FORSPEC PROTECTIVE COATINGS

# PREFLEX 3000.


**Technical Data Sheet** PRE-APPLIED HDPE, FULLY BONDED WATERPROOFING MEMBRANE 24/04/2024

**PREFLEX 3000** is a high-performance, pre-applied HDPE (High-Density Polyethylene) waterproofing membrane designed for below-ground applications. It features a fully bonded system with a self-adhesive selvedge along one side of the roll, ensuring sealed laps for superior performance. The membrane is constructed from a multi-layer composite that includes a durable high-density PE film, a polymer layer, and a proprietary bonding layer. This unique construction enables the membrane to bond directly with poured concrete, creating an effective barrier that prevents water, moisture, and gas infiltration while eliminating lateral migration. The integral bond formed between the membrane and the structure offers enhanced protection against water passage, providing long-lasting waterproofing. The selvedge overlaps enhance performance in challenging conditions and eliminate the need for specialized equipment, heat, or power for installation, making it a reliable and cost-effective solution for a wide range of applications.

## Advantages

- Acts as a vapor barrier, forming a unique integral bond to the poured concrete and remaining in place if any ground settlement of substrate occurs.
- Simple and reliable application with no primers or protection required.
- Combines toughness with flexibility for detailing around edges.
- Resistant to groundwater and protects concrete from ground salts, chlorides, sulfates, and hydrocarbons in contaminated areas.
- Unaffected by wet job site conditions, ensuring it doesn't activate prematurely.
  Inherently waterproof as supplied, this passive, non-reactive waterproofing system does not require water activation.
- Waterproofing is not dependent on confining pressures or hydration.
- Designed with fully adhered watertight seams and straightforward detailing for ease of installation.
- Quick roll-out installation reduces both time and cost.
- Release liner-free design speeds up installation and minimizes construction site waste.
- Can be applied to permanent formwork, maximizing the use of confined spaces.
- Self-protecting, allowing immediate traffic after application and ready for reinforcement placement. PREFLEX 3000 is resilient to freeze/thaw and wet/dry cycles.
- Chemical resistance helps protect structures from salt or sulfate attacks, effective in most soil and water types.
- Gas resistance restricts the ingress of methane, radon, benzene, toluene, gasoline, and other VOCs, including trichloroethylene and tetrachloroethylene (TCE/PCE), from landfills and natural sources, meeting gas-resistant membrane performance criteria.

| No. | Item | | Test Result | | | | Test Method |
|---|---|---|---|---|---|---|---|
| 1 | Thickness (mm) | HDPE Sheet | 0.8 | 1.0 | 0.8 | 0.8 | ASTM D3767 -03 |
| | | Total Thickness | 1.2 | 1.5 | 1.2 | 1.2 | |
| 2 | (23 +2)°C Tensile Strength MPa | | 27 | 27.5 | 28 | ≥25 | ASTM D412, modified |
| 3 | (23 +2) °C Elongation at Break % | | 630 | 645 | 590 | ≥500 | ASTM D412, modified |
| 4 | (23 + 2C°) Peel Adhesion To Concrete Nm/ m | | 2.2 | 2.5 | 28 | ≥2.0 | ASTM D903, modified |
| 5 | (18-24°C) hydrostatic pressure resistance | | 0.7MPa, 1h No water leakage | 0.7MPa, 1h No water leakage | 0.7MPa, 1h No water leakage | 0.7MPa, 1h No water leakage | ASTM D5385-1993, modified |
| 6 | Water vapor transmission ng/(m2•S•Pa) | | (38±0.6°C Relative humidity) 0.40 | (38±0.6°C Relative humidity) 0.40 | (38±0.6°C Relative humidity) 0.40 | (38±0.6°C Relative humidity) 0.40 | ASTM E 96/E 96M 6 |
| 7 | Low temperature flexibility | | -30°C No Cracking | | | | |
| 8 | Static Coefficient of Friction(us) | | 0.55 | 0.436 | 0.424 | 0.40 | ASTM D1894-14 |

