

# PLANISEAL 88

Osmotic cementitious mortar suitable for contact with drinking water, for waterproofing masonry and concrete structures



## WHERE TO USE

- Repairing underground masonries subject to water and moisture seepage in situations with negative pressure up to 1 atmosphere.
- Waterproofing basins, reservoirs, concrete or masonry tanks containing drinking water.
- Waterproofing concrete or masonry tanks containing sewage water.

### Some application examples

Waterproofing:

- drinking water reservoirs;
- interior and exterior cellar walls;
- damp areas;
- swimming-pools;
- lift-rooms;
- underground passages;
- foundation walls;
- irrigation channels.

## TECHNICAL CHARACTERISTICS

**Planiseal 88** is a one-component osmotic mortar, composed of a cement-based compound, selected grade aggregates and special synthetic resins according to a formula developed in MAPEI Research & Development Laboratories.

When mixed with water, **Planiseal 88** becomes a fluid mortar that can be applied by trowel, brush or by spray with excellent adhesion to the substrate for complete waterproofing, even in the presence of negative pressure.

**Planiseal 88** corresponds to the principles defined in EN 1504-9 (*"Products and systems for protecting and repairing concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems"*) and the requirements of EN 1504-2 coating (C) according to the MC and IR principles (*"Protection systems for concrete surfaces"*).

## RECOMMENDATIONS

- Do not use **Planiseal 88** for solving internal condensation problems (use de-humidifying renders, improve ventilation to the area or provide adequate insulation).

- Do not use on plasters, plasterboards, painted walls, plywood, chipboard, asbestos cement.
- Do not mix **Planiseal 88** with admixtures, cement or aggregates.
- Do not use on surfaces subject to dynamic stresses.
- In no case should **Planiseal 88** be applied to a substrate that shows signs of standing water on the surface.
- Do not mix **Planiseal 88** with more water than specified.

## APPLICATION PROCEDURE

### TECHNICAL INFORMATION FOR THE APPLICATION

Composition of the mix:	100 kg of <b>Planiseal 88</b> 21-23 kg of water
Total finished thickness:	2-3 mm
Temperature of application allowed:	Surrounding and substrate temperature from +5°C to +35°C
In service temperature:	from -30°C to +90°C
Pot life:	approx. 1 h (at +20°C)
Waiting time between coats:	after 5h and no later than 24 hours
Ready for use:	7 days

### Preparation of the substrate

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

Remove crumbly or loose parts, dust, cement laitance, form release agents, varnishes and paint by mechanical brushing, sanding or high water pressure.

If water keeps leaking through concrete structures, block the leak beforehand with **Lamposilex**.

Renders must be perfectly anchored to the substrate. Seal cracks in the substrate and repair damaged parts with suitable products from the **Mapegrout** range. Completely soak the substrate with water.

Wait for the evaporation of the excess water. If necessary, in order to accelerate the operation, use a sponge or compressed air.

### Preparing the mortar

Pour 5.25 ÷ 5.75 litres of water into a suitable container and slowly add the **Planiseal 88** while blending with a mechanical mixer.

Mix thoroughly for some minutes, taking care to blend in all the unmixed powder deposited on the sides and bottom of the bucket, until the mortar is completely blended (free from lumps).

Leave the mortar to stand for approximately 10 minutes, remix and apply.

The instructions for the preparation of mortar for laboratory test samples are provided in the TECHNICAL DATA section.

### Applying the mortar

Apply **Planiseal 88** with a brush, trowel or spray.

Application by brush requires 2-3 coats. Make sure the previous coat is sufficiently dry before applying the next (generally 5-6 hours depending on the temperature and the absorption of the substrate. In order to have perfect adhesion between the coats, it is recommended not to exceed 24 hours).

To achieve proper application, particular care must be taken to cover corners and coves.

