



OSMOSEAL

ONE-COMPONENT OSMOTIC WATERPROOFING CEMENT FOR INTERIOR USE, WITH POSITIVE AND NEGATIVE THRUST, IN COUNTERTHRUST UP TO 7 BAR, INSIDE UNDERGROUND SPACES AND CONCRETE WORKS

GRANTS *LEED* CREDITS

CHARACTERISTICS		ENVIRONMENTAL		METHOD OF USE		PRECAUTIONS
WATERPROOFING	ALLOWS TO BREATHE	ECO GREEN	RECYCLABLE	MIX MECHANICALLY	APPLY BY ROLLER	STORAGE IN A DRY PLACE

PROBLEM

WATERPROOFING UNDERGROUND SPACES



Water from infiltrations, unconfined aquifer or normal humidity formed in the land where the foundations lay is the main source of degradation and thus unaccessibly to underground or partially underground spaces. In addition to the high humidity rate that makes the spaces unusable, the salts dissolved in the water cause the plaster to detach. In the most serious cases, in the presence of unconfined aquifer, the water pushed by hydrostatic pressure tends to reach the same external level inside of the space, through cracks or empty capillaries.

SOLUTION

The lack of suitable waterproofing or defects in the same, in addition to causing significant damage, always makes subsequent curative treatments difficult and expensive.

Therefore, it is fundamental to prevent and protect these structures from possible water penetration with a waterproof cement coating particularly resistant to aggressive agents, impacts and abrasions during backfilling.

OSMOSEAL is a premix in powder form, based on high-strength hydraulic binders, water-repellent additives, powdered resins and selected aggregates.

It comes as a powder for mixing with water at the time of use.

OSMOSEAL is reactive with respect to calcium hydroxide, forming stable and insoluble compounds.

OSMOSEAL provides the perfect supplement to the substrate, creating an insoluble crystal formation which blocks the capillaries by osmosis.

The special additives which it contains form, with the cement, a double layer which is impermeable to water, maintaining a crystallising effect (osmotic healing) over time.

APPLICATION FIELDS

It is used to waterproof from the inside concrete structures under aquifers subject to infiltration, such as foundation walls, basements, spaces for lifts, underground garages and deposits.

OSMOSEAL is suitable to waterproof concrete internal and external walls of: tanks, water containers, and to waterproof new or degraded concrete items of: channels, pipes, tunnels. On this point we advise consulting the chapter «WATERPROOFING WITH OSMOTIC CEMENTS».

The **OSMOSEAL** application may also be extended to brick, tufa, stone surfaces, provided that a suitable IDROPLAN type plaster support is created, and is perfectly anchored to the structure to be waterproofed.

OSMOSEAL is also used as waterproofing bottom coating to integrate POROVENT or DEUMISAN dehumidifying plasters in the rehabilitation cycle of the masonry in contact with the soil affected by penetrating damp and/or rising damp.

On this point we advise consulting the chapter «REHABILITATING DAMP MASONRY WITH DEHUMIDIFYING PLASTERS».



ADVANTAGES

- The ease of application makes the intervention inexpensive and quick.
- High penetration and adhesion to the support.
- It keeps the permeability to water vapour.
- High resistance to pressurised water.
- Ideal for drinking water containers.

CERTIFICATION



The Water Quality Centre



SGS Taiwan Ltd.



METHOD OF USE

• PREPARING THE SUPPORT

It is fundamental to suitably prepare the concrete surfaces to be waterproofed by removing any old plaster and damaged and crumbling parts via chipping.

The support is cleaned of oils, mortar, release agents, dust and efflorescence through water or sand washing treatments in order to obtain a clean and compact support (1).

Any seepage which occurs is blocked in advance with BETONRAPID quick-setting hydraulic cement (2). Transudation and percolation are previously blocked by adding BETONRAPID to OSMOSEAL for quick-setting.

The concrete structure will be regularised with RESISTO UNIFIX shrinking-compensating mortar used to plaster gravel nests, construction joints, static bending, cavities.

The spacers of the shuttering protruding from the wall must be cut and nipped inside a cavity (possibly dovetailed) and filled (3).

