

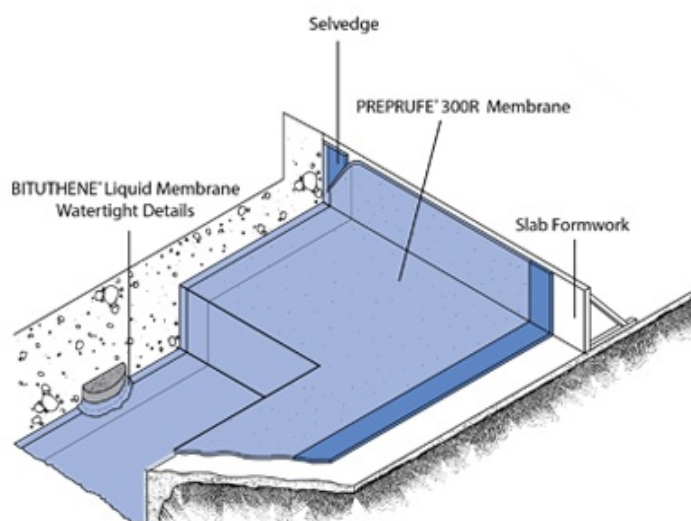
# PREPRUFE<sup>®</sup> 300R & 160R

Pre-applied waterproofing Membranes that bond integrally to poured concrete for use below slabs and behind basement walls on confined sites



## Product Description

GCP Applied Technologies ("GCP") PREPRUFE<sup>®</sup> 300R & 160R Membranes are unique composite sheets comprised of a thick HDPE film, pressure sensitive adhesive, and weather resistant protective coating. Designed with ADVANCED BOND TECHNOLOGY™ PREPRUFE<sup>®</sup> 300R & 160R Membranes form a unique, integral bond to poured concrete. This integral bond is specifically designed to provide a robust barrier to water, moisture and gas and to prevent both the ingress and lateral migration of water. Selvedge overlaps and deliver superior performance in harsh conditions without the need for specialised equipment, heat or power.



Drawings are for illustration purposes only.  
Please refer to [gcpat.com](http://gcpat.com) for specific application details.

## Product Advantages

- The continuous adhesive bond to concrete poured against it is specifically designed to prevent water migration between the concrete and the membrane
- Due to the continuous bond to the poured concrete the waterproofing performance of PREPRUFE<sup>®</sup>300R and 160R membranes are unaffected by ground settlement beneath slabs
- Designed with fully adhered adhesive to adhesive watertight seams and easy to execute detailing are designed to provide a barrier to water, moisture and gas and physically isolating the structure from the surrounding substrate
- Simple and quick to install requiring no illets
- Can be applied to permanent formwork – allows maximum use of confined sites
- Can be trafficked immediately after installation and ready for immediate placing of reinforcement
- Installed membrane is unaffected by wet jobsite conditions – Does not activate prematurely

- Inherently waterproof as supplied. Passive non-reactive waterproofing system does not require water activation
- Waterproofing is not reliant on confining pressures or chemical hydration
- Membrane unaffected by freeze/thaw, wet/dry cycling
- Chemical resistance – protects structure from salt and sulphate attack and is effective in most types of soils and waters
- Independent Assessments and International Certifications
  - Methane, carbon dioxide and radon gas protection in excess of the standard Membrane requirements in BRE Reports 211 (Radon) and 212 (Methane and Carbon Dioxide)
  - BBA Certificate No. 97/3325
  - Mott MacDonald Special Services Report May 2001

## System Components

### Membrane

- PREPRUFE® 300R Membrane — heavy-duty 1.2mm grade membrane designed for horizontal and vertical use. Designed for use below slabs and on rafts (i.e. mud slabs) and for vertical blindside1 applications. Designed to accept the placing of heavy reinforcement using conventional concrete spacers
- PREPRUFE® 160R Membrane — standard 0.8mm grade Membrane designed for vertical use in blindside1, zero property line applications against soil retention systems. PREPRUFE® 160R Membrane is for vertical use only

Note 1: System where membrane is placed against soil retention system from where direct hydrostatic head exposure will occur. Single sided concrete form is then placed and concrete is then poured against membrane (between the single sided form and the membrane).

