

# PRE-TEC MEMBRANE

Article-No.: 06100

## PRE APPLIED HDPE WATERPROOFING MEMBRANE WHICH BONDS TO FRESH CONCRETE

### DESCRIPTION

PRE-TEC is a comprehensive waterproofing system that provides a barrier to water, moisture, and gas physically isolating the structure from the surrounding substrate. PRE-TEC is a pre-applied, highly flexible, and fully bonded with the freshly poured concrete against it and forms a continuous and permanent bond to prevent water ingress & migration at the interface of the membrane and structural concrete.

PRE-TEC consists of a High-Density Polyethylene (HDPE) foil with a pressure-sensitive adhesive waterproofing on one side and an embedded reactive granular coating. The granulate coating is walkable and weather-resistant. Soiling caused by construction site operations does not reduce adhesion and effectively resists any crack or puncture, and a protective layer is not required anymore.

PRE-TEC is equipped with a prefabricated adhesive strip on the top and bottom sides. When forming the overlap joint of two PRE-TEC, the adhesive areas meet directly and result in a waterproof, secure, and permanent bond. It's a storage and durable material, perfect for all underground concrete structures.

Designed to provide water and water vapor protection to water-excluding structures, securing concrete from aggressive ground salts and chemicals-related corrosion.

### COMPANION PRODUCTS

**PRE-TEC HDPE Tape** is a one-sided self-adhesive HDPE tape. The tape consists of a highly flexible HDPE polymer film that is coated on one side with a special PSA adhesive. The self-adhesive side of the tape is protected with a silicon foil, which has to be removed directly before application

**PRE-TEC REP Tape** is a one-sided self-adhesive tape. The tape consists of a highly flexible polymer film that is coated on both sides with a special PSA adhesive. PRE-TEC REP Tape has additionally on one side a granular coating of silicon dioxide, which leads to extremely high bonding to fresh poured concrete. The other side of tape is protected with a silicon foil, which has to be removed directly before application.

**PRE-TEC DS Tape** is a double-sided self-adhesive tape. The tape consists of a highly flexible polymer film that is coated on both sides with a special PSA adhesive. PRE-TEC DS Tape has on both sides a silicon protection foil, which has to be removed directly before application on substrate.

### FEATURE AND BENEFITS

- Environmentally friendly.
- Based on high density polyethylene.
- Dual-bonded with fresh concrete: Mechanical and Pressure-Sensitive adhesive bond.
- Fully bonded to fresh concrete, which forms an integral bond to structural concrete and remains in place if settlement of the substrate occurs.
- Permanently waterproof and active for a long lifespan.
- No lateral water underflow between the concrete structure and the PRE-TEC membrane system.
- Self-protecting no need for a protection layer.
- Cold applied, self-adhesive, and easy to apply requiring no primers or fillets.
- No welding, no open flame, and no special equipment.
- The unique continuous adhesive bond to concrete poured against it prevents water migration and makes it unaffected by ground settlement beneath slabs.

- Prevent water from leaking into concrete structure gaps.
- Excellent adhesion to vertical and horizontal surfaces.
- Designed with advanced bond technology.
- Excellent resistance to water, chlorides, sulfates, dilute alkalis, acids, and any other and chemical attack.
- Excellent tear and puncture resistance.
- UV-resistant for more than 90 days depend on the weather situation.
- Effective against extreme hydrostatic pressure.
- Reduces construction scheduling time.
- Simple overlapping jointing.
- Can be applied on dry or wet substrate.
- High flexibility and crack-bridging capabilities.
- Trafficable membrane immediately after application and ready for immediate placing of reinforcement Membrane is unaffected by wet jobsite conditions.
- Gas resistance and restriction of the ingress of Methane, Radon, Benzene, Toluene, Gasoline & other VOCs.

## FIELD OF APPLICATION

Used for all types of waterproofing in:

- Parking structures, basements, elevator pits, and foundations of towers.
- Underground drinking water tanks.
- Underground waste treatment facilities: water treatment tanks, sewage, channels, and manholes.
- Underground water pipelines
- Metro stations, urban tunnels.
- outside swimming pools, marine structures, decks, and garages.
- All underground concrete structures.

