



Protan InfraProof PCS Swelling Geo

Composite waterproofing membrane with self-healing properties

Product Description:

The Composite Sheet Waterproofing Membrane InfraProof PCS Swelling Geo consists of a PVC-sealing membrane co-extruded with an innovative swelling non-woven. The special feature of this non-woven is its swelling polymers which swell in contact with water, are water-absorbing and equipped with self-healing properties. Pre-applied, the InfraProof PCS Swelling Geo forms a strong mechanical bond with the freshly poured concrete. This prevents any lateral water migration between the membrane and the cured concrete.

Application Areas:

InfraProof PCS Swelling Geo may be used in all applications where reinforced concrete structures must be protected against groundwater and contaminants. It is suitable for external, single layer structural waterproofing of floor slabs and exterior concrete wall surfaces against soil moisture and non-pressurized and pressurized water. InfraProof PCS Swelling Geo is a Composite Waterproofing Membrane suitable for pre- as well as post-applied use.

Amongst others the application areas include:

- Complementary measure for high-quality below grade structural waterproofing according to BS 8102:2009 (combination of Type A and Type B waterproofing).
- Suitable for the sealing of prefabricated concrete elements
- Complementary measure for the protection of construction-, crack inducer-, and expansion joints (InfraProof PCS Swelling Geo is not suitable as a single measure for the sealing of expansion joints)
- Protects concrete against chemical stresses, e.g. aggressive ground water
- Barrier against radon and radon gas

How does InfraProof PCS work?

Pre-applied, the strong sealing capacity of InfraProof PCS Swelling Geo is obtained through 3 functions:

The first sealing function lies in the PVC-membrane. The second sealing function is achieved through the PP-fleece which forms a permanent, strong mechanical bond with the freshly poured concrete thus preventing any water from tracking between the membrane and the concrete. The third sealing function is only activated if the membrane is damaged and the incoming water activates the swelling non-woven geotextile creating an extremely tight, gel-like film which permanently seals the concrete structure.

When used post-applied, InfraProof PCS Swelling Geo has two sealing functions:

The first sealing function lies in the PVC-membrane. The second sealing function is by the swelling non-woven which upon contact with water actively seals any damages.

Note: loose laid post-applied InfraProof PCS Swelling Geo needs a minimum backfilling / soil pressure of 150 kg/m².

Characteristics / Benefits:

- InfraProof PCS Swelling Geo can be used both pre- and post-applied.
- Provides all Grades of Protection according to EN 13967 and BS 8102 (Type A / Combination Type A and B)
- Fast and easy to install

PRODUCT DATA SHEET

- The combination of swelling non-woven and flexible PVC-membrane turns InfraProof PCS Swelling Geo into a breathable and fail-safe, state-of-the-art waterproofing unity.
- Excellent application properties, overlaps can be either adhered or welded.
- The high-performance PVC-membrane can be easily and economically connected/thermally welded to existing sealing products and water stops.
- Protects concrete against chemical attack (like salt and sulphate)
- May be used in salt water conditions
- Working temperature between -5 and +50 °C (without additional application requirements)
- Highly flexible waterproofing and crack bridging in case of concrete cracks caused by strength and shrinkage through the formation of a mechanical bond with the freshly poured concrete
- Compatible with bitumen
- Self-healing properties of the swelling fleece offers reliable protection even when installed subsequently

Product properties

Characteristic	InfraProof PCS Swelling Geo		
Intended use	EN 13967 – Flexible membrane for waterproofing		
	Type A and Type T Waterproofing membrane with moisture barrier and groundwater barrier		
Material	PVC-P membrane + PP Swelling nonwoven		
Visible defects	No visible defects	Passed	EN 1850-2
Straightness	75 mm / 10 m	Passed	EN 1848-2
Mass	1,58 (+10% / -5%)	kg/m ²	EN 1849-2
Thickness	1,60 (+10% / -5%)	mm	EN 1849-2
Watertightness against water	690 kPa	Tight	ASTM D 5386
	60 kPa / 24h		EN 1928 (B)
	500kPa / 72h		
Durability against artificial aging	12 weeks / 70 °C; 60 kPa	Tight	EN 1296
			EN 1928 (B)
Durability against chemicals	28 d / +23 °C;	Tight	EN 1847
	60 kPa / 24h; 500 kPa / 72		EN 1928 (B)
	Ca(OH) ₂ / H ₂ SO ₃ / NaCl		
Compatible with bitumen	60 kPa / 24h; 500kPa / 72h	Tight	EN 1548
			EN 1928 (B)
Watertightness in case of subsequent cracks	InfraProof mechanical bond with freshly poured concrete 6,9 bar / ≥ 3,2 mm	Tight	ASTM D 5385
Root resistance	Membrane and overlapping	Passed	DIN CEN/TS 14416
Water vapour diffusion resistance	g	Sd	μ
	1,41E-08 kg/(m ² s)	28,9 m	12391
	1,06E-08 kg/(m ² s)	38,5 m	13653
Tensile strength MD / CMD	≥ 980 / 980	N/50mm	EN ISO 12311-2 (A)

