

Polytech™ ST-Pre

PRE-APPLIED REVERSED-ADHESIVE HDPE WATERPROOF MEMBRANE

Technical Data Sheet

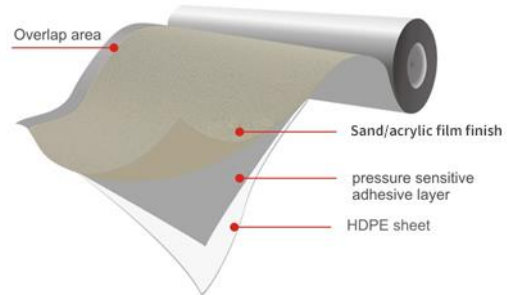


✓ DESCRIPTION

Polytech™ ST-Pre consists of multi-layer composite waterproofing material for superior waterproofing performance, including a layer of HDPE film, and a unique reversed-adhesive layer (sand/acrylic film finish), can be installed on uniform and regular concrete blinding, compacted sand-stone cushion for waterproofing of below ground surfaces and is also used for waterproofing of confined surfaces or blind side waterproofing. It's designed so as to bond fully and permanently with poured concrete against it after placing and tying reinforcement.

✓ APPLICATIONS

- ◆ Underground concrete structures.
- ◆ Protection of concrete foundations in contaminated and aggressive ground conditions.
- ◆ Waterproofing of cut and cover tunnels for MRT, Subway, Metro.
- ◆ Prevents coal gas, marsh gas, methane leakage in underground layers.



✓ PRODUCT FEATURES

- ◆ Forms a unique integral seal to concrete poured against it. This prevents lateral water migration.
- ◆ Waterproofing performance is unaffected by ground settlement beneath slabs.
- ◆ Fully-bonded watertight selvedge laps and detailing
- ◆ Provides complete barrier to water, moisture and gas.
- ◆ Physically isolates the structure from the surrounding ground.
- ◆ Zero permeance to moisture.
- ◆ Easy and efficient to install, does not require primer or fillet.
- ◆ Easy to install on permanent formwork – allowing efficient use of confined sites.
- ◆ Highly chemically resistant, effective in all types of soils and waters - protects structure from chlorides, sulphates and aggressive ground conditions.

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✓ **INSTALLATION**

◆ **Substrate Preparation**

All Surfaces - It is essential to create a sound and solid substrate to eliminate membrane movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 12mm. Substrate should be clean, smooth, dry and strong before applying.

◆ **Horizontal Concrete Blinding/PCC**

The substrate must be smooth and uniform and shall be free of all unsound aggregate and sharp lumps. Curved or rounded substrates should be avoided. For installation of Aquaprufe APF C (sand finish), the surface does not need to be dry, but standing water must be removed. Brush or roll the material evenly before applying the bitumen membrane.

◆ **Vertical Sheet Piling**

Can be used for blind side waterproofing after either using guniting, concrete, or plywood or other suitable material to provide uniform surface for membrane installation.

◆ **Can be used for blind side**

waterproofing after either using guniting, concrete, or plywood or other suitable material to provide uniform surface for membrane installation.

Application of Polytech ST-Pre on blinded Concrete surface for Under Raft Slab & Confined Retaining wall.

Install materials carefully in accordance with the manufacturer's instructions.

Laying of Membrane –pre-applied reversed-adhesive membrane are supplied in rolls 1 m wide with a selvedge on one side to provide self-adhered laps for continuity between rolls. Unroll the Fully bonded HDPE Membrane, white HDPE film side to the substrate. End laps should be staggered to avoid a buildup of layers. Leave plastic release liner over selvedge area in position until overlap procedure is completed. Accurately position succeeding sheets to overlap the previous sheet 75mm along the self-adhesive selvedge. The underside of the succeeding sheet and top of release liner should be clean, dry and free from contamination before attempting to bond overlap. Peel back and completely remove the plastic release liner progressively between the overlap as the two layers are bonded together. Ensure a continuous bond is achieved without creases and then roll or press-down firmly. Non-selvedge laps to be bonded with Fixer/ double sided tape and firmly rolled to ensure security of the system. During damp conditions (e.g. water spillage), the selvedge can be gently warmed using a hot air gun or similar to remove moisture or condensation and improve initial adhesion.

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Vertical Blinding

Apply the membrane with the thick white plastic face against the leveled substrate (flush pointed Block work, plum concrete wall or plywood shuttering). Mechanically fasten the membrane vertically using flat headed fixings appropriate to the substrate. The membrane may be installed in any convenient length. Secure the top of the membrane using a batten or fixing 50mm below the top edge. Use fixings at typically 600 mm centres to secure the membrane flat against the substrate. Fixings can be made through the selvedge; this allows firmly rolled overlaps, which are covered by the subsequent strip of Fully bonded HDPE Membrane. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly.