## MATERIAL PROPERTIES

Base:	flexible HDPE membrane
Self adhesive coating:	pressure sensitive polymer resin with granulate
Apperance:	white
Processing temperature:	> + 5°C to +40°C
Weight:	approx.1600 g/sqm
Thickness:	1.80 mm
Length according to DIN EN 1848-2:	20 m
Width according to DIN EN 1848-2:	1.20 m

## Technichal PROPERTIES

Reaction in exposure to fire:	class E
Water migration:	0.7 MPa, 7 bar, no migration
Tensile strength according to DIN EN 12311-2:	≥ 8 N/ mm <sup>2</sup>
Elongation according to DIN EN 12311-2:	≥ 550 %
Peel Adhesion to Concrete:	800N/M (±5 to 10%)
Resistance to static loading according to DIN EN 12730:	> 20 kg
Dimensional stability after warm storage according to DIN EN 1107-2:	≤ 2 %
Foldability at low temperature according to DIN EN 495-5:	≤ -25 °C
Max Tensile force (N/50mm):	≥ 600 N
Tear strength around steel bars (N):	≥ 500 N
Shock resistance:	diameter (10 ± 0.1) mm, no leakage

Puncture resistance:	≥ 1,000 N
Thermal resistance:	80°C, 2h n displacement, flow or dripping
Durability – against chemicals according to EN 1847 and EN 1928-A:	Passed
Durability – against heat ageing according to DIN EN 1296 and EN 1928-A:	Passed
<b>Peeling strength of bonding to poured concrete (N/mm<sup>2</sup>)</b>	
Clean surface:	≥ 2.0 N/mm
Contaminated surface with cement powder:	≥ 2.0 N/mm
Contaminated surface with mud and Sand:	≥ 2.0 N/mm
UV aging 3 months:	≥ 2.0 N/mm
Aging test:	≥ 2.0 N/mm
Peeling strength of bonding to poured concrete (After being submerged in water) (N/mm):	≥ 2.0 N/mm
Tensile retention rate %:	≥ 90
Elongation retention rate %:	≥ 80
Stability after heating appearance:	no crease, flow or dripping
Dimensional variation %:	≤ 2.0
Sd- value:	861 m

## DIRECTION FOR USE

### Substrate preparation:

- The concrete surface must be clean, free of dirt and sharp objects.
- The substrate to be coated should not have damages, gaps, joints or voids greater than 10 mm.
- Must be applied on a sufficiently stable substrate to avoid movement during the construction works.
- Standing water must be cleaned by compressed air prior to application of the waterproofing membrane.
- To prevent movements of penetrations such as pipe penetrations for water and electricity during concrete and PRE-TEC membrane installation, they have to be fixed and stabilized.
- Damaged concrete should be renovated with CRYST MORTAR. Sharp edges have to be removed first.

### Equipment:

- Tape measure.
- Marking pen.
- Razor knife.
- Scissors.
- Pressure roller.
- Clean lint-free cloth.
- Metal straight edge for cutting.
- Protective sheet for cutting.

### Horizontal application:

PRE-TEC Membrane must be placed with the granulate coating facing upwards and the white layer facing the substrate.

The overlapping area between the membranes is 75 mm. Before removing the protective films from the upper and lower self-adhesive strip in the overlapping zone. Make sure that the membranes overlapping zone is positioned correctly. Ensure the back side of each subsequent roll is clean prior fixing and overlapping. Adhesion is achieved by simultaneously removing the upper and lower protective films. Complete bonding is achieved by subsequent rolling with heavy pressure roller in the overlap area. The 1.80 mm thick PRE-TEC membrane HDPE webs are thus bonded together so that they are watertight under pressure. The protective film-strip of further PRE-TEC membranes are then continuously removed and joined together by pressure.

The PRE-TEC Membrane Tape is used in the overlap area of the web ends. For this purpose, 160 mm wide tape is pushed 80 mm under the PRE-TEC membrane so that the tow part protective foil faces upwards. Before removing the first part of the protective film, the sheet and the tape must be aligned exactly once again. While the first half of the protective film is removed, The PRE-TEC membrane is simultaneously pressed on firmly. The next membrane has to be placed over the second half of PRE-TEC Tape. Proceed with removing protective film and press the membranes together by pressure roller.

### **Vertical application**

PRE-TEC Membrane must be fixed mechanically to the substrate by using fixing tools (fastener). These fixings must have a low profile head so that the membrane won't be damaged from the fixings. The fasteners are preferably placed at the top of PRE-TEC Membrane or alternatively in the overlap zone. The next PRE-TEC Membrane is connected only after this.

The overlapping between the membranes is 75 mm. Before removing the protective films (at the overlapping area) from the self-adhesive strip, ensure that the membrane overlapping is positioned correctly. Ensure the back side of each subsequent roll is clean prior the overlapping. Then start removing protective films to bond the membranes together, so that they are watertight under pressure. Use a heavy roller to ensure a complete perfect bonding between the HDPE membranes are continuously removed and joined together by pressure.

PRE-TEC DS tape is used in the overlap area of the web ends.