## Recommended For

- Basement Slab Waterproofing
- Lift Pits
- Cut and Cover Tunnels and Subway Structures
- R.C. Retaining Walls

## Packaging

- 1.2mm or 1.5mm thickness
- 1m x 25m/roll or 2m x 25m/roll

## Applying PREFLEX 3000

**Installation on Horizontal Surfaces (Ground Slabs)**

1. **Unroll the Membrane:**
   - Begin by unrolling the PREFLEX 3000 membrane along the prepared horizontal surface.
   - Ensure that the membrane is aligned properly and that the self-adhesive selvedge overlaps with the next sheet.
   - Do not stretch the membrane during the unrolling process, as this could affect the waterproofing properties.
2. **Apply the First Sheet:**
   - Position the first sheet so that the self-adhesive side is facing down, directly in contact with the substrate.
   - Begin by peeling back the salvage edge film on one side of the sheet to expose the adhesive surface.
   - Once the adhesive is exposed, press the sheet firmly into place using a pressure roller, ensuring complete contact with the substrate and eliminating any air pockets.
3. **Overlap the Next Sheet:**
   - For subsequent sheets, ensure the selvedge self-adhesive overlap is properly aligned with the previous sheet.
   - Peel back the salvage edge film on the new sheet and stick it onto the exposed adhesive of the previous sheet.
   - Use a pressure roller to ensure the two sheets are tightly adhered to each other.
4. **Check the Seams:**
   - Apply PREFLEX 3000 NS tape along the edge of each overlapping sheet to further seal the joints and ensure a watertight connection.

**Installation on Vertical Surfaces (Blindside or Walls)**

1. **Position the First Sheet:**
   - For vertical surfaces, position the first sheet at the bottom of the surface. Use temporary pins at the top of the sheet to hold it in place.
   - As with horizontal applications, peel back the salvage edge film to expose the adhesive surface.
2. **Press the Sheet into Place:**
   - Press the sheet firmly into place, using a pressure roller to ensure complete adhesion along the vertical surface. Start from the bottom and work upwards to avoid air pockets or wrinkles.
3. **Install the Next Sheet:**
   - Position the next sheet on the self-adhesive overlap of the previous sheet.
   - Peel back the salvage edge film and adhere the sheet, pressing it into place with a pressure roller.
4. **Overlap and Secure:**
   - Overlap the sheets in a staggered fashion for optimal performance. The seams should be placed so that the end joints do not line up directly with each other.
   - Apply PREFLEX 3000 NS tape over the end of each sheet to further secure the joint and ensure waterproofing integrity.

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**Detailing for Corners and Junctions**

1. **Corner Detailing:**
   - At corner junctions, cut the sheet to fit the corner neatly.
   - Use a circular piece of PREFLEX 3000 S tape to cover the corner junction. This ensures full coverage and a watertight seal.

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**Installation for Pile Cap Treatment**

**1. Surface Preparation**

- Scabble the interface of the reinforced concrete column to create a rough surface for optimal adhesion.
- Ensure all loose debris, dust, and contaminants are removed before proceeding with the application of waterproofing products.

**2. Apply ACTFLEX HYDROPLUG Around the Perimeter of the Pile Cap**

- Apply a layer of ACTFLEX HYDROPLUG around the entire perimeter of the pile cap to prevent water ingress and seal any joints or cracks.
- Ensure a 75mm cover for complete protection and uniform application.
- Allow the ACTFLEX HYDROPLUG to cure as per the manufacturer's guidelines before proceeding to the next step.