PRODUCT DATA SHEET

Shear resistance in the overlapping	Collapse outside of the overlapping		
	≥ 300	N/50mm	EN 12317-2
Resistance to impact	≥ 600	mm	EN 12691 (A)
Elongation at break MD / CMD	≥ 68 / 68	%	EN ISO 12311-2 (A)
Tear resistance MD / CMD	≥ 500 / 500 (Nail shank)	N	EN 12310-1
Resistance to static load	≥ 20kg / 24h	Passed	EN 12730 (A)
			EN 12730 (B)
Crack bridging ability	≥ 3,2 mm	Passed	ASTM D 5385
Reaction to fire	Class E		EN ISO 11925-2
			EN 13501-1

Dimensions / packaging

Width:	2.20m (-0.5% / +1%)		
Length:	25m		
Roll weight:	85,5kg		
Pallet:	7 Rolls/Pallet		
Thickness:	1.6 mm		
Colours:	Topside: Light colours	Backside: Black	
	Available in different light colours		

Substrate pretreatment

All surfaces onto which the InfraProof PCS Swelling Geo Membrane is to be applied should be sound, solid and free from gaps or voids that are greater than 12mm. All corners, up-stands, pipe / service penetrations, etc. must be detailed correctly (please consult our Technical Department for further advice) prior to the application of the membrane.

InfraProof PCS Swelling Geo Membrane is designed for use with structural reinforced concrete. The concrete should be designed by a Structural Engineer to EN 1992.

Application of InfraProof PCS Swelling Geo Membrane

InfraProof PCS Swelling Geo should be placed onto the properly prepared substrate, with the PP-Fleece facing towards the concrete which is to be waterproofed. The edges of the membrane should be overlapped by a minimum of 50mm and the ends of the rolls staggered by a minimum of 300mm. All overlaps should be sealed using either an approved Protan adhesive, or by using suitable heat-welding equipment. The installed membrane should be inspected for damages prior to the placement of the concrete. In the unlikely event of damage occurring to the membrane, repairs may be completed by simply placing a patch of membrane over the damaged area and bonding with an approved Protan adhesive.

The installed membrane may be cleaned using a soft -brush or a low-pressure system using cold water if required. All standing water or any construction debris must be removed from the membrane prior to placing the concrete.

Environment

Protan InfraProof PCS Swelling Geo contains no substances which are listed on REACH/ ECHA's (European Chemicals Agency) candidate list. The membrane contains no priority environmental pollutants or other relevant substances in quantities considered to be hazardous to health and the environment.

Form of Delivery and Storage

InfraProof PCS Swelling Geo Membrane rolls are individually wrapped in foil. InfraProof PCS Swelling Geo Membrane should be stored in its original packaging. They should be kept dry and protected from direct sunlight, snow, ice, water, heat or heat sources. The storage temperature should be between + 5 ° C and + 30 ° C. Do not stack any sharp items or additional pallets on top the InfraProof PCS Swelling Geo Membrane during transport and storage.

Do not stack any sharp items or additional pallets on top of the product for transport and storage. Appropriate load-securing measures must be taken for transport

Approvals:

- CE Marking DIN EN 13967
- German DIN 18195 Standard - new DIN 18533
- German DIN SPEC 20000-202 approved
- General German Test Report PG-ÜBB / abP
- British standard BS 8102:2009 and Kiwa Certificate (BDA Certificate)

**Protan Legal Notice**

The details provided in this document, especially the recommended application and utilisation for the products and their system accessories, are based on Protan's current knowledge and experience of the products when properly stored, handled and installed under normal conditions according to Protan's recommendations. A warranty in respect of merchantability or of fitness for a particular utilisation, nor any liability arising out of any legal relationship whatsoever, cannot be inferred either from this information, or from any written or verbal recommendations, due to the differences in materials, substrates and actual site conditions in practice. The user of the product is responsible for the product's suitability for the intended application. Protan reserves the right to change product specifications without notice. Additionally, Protan's current sales and delivery terms are valid and applicable for all orders. It is necessary for the user to always refer to the latest version of the relevant Product Data Sheet, which can be requested directly from Protan. All information provided, as well as technical and drawing data, complies with current technical standards and is based on Protan's knowledge and experience. In addition, national standards and regulations must be observed where appropriate.