When application is by trowel, it is recommended to treat the substrate with **Planiseal 88** using a brush for the first coat. When spraying, a normal rendering machine (including a rendering machine with bowl-type spray gun) can be used making sure to mix the product beforehand. After having soaked the substrate, apply the mix by spray in two layers. Apply the second one when the first has partially hardened. In all cases the final thickness of **Planiseal 88** must be approximately 2-3 mm.

The properties of the hardened layer of **Planiseal 88** are such that it can only be used for rigid waterproofing. Even though **Planiseal 88** is resistant to abrasion and wear from solids normally present in liquids flowing in dynamic structures, it must not be exposed to traffic. When applied onto floors or surfaces subject to accidental falling of objects that may cause damage, it must be protected with a 4-5 cm thick cementitious screed.



Grey Planiseal 88 mixed with water



Application of Planiseal 88 by trowel



Application of white Planiseal 88 by spray gun in highway tunnel



Bertini hydroelectric canal - Como - Italy. Surfaces treated with Planiseal 88



## PRECAUTIONS TO BE OBSERVED DURING APPLICATION

In hot weather, or windy and very sunny days, it is recommended to spray the surface with water to prevent rapid evaporation of mixing water. Before allowing drinking water to come into contact with **Planiseal 88**, make sure it has completely set by keeping to the recommended waiting times. Then thoroughly clean all the surfaces and remove all the water used for cleaning before filling.

## CLEANING

**Planiseal 88** can be removed from tools with water before it hardens. Once hardened, cleaning becomes difficult and can be carried out only mechanically.

## CONSUMPTION

Approx. 1.5 kg/m<sup>2</sup> per mm of thickness.



## PACKAGING

25 kg bags.

## STORAGE

**Planiseal 88** may be stored for up to 12 months in its original packaging in a dry place.

## 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)

### PRODUCT IDENTITY

Identification according to EN 1504-2 (methods and principles):	Coating (C) - MC and IR principles
Consistency:	powder
Colour:	grey or white
Maximum size of aggregate:	0,4 mm

### TECHNICAL INFORMATION FOR PRODUCT PREPARATION

Mixing ratio:	100 parts by weight of <b>Planiseal 88</b> with 22% of water
Preparation of the mix:	Mixing the product according to EN 196-1 standard
Curing condition:	PCC ( Annex A – EN 12190)

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

Colour of mix:	Grey or white
Consistency of mix:	fluid - trowellable
Density of the mix:	1800 kg/m <sup>3</sup>

### FINAL PERFORMANCE

*According to the curing times defined in the test methods*  
*Application thickness 2.5 mm*

Performance characteristics	Test method	Requirements according to EN 1504-2 coating (C) (MC and IR principles)	Performance of product
Compressive strength: - 1 day - 7 days - 28 days	EN 12190	not required	> 6 MPa > 15 MPa > 25 MPa
Flexural strength : - 1 day - 7 days - 28 days	EN 196-1	not required	> 2 MPa > 4 MPa > 6 MPa
Bond strength to concrete by pull-off:	EN 1542	for rigid systems without traffic: $\geq 1.0$ MPa with traffic: $\geq 2.0$ MPa	$\geq 2.0$ MPa
Impermeability expressed as coefficient of permeability to water W:	EN 1062-3	$W < 0.1 \text{ kg/m}^2 \cdot \text{h}^{0.5}$	$W < 0.05 \text{ kg/m}^2 \cdot \text{h}^{0.5}$ Class W <sub>3</sub> low permeability according to EN 1062-7

Permeability to water vapour (wet-cup – B method) equivalent air thickness S:	EN ISO 7783	Class I S < 5 m Class II 5 m ≤ S ≤ 50 m Class III S > 50 m	S < 5 m Class I (permeable to water vapour)
Reaction to fire:	EN 13501-1	Euroclass	E

Note: Specimens preparation: compaction in compliance with EN 196-1

## 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. The values declared in the TECHNICAL DATA table (typical values) were obtained in compliance with test methods and curing cycles defined in the technical standards referenced therein. Therefore, please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.

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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