

# 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 and pipes 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 graded aggregates and special synthetic resins according to a formula developed in the 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** is certified to AS/NZS 4020:2018 for use with potable water.

**Planiseal 88** corresponds to the principles defined in EN 1504-9 ("Products and systems for the protection and repair of concrete structures: definitions, requirements, quality control and evaluation of conformity. 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 ("Surface protection systems for concrete")

## 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 is specified.

## APPLICATION PROCEDURE

## Preparing 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**.

Renderers must be perfectly anchored to the substrate. Seal cracks in the substrate and repair damaged parts with suitable products from the **Mapegrout** line. 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 4.2 - 4.6 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

## 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).

Make sure the product penetrates deeply in the substrate and 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 hydraulic 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.

## 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

20 kg bags.

## STORAGE

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

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

**Planiseal 88** contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions to those predisposed. It can cause damage to eyes. We recommend the use of protective gloves and



goggles and to take the usual precautions for handling chemicals. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention.

For further and complete information about the safe use of our product please refer to the latest version of our Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

**Planiseal 88: one-component, normal-setting, osmotic cementitious mortar for protecting and waterproofing concrete: conforms to the requirements of EN 1504-2 coating (C) according to the MC and IR principles**

TECHNICAL DATA (typical values)	
PRODUCT IDENTITY	
Consistency:	powder
Colour:	grey
Maximum size of aggregate (mm):	0.4
Bulk density (kg/m <sup>3</sup> ):	1,300
Dry solids content (%):	100
APPLICATION DATA (at +20°C - 50% R.H.)	
Colour of mix:	grey
Mixing water:	21-23% (4.2 – 4.6) per 20 kg bag
Consistency of mix:	fluid - trowelable
Density of the mix (kg/m <sup>3</sup> ):	1,800
Application temperature range:	from +5°C to +35°C
In service temperature range:	from -30°C to +90°C
Pot life of mix:	approximately 1 hour
Application of successive coat:	after 5 hours, and no later than 24 hours
Waiting time before putting into service:	7 days

FINAL PERFORMANCE (with 22% mixing water - 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 (MPa):	EN 12190	not required	> 6 (after 1 day) > 15 (after 7 days) > 25 (after 28 days)
Flexural strength (MPa):	EN 196/1	not required	> 2.0 (after 1 day) > 4.0 (after 7 days) > 6.0 (after 28 days)
Bond strength on concrete (substrate in MC 0.40 - water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	for rigid systems without traffic: $\geq 1.0$ with traffic: $\geq 2.0$	$\geq 2$ (after 28 days)
Impermeability expressed as coefficient of permeability to free water (kg/m <sup>2</sup> ·h0.5):	EN 1062-3	W < 0.1	W < 0.05 Class III (low permeability) according to EN 1062-1
Permeability to water vapour - equivalent air thickness SD - (m):	EN ISO 7783-1	Class I SD < 5 m Class II 5 m $\leq$ SD $\leq$ 50 m Class III SD > 50 m	SD < 1 Class I (permeable to water vapour)
Reaction to fire:	EN 13501-1	Euroclass	E





Planiseal 88 mixed with water



Application of Planiseal 88 by spray gun in hydroelectric canal



Application of Planiseal 88 by trowel



Application of Planiseal 88 by spray gun in highway tunnel



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



## 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

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