

MAXSEAL®

CEMENT-BASED WATERPROOF COATING FOR CONCRETE AND MASONRY

Description:

MAXSEAL is a cement-based mortar with special additives and controlled aggregates. Once cured, it becomes a suitable waterproof coating for use on concrete, brick, concrete block, masonry substrates.



Uses:

- Waterproofing and coating of drinking water tanks.
- Waterproofing of swimming pools.
- Waterproofing of tunnels, galleries, basements and elevator pits subjected to high water pressure.
- Waterproofing and protection of concrete in water treatment plants, setting tanks, etc.
- Coating for waterproofing of dams and retaining walls.
- Waterproof coating for façades and wall faces, concrete blocks and prefabricated panels.
- Restoration and waterproofing of channels.
- Waterproofing and decorative finish for silos and cooling towers in thermal power plants.



Advantages:

- Excellent waterproofing properties. Withstands both positive and negative hydrostatic pressures.
- Allows application on wet substrates.
- The coating allows the substrate to breathe and thereby it does not form a water vapour barrier.
- Final layer of **MAXSEAL** can work as a decorative finish, saving further enhancing paint costs.
- Easy to use and no maintenance required.
- Resistant to aggressive environment such as seacoasts and zones with atmospheric pollution.
- It resists weathering and freeze/thaw cycles, longer lasting than paints and other coatings.
- Very good adherence to substrate. It fills and seals all porous of the surface and also becomes part of the structure of the surface.
- Suitable for use in contact with drinking water.
- Once **MAXSEAL** is cured, it can be covered with protective or fixing mortars.
- Environmentally friendly.



Surface preparation:

MAXSEAL can only be applied to a medium to high porosity surface as this product requires porosity for adhesion.

Once surface has been repaired, the entire surface to be coated should be thoroughly saturated with clean water. Remove excess water before applying **MAXSEAL**. Do not leave free-standing or pooled water on the surface.

- The surface to be coated must be solid and clean, free of all traces of paint, efflorescence, loose particles, grease, form-stripping oils, dust, gypsum plaster, etc.
- All cracks must be at least 1,5 centimetres deep and must be sealed with Maxrest if there is no water or with Maxplug if there is water penetration. All non-structural surface iron must be cut to a depth of approx 2 centimetres then patch with Maxrest or Maxplug.
- Wash the surface with water before coating.
- **IT IS THE RESPONSIBILITY** of the applicator to determine whether a structure contains any form of **efflorescence PRIOR TO APPLICATION**. Any traces of efflorescence in negative waterproofing.
Please refer to efflorescence specification.



Mixing:

Three parts of clean water are poured into a clean container in order to produce a mixing liquid to which **MAXSEAL** is added. Mixing is best done by mechanical means only, such as a slow speed mixing drill (400-600 rpm). Small quantities may be mixed manually with a trowel. When mixing manually care must be taken to ensure product is mixed thoroughly. Mix until a thick creamy paste free of lumps is achieved (mixing time about 1 to 2 minutes). Allow the mixture to rest for 5 minutes and then remix briefly prior to application.

A 25 kg bag requires approx 6.25 to 7. ltrs of mixing liquid, optimum, temperature range from 15 °C to 28 °C.

Application conditions:

The optimum temperature range for application is from 15 °C to 28 °C.

Do not apply **MAXSEAL** if rain is expected within 4-6 hours after the application.

In winter, do not apply **MAXSEAL** below 5 °C or if such temperatures are expected within 24 hours after application. Do not apply the coating on frozen or frosted surfaces.

For applications during hot temperatures and windy conditions, i.e. summer time, the surface must be wet with plenty of water. Once **MAXSEAL** has been applied, if product appears to be drying out too quickly spray the surface lightly with a fine mist of water. Applications must be protected against direct sunlight exposure and/or strong winds during high temperature conditions.

Application:

In order to fill and cover properly all pores and voids, **MAXSEAL** should be applied by means of a fibre brush or a nylon fibre broom, such as **MAXBRUSH** or **MAXBROOM** respectively.

Apply the product to surface in a thick layer, making up a homogeneous and continuous

coating. Do not spread the product as if it were a paint. Once **MAXSEAL** has been spread, it must not be brushed again. Dampen surface again before application of the second coat. The second coat should be applied 14 to 24 hours after application of the first, This coat should also be applied perpendicular to the first to eliminate potential pinholing and consistent coverage.

MAXSEAL can be applied also by spray equipment. However, in order to ensure complete and uniform coverage and proper sealing of all voids etc, the freshly sprayed product should be brushed or broomed.

If **MAXSEAL** is going to be rendered on vertical surfaces, it is advisable to apply the second layer horizontally. For pipelines, a second layer should be applied in the direction of the water flow.

Curing:

Allow **MAXSEAL** to cure for at least for 7 days at 28 °C and 50% of relative humidity prior to immersion in water. Lower temperatures and higher relative humidity increase the curing time.

Cleaning:

Before product hardens, all tools and equipment must be cleaned immediately with water. Cured material only can be cleaned by mechanical means.