The angles between the floor and walls must be rounded via shelling with RESISTO REP or RESISTO TIXO mortar after uncasing to improve bonding (4).

Special care must be taken when wetting the concrete support in order to create the conditions for OSMOSEAL to absorb all the water needed for the osmotic process and for the hardening chemical reactions.

Thus it is fundamental to wet the support carefully several times until saturation.

Excess water in the form of a surface layer must be removed with a sponge.

• PREPARING THE MIX

To prepare the mix, gradually pour OSMOSEAL, avoiding the formation of lumps, in a sufficient quantity of water (20%) to obtain a brushable mortar of the consistency of honey by using a drill at low speed (5).

The mixture ratio is 5 litres of water for each 25 kg package of OSMOSEAL. The average consumption of OSMOSEAL is 3 kg/m² applied in two coats. For smooth or particularly difficult surfaces, in order to improve the bonding to the support, we advise preparing a 1.5 kg mix of LATICRYL adhesive latex +3.5 litres of water separately and then add, always while stirring, OSMOSEAL in the quantity of a 25 kg bag.

• APPLICATION

Remix the OSMOSEAL grout during use to maintain a «honeyish» consistency without adding water and apply the mix within one hour from preparing it; apply from the top and work downwards, starting from the walls and ending with the floor.

Apply the OSMOSEAL grout using a Tampico fibre brush (6).

Spread a first coat on the substrate so as to achieve a uniform covering layer, then apply the second coat on top of the first as it hardens, following the same procedure.

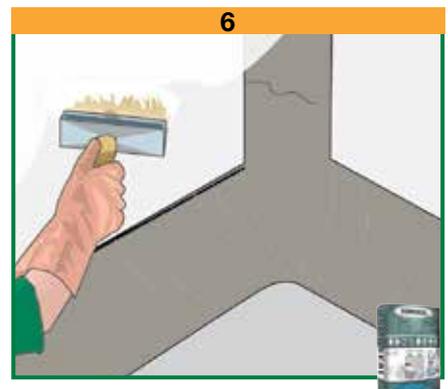
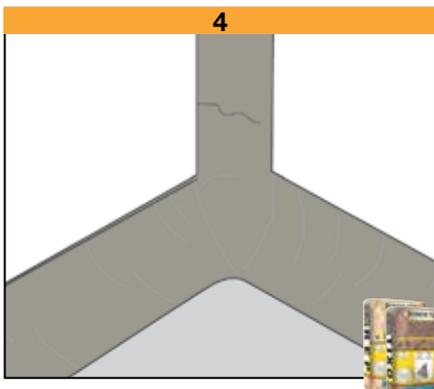
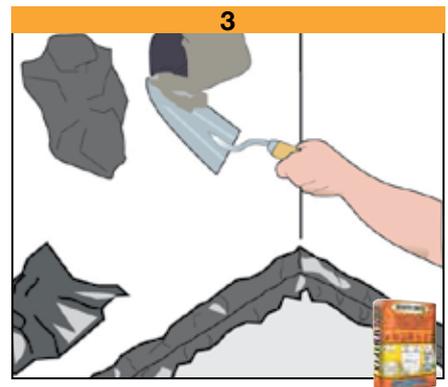
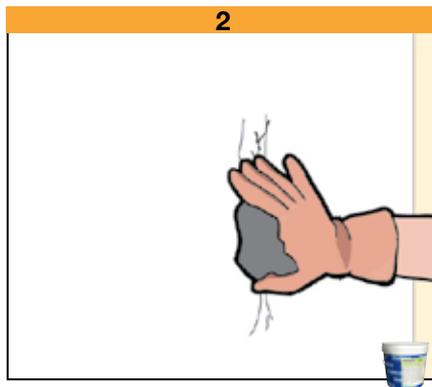
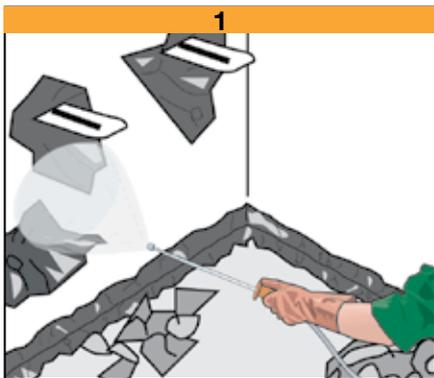
The floor waterproofed with OSMOSEAL must be protected against wear and tear and against continuous foot traffic with an additional slab of at least 5 centimetres.

