable when **Mapelastic Smart** is laid on substrates which are particularly absorbent, such as screeds which have been lightened with polystyrene or foamed clay.

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, swimming pools, 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 ready-mixed

mortar from the **Mapegrout** range or with **Planitop 400** (see relevant Data Sheets). Absorbent surfaces to be treated with **Mapelastic Smart** must be dampened beforehand with water.

B) Waterproofing of terraces, balconies and swimming pools

• CEMENTITIOUS SCREED:

- cracks caused by plastic or hygrometric shrinkage must be sealed beforehand with **Eporip**;
- if thicknesses of up to 2 cm have to be levelled out (to create slopes, fill out dips, etc.) use **Adesilex P4**.

• 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.

• 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), adherent to the substrate, resistant and free of powder or all kinds of paint;
- dampen absorbent surfaces to be treated beforehand with water.

Preparation of the mortar

Pour component B (liquid) into a suitable, clean container. Then slowly add 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. Keep 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.

Manual application of the mortar

Mapelastic Smart must be applied in at least two coats by brush or with a roller within 60 minutes of it being mixed, to give a final thickness of at least 2 mm.

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 a 4.5x4 mm **Fibreglass Mesh** in the first layer of fresh **Mapelastic Smart**, to act as a reinforcement (see the **Fibreglass Mesh** Data Sheet).

After the mesh has been laid, finish off 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 elongation at failure and crack-bridging of **Mapelastic Smart**, we recommend inserting **Mapetex Sel** large-mesh non-woven polypropylene fabric (please see the **Mapetex Sel** data sheet). The first layer of **Mapelastic Smart** must be at least 1 mm thick. While it is still fresh, carefully lay the **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.

During waterproofing operations, take special care when operating around expansion joints and joints between horizontal and vertical surfaces, where **Mapeband**, tape with alkali-resistant felt or **Mapeband TPE**, tape made from thermo-plastic polymers and synthetic elastomers, must always be employed.

After applying **Mapelastic Smart**, wait at least 5 days for curing (in favourable climatic conditions: $t = +20^{\circ}\text{C}$) before laying ceramic tiles.

This waiting time can be longer in cold climatic conditions.

Laying ceramic tiles on Mapelastic Smart

• BALCONIES AND SWIMMING POOLS:

- lay with MAPEI cementitious adhesives and leave wide joints. In swimming pools, use **Granirapid** (class C2F) or **Keracrete** + **Keracrete Powder** (class C2T). If mosaics are laid, **Adesilex P10** + **Isolastic** mixed with 50% (class C2TE/S1) water may also be used;
- grout the joints between the tiles with suitable cementitious grouts, such as **Keracolor FF**, **Keracolor GG** mixed with **Fugolastic**, **Ultracolor Plus** (class CG2) or epoxy resin such as **Kerapoxy** (class RG);
- seal expansion joints with **Mapeflex PU21**, **Mapeflex PU20**, **Mapesil AC**, or **Mapeflex PU 55 SL**, according to requirements.

Application of the mortar by spraying

After preparing the surface (see paragraph on "Preparation of the substrate"), apply



Waterproofing treatment applied by roller on a foundation wall



Waterproofing treatment applied by brush on a foundation wall



Waterproofing treatment applied by brush in a cement manhole shaft

TECHNICAL DATA (typical values)

PRODUCT DETAILS

	component A	component B
Consistency:	powder	liquid
Colour:	grey	white
Bulk density (g/cm³):	1.4	–
Density (g/cm³):	–	1.0
Dry solids content (%):	100	54
Storage:	12 months in original packaging	24 months in a closed place
Hazard classification in accordance with 1999/45/CE:	irritant	none Before using refer to the “Safety instructions for preparation and application” paragraph and the information on the packaging and Safety Data Sheet
Customs class:	3824 50 90	

APPLICATION DATA (at +23°C - 50% R.H.)

Colour of mix:	grey
Mixing ratio:	component A : component B = 2 : 1
Consistency:	fluid - applied by brush
Density of the mix (kg/m³):	1600
Density after spray application (kg/m³):	2200
Recommended application temperature range:	from +8°C to +35°C
Pot life:	60 min.

FINAL PERFORMANCES

Adhesion to concrete (N/mm²): – after 7 days at +23°C and 50% R.H. + 21 days in water:	0.9
Elongation DIN 53504 (modified) – after 28 days at +23°C and 50% R.H. (%):	130
Waterproofing in accordance with EN 12390/8 (modified):	waterproof
Fracture covering capacity: Crack Bridging at breakage of non-reinforced Mapelastic Smart at +23°C – after 28 days at +23°C and 50% R.H.: – after 7 days at +23°C and 50% R.H. + 21 days in water:	width 2.5 mm width 1.6 mm
Crack Bridging at breakage of non-reinforced Mapelastic Smart at -10°C – after 28 days at +23°C and 50% R.H.:	width 0.8 mm
Crack Bridging at breakage of Mapelastic Smart membrane reinforced with Mapetex Sel at +23°C – after 28 days at +23°C and 50% R.H.:	width > 3 mm
Crack Bridging at breakage of Mapelastic Smart membrane reinforced with Mapetex Sel at -10°C – after 28 days at +23°C and 50% R.H.:	width 1.5 mm
Minimum temperature when in use:	-10°C

Mapelastic Smart



Mapelastic Smart with a spray gun with a lance fitting for smoothing mortar, at a maximum thickness of 2 mm per layer.

If a thicker layer is required, **Mapelastic Smart** must be applied in several coats.

Successive coats must only be applied when the previous one is dry (after 4-5 hours).

In areas with hairline cracks or which are highly stressed, insertion of 4.5x4 mm

Fibreglass Mesh in the first layer of fresh **Mapelastic Smart** is recommended.

Immediately after laying the mesh, **Mapelastic Smart** must be smoothed off with a flat trowel.

To ensure the mesh is totally encapsulated, a further layer of **Mapelastic Smart** may be applied with a spray gun.

When operating around expansion joints and joints between horizontal and vertical surfaces, **Mapeband**, tape with alkali-resistant felt, or **Mapeband TPE**, tape made from thermo-plastic polymers and synthetic elastomers, must always be employed.

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.

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 brush or roller:
Approx. 1.6 kg/m² per mm of thickness.

Spray gun application:
Approx. 2.2 kg/m² per mm of thickness.

PACKAGING

Units of 30 kg:
component A: 20 kg bags;
component B: 10 kg drums.

STORAGE

Mapelastic Smart component A may be stored for up to 12 months when contained in its original sealed packaging.

Manufactured in compliance with the regulations of the 2003/53/EC Directive.

Mapelastic Smart component B may be conserved 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

Mapelastic Smart component A contains cement which, in contact with sweat or other body fluids, produces an irritant alkaline reaction and allergic reaction to those predisposed. Use protective gloves and goggles. For further information, please refer to the safety data sheet.

FOR PROFESSIONALS.

WARNING

While the indications and guidelines contained in this data sheet correspond to the company's knowledge and wide experience, they must be considered, under all circumstances, merely as an indication and subject to confirmation only after long-term, practical applications. Therefore, anybody who undertakes to use this product, must ensure beforehand that it is suitable for the intended application and, in all cases, the user is to be held responsible for any consequences deriving from its use.

**All relevant references
for the product are available
upon request and from
www.mapei.com**