

Protan InfraSeal 300

Polymer membrane in elastic powder for waterproofing underground structures and tunnels



Product Description

InfraSeal 300 is a sprayable membrane used in the waterproofing of underground structures, it is a powder product applied by dry projection. InfraSeal 300 is normally applied between two layers of shotcrete, possibly fiber-reinforced, or between a shotcrete support, with or without fibers, and a concrete cover for the final lining cast in situ, with or without a drainage system. The product has a good characteristic adhesion resistance to the support, on both sides of the membrane to which it originates and acts elastically. InfraSeal 300 develops a chemical hardening (between 4 and 6 hours after application, depending on the environmental conditions) such as to allow the casting of the final concrete coating in a short time. Like all products applied by spray, it cannot seal water leaks from the substrate, but can be applied to damp or wet substrates, in the absence of percolations. In the event of water coming in, it is recommended to use InfraSeal 300 in combination with a draining sheath or other types of geodraining membranes.

Application Areas:

InfraSeal 300, thanks to its double adhesion to the substrate, is specially designed for the creation of an original waterproofing system called Composite Shell Lining (CSL) in which the two layers of concrete lining are not separated by a discontinuity and can collaborate in the transfer of loads. It can be used in natural, cut and cover artificial tunnels, large diameter wells and underground stations, whether in the presence of pressurized water or not.

InfraSeal 300 is also used in special situations such as:

- restoration of tunnels (concrete, membrane, mortar or concrete for restoration);
- underground structures with difficult profile and geometry (niches, tunnels, foundation shafts, main tunnel bypass - accessory tunnel);
- replacement of portions of deteriorated PVC membrane;
- coverings of metal structures embedded in shotcrete, such as anchor heads or nails, metal bars, supports for ventilation structures.

Features and benefits:

- It does not contain toxic components.
- Does not require classification for transportation.
- Ready to use.
- Rapid seasoning.
- Spray application with simple equipment.
- Elasticity: from 80 to 140%, at temperatures between -20 and 20°C.
- Excellent adhesion to the substrate.

Packaging:

InfraSeal 300: 15 kg bags

PRODUCT DATA SHEET

Consumption:

The following list gives an indication of the consumption rates of the product (kg / m²) for an average finished thickness of 3 mm, depending on the degree of roughness (in mm) of the surface of the support:

3mm: 3 kg/m²
 8mm: 4 kg/m²
 16mm: 6 kg/m²

If the roughness of the surface of the substrate requires more than 6 kg / m² of InfraSeal 300, it is possible to consider smoothing it by applying a thin layer of cement mortar (with a maximum inert Ø of 4 mm). Consumption of InfraSeal 300 is strongly influenced by the degree of roughness of the substrate surface. In the event of percolation on the surface of the support, it is recommended to use a thin draining sheath that allows the subsequent application of InfraSeal 300.

Storage

InfraSeal 300 has a shelf life of 12 months if stored in its original closed containers, in a dry environment and at temperatures between 5 and 40°C.

Technical data

Technical Information				
Form		Powder		
Color		Light Brown		
Density (+ 20°C)		0,500 – 0,700 g/ml		
Theoretical consumption per mm on m ²		0,72 kg		
Application thickness		2 – 5 mm		
Application temperature		5 - 40°C		
Essential characteristics in accordance to EN 1504-2			Performance	
Adhesion to concrete	In the absence of cycles	UNI EN 1542 on InfraSeal (0,40) EN 1766 support	> 0,8 MPa	> 1,0 MPa
Permeability	Water vapor	UNI EN ISO 7783/1. Equivalent air thickness Sd, Sd = $\mu \cdot s$, μ = vapor diff. Coefficient, s = thickness	Class I: Sd < 5 m (Permeable) Class II: Sd ≥ 5 e ≤ 50 m Class III: Sd > 50 m (Non-Perm.)	Class I
	To CO ²	UNI EN 1062/6. Equivalent thickness of air Sd, Sd = $\mu \cdot s$, μ = coeff. Diff. CO ² , s = thickness (4 mm)	Sd > 50 m	Sd > 50 m
	To water	For capillary absorption EN 1062/3	< 0,1 kg·m-2·h-0,5	< 0,1 kg·m-2·h-0,5
Breaking strength at 20°C, 28 days			--	1,5 – 4 MPa
Elongation at break at 20°C, 28 days			--	> 100%
Flammability, (DIN 4102-B2)			--	Self-exting.
Resistance to hydraulic pressure			--	20 bar
Density at 20°C			--	590 ± 100 g/l

PRODUCT DATA SHEET

Equipment

The equipment chosen for protection must include a dust filter as shown in the photo. The filling of the pump hopper with the dry product must be carried out with care, avoiding creating excess dust.

Follow the procedure below for application:

- open the water tap;
- open the air tap;
- open the valve of the InfraSeal 300;
- close the InfraSeal 300 valve;
- close the air;
- turn off the water.

Note: Under no circumstances is the product applied without adding water to the lance. The added water can vary between 30% and 50% of the weight of the product.

Projection technique

The projection distance must remain within 2 - 2.5 m from the application wall. The lance must be manipulated in such a way as to guarantee total coverage with InfraSeal 300 from the more or less corrugated surface of the support. In case of occasional stops, vent the delivery into a water drum to avoid excess dust in the operating area.

Safety information

For information on the correct and safe use, transport, storage and disposal of the product, consult the most recent Safety Data Sheet.

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