• COVERAGE

Coverage is about 3 kg/m² with two coats.

• PRECAUTIONS

- Use cold water in the summer and at 20°C in the winter.
- Application Temperature from +5°C to +35°C.
- During the summer and on windy days, it is necessary to pay particular attention to keeping the waterproofed surfaces suitably wet with nebulised water in order to avoid rapid dehydration.
- Avoid the superficial layer of water.
- Do not apply on supports subject to structural or settling movements. Use, in these cases, in combination with the LATIFLEX flexibilising acrylic resin, or use OSMOLASTIC.
- To create a good bond to flaky or crumbling masonry, it is necessary to also prepare a reinforcing plaster, in addition to the normal preliminary superficial cleaning works.
- A useful precaution is to wait 48 hours before loading the finished waterproofing.
- Clean the tools with water and the coated surfaces with a wet cloth immediately after laying.
- Do not expose the material to the sun in hot weather.
- Store in a dry place closed in the original packaging.



REFERENCES



Hydroelectric power station channels - Val di Susa



Cantine Bolla - Pedemonte - Verona



Surge tanks - Bologna



Subways

TECHNICAL CHARACTERISTICS

	Standard	OSMOSEAL	
Appearance		Powder	
Colour		Grey	White
Apparent density	EN 1015-6	1.30 ± 0.05 kg/L	
Maximum granulometry		0.4 mm	
Mixing water		20%	
Storage in original packaging in a dry place		12 months	
Mix properties and workability			
Density of mix		1.70 ± 0.05 kg/L	
pH mix		12	
Workable mix duration (*)		about 60 minutes	
Application temperature		+5°C ÷ +35°C	
Minimum application thickness		1 mm	
Maximum application thickness		2 mm (in two coats)	
Performance characteristics			
	Standard	Product performance	
Class and type	EN 1504-2	C PI-MC-IR	
Water vapour permeability	EN 7783	Sd <5 m - class I	
Adhesion strength	EN 1542	≥2.0 MPa	
Capillary absorption and water permeability	EN 1062-3	w < 0.1 kg/m ² ·h ^{0.5}	
CO₂ permeability	EN 1062-6	Sd >50 m	
Watertightness	EN 14891	>500 KPa - waterproof	
Resistance to hydrostatic water pressure - Positive	EN 12390-8	5 bar	
Resistance to hydrostatic water pressure - Negative	UNI 8298/8	3 bar	
Resistance to compression	EN 12190	45.0 MPa	
Resistance to bending	EN 196/1	7.0 MPa	
Thermal resistance - Operating temperature		-30°C ÷ +90°C	
Fire reaction	EN 13501-1	A1	
Hazardous substances	EN 1504-2	in accordance to ZA.1 note	

Test conditions: temperature 23±2°C, 50±5% R.H. and air velocity in test area <0.2 m/s. The data shown may vary depending on the specific work site conditions: temperature, humidity, ventilation, absorbcency of the base coat.

(*) The stated times are longer or shorter as the temperature decreases or increases.

In accordance with the general principles defined in EN 1504-9 - Principles for evaluation of the use of products and systems.

the numerous possible uses and the possible interference of conditions or elements beyond our control, we assume no responsibility regarding the results which are obtained. The purchasers, of their own accord and under their own responsibility, must establish the suitability of the product for the envisaged use.

The figures shown are average indicative figures relevant to current production and may be changed or updated by INDEX at any time without previous warning. The advice and technical information provided, is what results from our best knowledge regarding the properties and the use of the product. Considering

PACKAGING

25-kg Sack

• FOR ANY FURTHER INFORMATION OR ADVICE ON PARTICULAR APPLICATIONS, CONTACT OUR TECHNICAL OFFICE • IN ORDER TO CORRECTLY USE OUR PRODUCTS, REFER TO INDEX TECHNICAL SPECIFICATIONS •

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