



# COSTAR PRO SHIELD (HDPE) MEMBRANE

## HDPE Bituminous Membrane

### PRODUCT DESCRIPTION

Costar Pro Shield (HDPE) Membrane comprises of a specially designed thick HDPE film, pressure sensitive adhesive and weather resistant protective coating. The Costar HDPE membrane bonds with green concrete cast on the membrane, forming a Highly effective sealing that prevent the lateral movement and penetration of water into the structure. Reinforcement can be directly laid on top of the Costar HDPE membrane.

### FEATURES AND BENEFITS

- Ease of handling and installation thus saving time and cost of installation.
- Puncture resistant and can be applied to permanent form work.
- Reinforcement can be directly laid on top of membrane.
- Creates a barrier to water, moisture and gas between the structure and the physical surrounding ground.
- Resistance to freeze/thaw, wet/dry cycling conditions.
- Ready for immediate placing of reinforcement
- Does not require surface Priming.
- Can be installed in wet conditions – cannot activate prematurely.
- Good chemical resistant properties thus protect structure from salt or sulphate attack.
- Long Lasting protection effect due to efficient bonding with concrete applied on membrane thus serving as long as the design life of the structure.

- A continuous adhesive bond is formed to concrete poured against the HDPE membrane thus making it unaffected by any substrate settlement beneath the slabs.
- Does not require more than 75/100mm overlap to achieved effective water-tight joints once overlaid with concrete.

### APPLICATION AREAS

- Below Grade metro projects and Subways.
- Underground Basements.
- Retaining walls for confined area.
- Cut and cover tunnels.
- Other underground civil structures.
- Caverns.

### APPLICATION AREAS

- **Surface Preparation:** A regular and smooth substrate having no gaps or voids greater than 0.5in.(12 mm) is required to prevent movement when concrete is poured.
- **Horizontal:** All loose concrete, chirpings, standing water & dust should be removed, and uneven surface having sharp protrusions smoothed. When installing over earth or crushed stone, curved or rounded substrates should be avoided. Adequate compaction is required to avoid displacement of substrate due to concrete pour.
- **Vertical:** Concrete, plywood should be used to ensure smooth level and support to the membrane. Supporting board systems must be close butted to provide support and should be not more than 0.5 in. (12mm) out of alignment.

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### INSTALLATION

Costar Pro Shield (HDPE) Membrane can be installed within a temperature range of (250 C to 600C). In order to remove moisture or condensation and improve adhesion when installing Costar Pro Shield (HDPE) Membrane in cold or marginal weather conditions, the selvedge and tape adhesive can be gently warmed using a hot air gun or similar tools.

### HORIZONTAL SUBSTRATES

- The HDPE side should be placed on the substrate surface and the adhesive/coated side facing up towards the concrete pour.
- Any build-up of layers at the end laps should be straightened/staggered and plastic release liner should be left in position until overlap procedure is complete.
- Accurately position Succeeding sheets to overlap the previous sheet with the overlap of selvedge.
- Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap.
- Remove/Peel off 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 with a heavy roller. For end laps or at cut joints, use a suitable Costar Pro Shield (HDPE) Membrane tape with appropriate width to ensure proper overlaps.

### VERTICAL SUBSTRATES

- HDPE Membrane should be fastened to vertical surfaces using the Costar Pro Shield (HDPE) roundels (fasteners) appropriate to the substrate with the adhesive/coated side facing towards the concrete pour. Any convenient length can be adopted for installing the (HDPE) membrane.
- The top of the membrane should be Secured using a termination bar by fixing 50 mm below the top edge of the concrete pour.
- Roundels can be on the selvedge so that the membrane lays flat and allows firm rolling of the overlaps.
- The membrane shall be fused onto the roundels by thermo fusing the rear side (HDPE) of the membrane onto the roundels by hot air welding.
- Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap.
- Roll firmly to ensure a watertight seal, Roll ends and Cut edge.
- Overlap all roll ends and cut edges with appropriate area and ensure the area is clean and free from contamination.

### CORNERS

Internal and external corners should be pre-formed as per manufacturer instruction, including overlapping of the membrane with appropriate area and sealing with Costar Pro Shield (HDPE) Membrane single sided sanded tapes. Ensure that the apex of the corner is covered and sealed with tape and roll firmly.

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### TECHNICAL PROPERTIES

S/N	PROPERTIES	STANDARD VALUES	STANDARD TEST METHO
1	Color	White/Off white	Visual Observation
2	Role Size	15/20 meter length x 2-.4 2.5 Meter	
3	Basic film Thickness	0.7 mm	ASTM D 3767
4	Composite membrane Thickness	1.2 mm	ASTM D 3767
5	Tensile Strength (Average of MD & CD)	>21MPa	ASTM D 412 Modified
6	Elongation at break (Average of MD & CD)	>400%	ASTM D 412 Modified
7	Low Temperature Flexibility	-25 C Pass	ASTM D 1970
8	Puncture Resistance	> 800 N	ASTM E 154
9	Crack cycling	Pass	ASTM D 836/ASTM C 13 Modified
10	Peel Adhesion to concrete	880 N/m	ASTM D 903 Modified
11	Resistance to Hydrostatic Head	60 meters	ASTM D 5385 Modified
12	UV Exposure Limit	21 Days Pass	
13	Overlap Width	75/100 mm	
14	Packaging Roll size	15/20m length x 2.4– 2.5 Meter Width.	

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### SHELF LIFE

Protect from freezing and contamination. Shelf life in unopened, original containers is 12 months, when stored at 68°F (20°C)

### STANDARD COMPLIANCE

- ASTM C109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars
- ASTM C157 Standard Test Method for Length Change of Hardened Hydraulic-Cement, Mortar, and Concrete
- ASTM C191 Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle

### HEALTH & SAFETY

- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- Wear suitable protective clothing, gloves and eye/face protection.
- If swallowed, seek medical advice immediately and show this container or label.
- Keep the coating materials above 10°C.
- Do not apply when surface temperature is below 10°C or over 35°C
- Do not apply in environments of high humidity/moisture, or if pending rain is a possibility.
- Once mixed, it must be used within its pot life as specified in earlier section

### TOLERANCE

Typically, +10% from the above values. All parameters are obtained under controlled lab conditions.

### ADDITIONAL INFORMATION

Costarchem manufactures a complete range of construction chemical products which include:

- Concrete admixtures
- Waterproofing system
- Flooring system
- Cementitious and epoxy precision grouts
- Damp-proofing products
- Sealants and adhesives
- Repair and refurbishment systems

For more information on any of our products, please contact Costarchem global or regional office.

### LEGAL NOTE

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