**3. Apply ACTFLEX 988 CWP to the Top of the Pile Cap**

- Apply ACTFLEX 988 CWP at a 1.5mm dry film thickness (DFT) to the top of the pile cap, covering the rebar and previously applied ACTFLEX HYDROPLUG.
- Ensure an even application over the pile cap and the bonding area to create a seamless waterproof barrier.
- After the ACTFLEX 988 CWP has cured, apply a 3mm thick layer of PREFLEX HBR sanded epoxy resin over the entire top of the pile cap, extending over the ACTFLEX HYDROPLUG.
- Around the rebar, approximately 30mm above the pile cap height, install PRESWELL hydrophilic waterstop around each rebar to prevent water ingress.
- Secure the PRESWELL hydrophilic waterstop using stainless steel zip ties or tie wire to ensure it remains in place.

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**4. Install the PREFLEX 3000 Membrane**

- Cut and fit the PREFLEX 3000 membrane neatly around the perimeter of the pile cap to ensure full coverage.
- Align the PREFLEX 3000 membrane to overlap with the ACTFLEX 988 CWP layer for a secure bond.

5. **Secure the Membrane with PREFLEX 3000 S Tape**

- Apply PREFLEX 3000 S Tape along the edge of the PREFLEX 3000 membrane, ensuring a secure bond to the pile cap surface.
- Use a pressure roller to press the tape firmly into place for optimal adhesion and waterproofing integrity.

6. **Additional Sealing Components**

- Install PRESWELL around critical junctions to enhance water-tightness.
- Apply PREFLEX HBR to further reinforce waterproofing performance and prevent water ingress at vulnerable points.

**6. Apply ACTFLEX HBR for Additional Sealing:**

- Apply a layer of ACTFLEX HBR along the edge of the pile cap, overlapping the edge of the PREFLEX 3000 membrane. Ensure a minimum 50mm overlap to guarantee a secure bond between the membrane and the pile cap.
- This step provides additional sealing and enhances the waterproofing layer's integrity around the pile cap's edges.

**7. Install PRESWELL Hydrophilic Waterstop to Rebar:**

- For further protection, install PRESWELL Hydrophilic Waterstop along the reinforcing bars (rebar) within the pile cap.
- The Waterstop should be installed at least 30mm above the bottom of the pile cap to ensure it is fully effective in preventing water migration.
- Cut the PRESWELL Hydrophilic Waterstop to the appropriate length based on the rebar size and secure it in place using stainless steel cable ties. Ensure the Waterstop is tightly bound to the rebar to ensure maximum performance.

## Membrane Repair for PREFLEX 3000

Before installing reinforcement steel, formwork, or pouring concrete, inspect the PREFLEX 3000 membrane to ensure there are no damages. If cleaning is necessary, use low-pressure power washing. To repair small punctures (12mm or less), apply PREFLEX 3000 S Tape centered over the damage. For larger holes or punctures exceeding 12mm, use a patch of PREFLEX 3000 membrane, extending the patch 150mm beyond the damaged area, and seal all edges with PREFLEX 3000 S Tape. If any exposed edges or laps lose adhesion, clean and dry the affected area, then apply a fresh layer of PREFLEX 3000 S Tape to seal it. Ensure the tape is firmly pressed down, and the release liner is removed. In case of slices or relief cuts, these can be butted together or overlapped. Apply PREFLEX 3000 S Tape over the joint or overlap, ensuring a secure bond. If butting or overlapping isn't feasible, use fresh membrane and apply the same repair method.

**Pouring Concrete:** Before placing concrete, remove any plastic release liner from all PREFLEX 3000 Tape. Ensure the membrane is free from contaminants, dirt, debris, and standing water. Concrete should be poured within 56 days of membrane installation (42 days in hotter climates). In areas where temperatures exceed 38°C for more than seven days, concrete should be placed within 42 days. Follow concrete placement guidelines according to local or national standards to avoid damage to the membrane. Do not use sharp objects when consolidating the concrete. Protect the membrane from any splash over during the pour. Ensure the concrete mix is well-designed, placed, and compacted to avoid segregation and excessive bleeding. Special attention is required for high-slump mixes (over 130mm), especially in colder environments, as these mixes are more prone to segregation.