The granulated surface of the PRE-TEC Membrane is freed from the granulate coating in the bonding area (120 mm edge strip) using a hot air dryer and a spatula. The 120 mm wide PRE-TEC DS Tape is then bonded exactly to the exposed area. The following waterproofing PRE-TEC Membrane is laid with 120 mm overlap, the protective film of PRE-TEC DS Tape is removed by pulling it out, and at the same time, the PRE-TEC Membrane is pressed firmly into place. This joint is additionally secured with PRE-TEC REP Tape. All detailing for example around pipes should be completed with CRYST SEAL.

### **Repairs before concrete placement**

In case of damaging the PRE-TEC Membrane during installation of formwork and reinforcement steel placement it is necessary to repair prior pouring of concrete. PRE-TEC REP Tape can be used to repair any cuts or punctures at least 100 mm. For larger repairs, cut a sleeve out of PRE-TEC Membrane to fit across to repair zone. Ensure that the sleeve overlaps a minimum of 100 mm of damaged area. Repair sleeve must then be sealed with PRE-TEC DS-Tape as per recommended cut edge detailing.

### **Pouring of concrete**

The concrete should be poured within 60 days of PRE-TEC Membrane installation. Ensure that all overlapping areas are sealed and the protective films is removed in that area. Do not damage the membrane during pouring of concrete.



## Formwork removal

It is very important not to remove formwork until the concrete has sufficient compressive strength to develop the required adhesion with PRE-TEC Membrane. Too early removal of all formworks can lead to a displacement of PRE-TEC Membrane and or concrete damage. A minimum concrete compressive strength of 10 MPa or after 4 days is recommended prior removing formwork.

### Notes:

- Clean the membrane by water, remove the garbage, loose materials and sharp objects. Remove all standing water on the membrane before pouring concrete.
- Place concrete directly onto or against the membrane within 60 days after installation.
- Only remove formwork when concrete has reached a minimum of 10 MPa or after 4 days.
- All technical datasheets are based on laboratory test. Actual measured data may slightly differ from specification.

## RECOMMENDED TOOLS

Gloves, and safety glasses.

## PACKAGING

### PRE-TEC Membrane:

Length: 20 m per roll  
Width: 1.20 m  
Thickness: 1.80 mm  
Roll weight: 48 kg

### PRE-TEC Tape

Length: 10 m per roll  
Width: 160 mm  
Thickness: 1.20 mm

### PRE-TEC DS-Tape

Length: 50 m per roll  
Width: 120 mm  
Thickness: 1.20 mm

### PRE-TEC REP-Tape

Length: 50 m per roll  
Width: 120 mm  
Thickness: 1.20 mm

## BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

## STORAGE & SHELF LIFE

- 24 months shelf life (cool and dry in the original package)
- Store product in dry condition.
- Don't put the product in areas with direct sunlight, rain, snow, or ice.
- The relative humidity should not be over 80%.
- Storage temperature ranges from +5°C to +48°C and , and pay attention to the ventilation.
- Rolls must be stored in original packages, in a vertical position.
- The height of horizontal storage for the rolling material shall not be over five layers, and the rolling material shall be stacked in a single layer when it is vertically storage.

## SAFETY HANDLING

- This product is safe for handling, storing and application.
- Keep product away from any heat sources.
- This is a non-toxic and eco -friendly product.
- Users shall refer to the most recent Technical Data Sheet for physical, ecological, toxicological and other safety-related information.



CRYSTARM®

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16  
EN 13967

Unique identification code of the product-type  
CRYSTARM-1401  
EN 13967:2012

Flexible sheets for waterproofing – plastic and rubber damp proof sheet including plastic and rubber basement tanking sheet – definition and characteristics

Water tightness:	Passed
Resistance to impact:	0.7 m
Durability – against chemicals:	Passed
Durability – against heat ageing:	Passed
Tear resistance – longitudinal direction (nail shank):	>550N
Tear resistance – transvers direction (nail shrank):	>700N
Joint shear resistance:	>700N/50 mm
Resistance to static loading:	20 KG
Tensile strength in longitudinal direction:	>900 N/50 mm
Tensile force in transverse direction:	>900N/50 mm
Elongation at rupture transverse direction:	≥ 500%
Elongation at rupture longitudinal direction:	≥ 400 %
Reaction to fire:	Class E

## CRYSTARM®

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**WARRANTY:** The manufacturer warrants that the products manufactured by it conform to the formulation standards contained in all components in their proper proportion and are free from material defects, but it makes no warranty as to appearance or color. Since application methods and on-site conditions are beyond our control and can affect performance. If any of the products are found to be defective the subsequent liability to The Manufacturer shall be limited only to the replacement of the product proven to be defective and shall not be liable for any other claim or for incidental or any consequential damages that may arise directly or indirectly with the said defective product. The user shall determine the suitability of the product for its intended use and the user assumes all liability in connection therein. The manufacturer makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE. The Manufacturer shall not be liable save for the terms of this warranty.