Roll ends and cut edges

Overlap all roll ends and cut edges by a minimum 75mm and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Fixer/ Tape on the previous sheet along the 75 mm of non-selvedge joint. Use a metal spatula to spread Fixer/ Tape covering 75mm x 1m surface homogeneously. Accurately position succeeding sheets to overlap the previous sheet 75mm applied with Fixer/ double sided tape. Ensure a continuous bond is achieved without creases and then roll or press-down

firmly.

Damage Repair Procedure

Check membrane after finishing bottom bar laying & rectify any damage & Puncture. Damaged areas to be repaired with an oversize patch applied to a clean, dry surface fixed with Fixer. Minor damages like scratches can be directly repaired using fixer OR placing Double sided Tape centrally on the surface prepared with Fixer or Double sided tape. Recheck the membrane after finishing reinforcement cage for the raft & rectified for any puncture or damage. HDPE membrane extended for further overlapping should be covered with tarpaulin.

Membrane Installation

Polytech ST-Pre should be overlapped using steel roller to ensure complete bonding and to achieve continuity. Aquaprufe APF-C (sand finish), pre-applied waterproofing membrane can be installed at temperatures of -5°C and above. When installing Aquaprufe APF-C (sand finish) waterproofing membrane in cold weather, care should be taken to pre-heat the bonding edge with appropriate means such as hot air gun or other similar means

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✓ **STORAGE**

- ◆ Polytech ST-Pre to be stored in cool and dry place and has shelf life of 12 months.
- ◆ Polytech ST-Pre must be stored in an upright position.

✓ **SUPPLY**

- ◆ 1.0m*20m/Roll
- ◆ T=1.2/1.5/1.7mm

Implemented Standard: GB/T23457-2017 《Pre-applied waterproof membrane》 Type P

No.	Item	Index	
		Type P	
1	Tensile properties	Pull strength (N/50mm)	600
		Tensile Strength/Mpa \geq	16
		Membrane elongation at break, %	400
		Phenomenon when stretched	No separation between the rubber layer and the main material or tire base.
2	Shaft tear strength/N \geq	≥ 400	
3	Puncture resistance/N \geq	350	
4	Impact resistance(0.5kg · m)	no leakage	
5	Anti-static load	20kg, no leakage	
6	Heat resistance	80℃, 2h no slipping, no flowing, no dripping	
7	Low temperature bending	main material -35℃, No crack	
8	Low temperature flexibility	Glue layer -25℃, No crack	
9	Oil penetration/number of sheets \leq	1	
10	Water channeling resistance (hydraulic gradient)	0.8Mpa/35mm,4h no running water	
11	Impermeability(0.3Mpa,120min)	impermeable	
12	Peel strength with post-pouring concrete/(N/mm)	No treatment \geq	1.5
		Immersion treatment \geq	1.0
		Sediment contaminated surfacet \geq	1.0
		UV treatment \geq	1.0
		Heat treatment \geq	1.0
13	Peel strength after immersed in water/(N/mm) \geq	1.0	
14	Membrane to membrane peeling strength (lap edge)a/(N/mm)	No treatment \geq	0.8
		Immersion treatment \geq	0.8
15	Peeling strength of membrane anti-sticking treatment part b/(N/mm) \leq	0.1 or Unbonded	
16	Heat aging (80℃,168h)	Tension retention rate/% \geq	90
		Elongation retention rate/% \geq	80
		Low temperature bending	main material -32℃,no crack
		Low temperature flexibility	Glue layer -23℃,no crack
17	Dimensional change rate/% \leq	± 1.5	

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CE standard: EN 13967:2012

Item	Requirement
Membrane thickness mm	≥ 1.5
Resistance to static loading	20kg no leakage
Tear resistance Transverse N	≥ 500
Tear resistance Longitudinal N	≥ 200
Water tightness	No water penetration through to the upper filter paper
Tensile strength N/mm ² MD	≥ 15
Tensile strength N/mm ² CD	≥ 15
Elongation at break (%) MD	≥ 400
Elongation at break (%) CD	≥ 400

ASTM

Item	Mean value	Test method
Tensile strength, MPa	25	ASTM D412, modified
Elongation at break, %	500	ASTM D412, modified
Peel Adhesion to concrete, N/mm	1.0	ASTM D903, modified
Puncture resistance, N	1000	ASTM E154
Hydrostatic pressure resistance	0.7MPa, 1h No water leakage	ASTM D5385-1993, modified
Water vapor transmission ng/(m ² · S · Pa)	0.40	ASTM E 96/E 96M 6