**Removal of Formwork:** Ensure the concrete has reached a minimum compressive strength of 20 N/mm² before stripping formwork. Premature removal may result in displacement of the membrane or concrete spalling. After removing the formwork, and before backfilling, protect any exposed PREFLEX 3000 membrane with an approved protective layer to prevent damage.

## Limitations

1. **Surface Irregularities:** PREFLEX 3000 is not suitable for installation on rough, uneven, or damaged surfaces without prior surface preparation.
2. **Exposure to UV:** Long-term exposure to UV light without covering can degrade the membrane's performance, requiring protection during installation.
3. **Heavy Traffic:** PREFLEX 3000 is not designed for direct traffic exposure unless additional protective layers are applied.
4. **Chemical Exposure:** Avoid exposure to aggressive chemicals or oils that may affect the membrane's integrity.
5. **Storage Conditions:** Store the membrane in a dry, cool area away from direct sunlight to maintain product integrity before installation.
6. **Edge Sealing:** Proper sealing of membrane edges is essential. Poor sealing can lead to water ingress along the membrane's perimeter.
7. **Corner Detailing:** Care must be taken when detailing around corners or penetrations, as improper installation can compromise the waterproofing performance.
8. **Structural Movement:** Ensure the substrate and surrounding structures are stable; movement or settling could affect membrane performance.

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## Storage And Shelf Life

10 Months when stored in the original, unopened/undamaged containers, in cool dry conditions and protected from sunlight at temperatures between 10°C and 25°C. The shelf life of polyurethane sealant is related to the temperature and humidity of the environment.

The recommended storage temperature is 10-25°C, humidity is ＜50% R.H.

Do not transportation or store in areas with temperature is over 28°C or the humidity is over 80% R.H.

## Cleaning

Clean up immediately while still wet. Wipe down with solvent to clean tools & equipment. Once dry, is difficult to remove and mechanical means may be necessary. No.1. Observe all OH&S and MSDS information pertaining to safe usage and handling of solvents.

**DO NOT** discharge product or water from cleaning into sewer or waterways.
**DO NOT** touch the spill material.

## Safety – Whan Handling Do Not Eat, Drink or Smoke

**PREFLEX 3000** is hazardous and may cause skin and/or eye irritations. Use for intended purpose only. Observe good industrial hygiene. Keep all sources of ignition away. Always use in a well-ventilated area and wear Personal Protection Equipment (PPE. Change soiled work clothes and wash hands before breaks and after finishing work. In case of eye contact, rinse with plenty of water: If inhaled, remove to fresh air, if discomfort persists, if any breathing difficulties occur or if swallowed (do NOT induce vomiting), immediately contact Doctor or Poisons Information centre and seek medical attention. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or 0800 764 766 (NZ). or a doctor for advice. IN TRANSPORT EMERGENCY DIAL 000 – POLICE-FIRE BRIGADE. Local regulations as well as health and safety advice on packaging labels must be observed. For more information, please download a copy of the SDS from www.forspec.com.au

**KEEP OUT OF REACH OF CHILDREN. DO NOT** allow wash water from cleaning or process equipment to enter drains.

**DO NOT** discharge into sewer or waterways.

**DO NOT** seal or stopper drums being decontaminated as CO2 gas is generated and may pressurise containers.

## Data Sheet

This Technical Data Sheet and the Material Safety Data Sheet (SDS) may be revised at any time to comply with relevant changes to the Australian Standards or to include changes to current technology. Always read the current SDS and TDS carefully prior to use as application and performance data may change from time to time. It is always best to request a copy of the latest technical data from Actech Protective Coatings by calling 02 8021 3517 or emailing info@forspec.com.au. Data provided is typical but does not constitute a full specification. This should be sighted from the company for specific projects.

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