Technical data:

Characteristics for mixed product, placement and setting	
Mixing liquid (liquid weight/product weight, %)	25-28
Optimum application conditions T(°C)	15-20
Time between layers at 20°C (h)	12-16
Curing time at 20 °C and 50% R.H. (days)	7
Characteristics cured product	
<i>a) Physical Properties</i>	
Flexural Strength, EN 1015-11 (MPa)	
7 days	4,90
28 days	7,55
Compressive Strength, EN 1015-11 (MPa)	
7 days	33,0
28 days	40,7
Adhesion resistance, EN 1015-12, (MPa)	2,47
b) waterproof properties and chemical resistances	
Waterproofing behaviour:	
Pressure negative condition (180 min with 35 MPa)	No passage of water
Permeability to rainwater (120 l/m ² with wind, 4 h)	No water or dampness
Water vapour transmission, Swedish standard SS 02 15 82 d H ₂ O (m/s) / S (m, air barrier)	0,1578· 10 ⁻³ / 0,16
Frost resistance. Freeze-thaw and heat-ice cycles test Swedish standard SS 1372 44 method IVB (56 cycles)	Very good resistance Scaling: 0,02 kg/m ²
Suitability for coating in direct contact with drinking water	Approved
<i>c) Heat properties</i>	
Flammability rating, UNE 23727:1990	M0
Consumption	
Consumption per layer/per total application (kg/m ²)	1-1,5 / 2-3

Test Data:

Permeability to water under pressure conditions.

After 180 mins. from 3,5 Kp/cm² pressure was applied, there was no passage of water through maxseal - lined surface. Test was interrupted by breaking of test-pieces. Test No. 14.943 I.E.T.C.E. (1)

Toxicity.

Maxseal is suitable as internal lining from drinking water tanks. It is not toxic. Test No 14.343 I.E.T.C.C. and Analysis No 44.643, from National Food and Nutrition Centre. Ministry of Health and Consumer. Test No 5.211-5.212 Lebensmittel-Versuchsanstalt, Vienna (Austria).

Permeability to rain-water.

A water flow, 120 l/m² X h, with wind, is applied on the surface of MAXSEAL - lined wall. After 4 hours of testing, no water or dampness is seen to seep through the wall. Test No 1.031/82-M INCE (2).

Permeability to steam.

MAXSEAL allows to breathe to support which is applied on. Test No 15.816 I.E.T.C.C.

Accelerated ageing. Freeze-thaw and heat-ice cycles.

After 1000 hours of testing, there was no deterioration, loss of adhesion, cracking or colour changes. Test No 15.269 I.E.T.C.C.

Mechanical Resistances.

AGE	Ultimate Strength, KP/cm ² (psi)	
	FLEXOTRACTION	COMPRESSION
3 days	54 (767)	210 (2985)
7 days	73 (1038)	344 (4890)
28 days	104 (1478)	429 (6100)

Test No 15.269 I.E.T.C.C.

Water Absorption

CONDITION	Percent absorption		
	5 hours	48 hours	7 days
Immersion at 20† C=2† C	0	3,5%	4,1%
Boiling	2,6%	0	0

Adhesion. Adherence by perpendicular traction.

Adhesive strength: 2,1 Kp/cm²

After 1000 hours exposure in water/ice cycles and heat/ice cycles equivalent to 42 cycles with 1 day duration, adhesive strength is 2,2 Kp/cm² and 1,6 Kp/cm², respectively.

Test No 15.269 I.E.T.C.C.

(1) I.E.T.C.C.: Eduardo Torroja Institute for the Construction and Cement. Member of European Union for Construction Technical Agreement. (2) I.N.C.E.: National Institute for Quality in Construction.

Consumption:

MAXSEAL is applied in two layers. The recommended coverage is 1-1,5 kg/m² per layer with a total coverage of 2-3 kg/m².

Type of Application	kg/m ²	kg/m ²	kg/m ²	Procedure		
				1st Layer		2nd Layer
				brush	roller	brush
Exterior walls, partition walls	1,3	0,7	2	•	•	•
Exposed concrete	1	0,5	1,5	•	•	•
Bricks:						
Double hollow for later mortar coating	1,5	-	1,5	•	•	•
Brick	1,8	1	2,8	•	•	•
Swimming pools	1,5	1	2,5	•		•
Basements:						
Damp	1,5	1	2,5	•		•
With water pressure	2	1	3	•		•
Tunnels and shafts	2	1	3	•		•
Sewers	1,5	1	2,5	•		•
Water treatment plants	1,5	1	2,5	•		•
Drinking water tanks	1,5	1	2,5	•		•
Irrigation canals	1,5	1	2,5	•		•

The above requirements are based on normal conditions. Consult your supplier for extreme problems.



Packaging:

MAXSEAL is supplied in 25 kg bags and drums, and 5 kg cans. **MAXSEAL** is available in standard grey and white

MAXSEAL White is also supplied in 14 kg handipak.

Storage:

Twelve months or twenty four months in its original unopened bag or drums respectively. It must be stored in a dry and covered place, protected from freezing, and temperatures above 5 °C.

Safety and health:

As all cementitious products, **MAXSEAL** is an abrasive compound and both protective rubber gloves and goggles must be used to prepare and apply the mixture. In case of eye contact, rinse thoroughly with clean water, but do not rub. In case of skin contact, wash affected areas with soap and water. If irritation continues, seek medical attention.

Disposal of the product and its empty containers must be made according to official regulations. This disposal must be made by the final user.

Guarantee:

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. **DRIZORO** reserves the right to introduce changes without prior price. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorised by us. The data shown on consumptions, measurement and yields are for guidance only and based on our experience. These data are subject to variation due to the specific atmospheric and jobsite conditions so reasonable variations from the data may be experienced. In order to know the real data, a test on the jobsite must be done, and it will be carried out under the client responsibility. We shall not accept responsibility exceeding the value of the purchased product. For any other doubt, consult our Technical Department. This version of bulletin replaces the previous one.

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