**Ancillary Components (refer to the most current Data Sheets for all system components available on [gcpat.com](http://gcpat.com))**

- PREPRUFE® Tape LT – low temperature Tape for covering cut edges, roll ends, penetrations and detailing in cold weather
- PREPRUFE® Tape HC – high temperature Tape for covering cut edges, roll ends, penetrations and detailing at elevated temperatures (min. 10°C)
- PREPRUFE® CJ Tape LT — low temperature joint Tape for construction joints, and detailing in cold weather
- PREPRUFE® CJ Tape HC — high temperature joint Tape for construction joints, and detailing in hot weather
- BITUTHENE® Liquid Membrane (LM) — for sealing around penetrations, etc.
- SWELLSEAL®/ ADCOR®/ SERWISEAL®/ SERVITITE® waterstop for joints in concrete walls and floors
- PREPRUFE® Tieback Covers — preformed cover for soil retention wall tieback heads
- PREPRUFE® 300R LT and 160R LT Membranes are equal alternate Membranes to PREPRUFE® 300R & 160R Membranes with reduced taping requirements for use at low temperatures; see [gcpat.com](http://gcpat.com)
- For conventional concrete walls formed with two sided forms use BITUTHENE® self-adhesive Membrane or SILCOR® Membrane on walls after removal of formwork for a fully bonded system to all structural surfaces
- RE-INJECTO™ LB – groutable injection tube for non moving construction joints and penetrations

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- RE-INJECTO™ LB – groutable injection tube for non moving construction joints and penetrations

## Limitations of Use

- Approved uses only include those uses specifically detailed in this Product Data Sheet and other current Product Data Sheets that can be found at [gcpat.com](http://gcpat.com)
- PREPRUFE® 300R & 160R Membranes are not intended for any other use. Contact GCP Technical Services where any other use is anticipated or intended. Alternates to approved published uses must be made in writing
- PREPRUFE® 300R & 160R Membranes are designed for use where in service temperature of membrane will not exceed 49°C
- PREPRUFE® 160R Membrane is not for use in horizontal applications
- Due to local regulations and practices, guidance given in this data sheet is only applicable to the countries and regions shown in the footer at the end of this (printed from the website) document
- PREPRUFE® 300R & 160R Membranes are not designed to be used with conventional two-sided formwork. (See PREPRUFE® Technical Letter TL-0013 (AP) Forming Systems For Use with PREPRUFE® Membranes)
- PREPRUFE® 160R Membrane is not for use in the Middle East

## Safety and Handling

Users must read and understand the product label and Safety Data Sheet (SDS) for each system component. All users should acquaint themselves with this information prior to working with the products and follow the precautionary statements. SDS's can be obtained by contacting your local GCP representative or office and in some cases from our web site at [gcpat.com](http://gcpat.com).

## Storage

- All products must be handled and stored consistent with Technical Letter TL-30 (AP)
- Use on a first in first out basis. Observe 1 year shelf life
- Store in dry conditions off ground under tarps or otherwise protected from rain and ground moisture

## Installation

### Technical Support, Details and Technical Letters

The most up to date detail drawings and technical letters are available at [gcpat.com](http://gcpat.com) or from your local GCP Representative. For complete application instructions, please refer to the current GCP Applied Technologies Contractor Handbook and Literature on ([www.gcpat.com](http://www.gcpat.com)). Documents in hardcopy as well as information found on websites other than [www.gcpat.com](http://www.gcpat.com) may be out of date or in error. Before using this product it is important that information be confirmed by accessing [www.gcpat.com](http://www.gcpat.com) and reviewing the most recent product information, including without limitation Product Data Sheets, Contractor Manuals, Technical Bulletins, Detail Drawings and detailing recommendations. Please review all materials prior to installation of PREPRUFE® 300R & 160R Membranes. Where documents are not available on the GCP website contact your local GCP representative for support.

Support is available on all matters by full-time technically trained GCP Applied Technologies field sales representatives and technical service personnel, backed by a central research and development technical services staff. For technical assistance with detailing and problem solving please contact your local in country GCP representative.

### Temperature Requirements

- PREPRUFE® 300R and 160R Membranes can be applied at temperatures of  $-4^{\circ}\text{C}$  or above. When installing PREPRUFE® Membranes in cold or marginal weather conditions  $<13^{\circ}\text{C}$  the use of PREPRUFE® Tape LT is required at all laps and detailing. All surfaces to receive PREPRUFE® Tape LT must be clean and dry before application. PREPRUFE® 300R and 160R Membrane release liner must be removed before application of PREPRUFE® Tape LT. Release liner must be removed from PREPRUFE® Tape LT immediately after application
- As an alternate, where temperatures are between  $-4^{\circ}\text{C}$  and  $15.5^{\circ}\text{C}$  PREPRUFE® 300R (LT) and 160R (LT) Low Temperature Membranes can be used without taping of laps. Refer to the PREPRUFE® 300R (LT) and 160R (LT) Low Temperature Membranes data sheet for more information on cold weather application or contact your local GCP representative for support
- PREPRUFE® 300R & 160R Membranes are designed for in-service temperatures below  $49^{\circ}\text{C}$

### Substrate Preparation

- All surfaces – It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 12 mm. Grout around all penetrations such as utility conduits, etc. for stability
- Horizontal – The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed
- Vertical – Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the Membrane. Board systems such as timber lagging must be close butted to provide support and not more than 12 mm out of alignment. For out of alignment from 12mm and up to 50mm HYDRODUCT® 200 or 220 or RAPID-DRAIN™ drainage sheet can be used to bridge voids, gaps and out of alignment prior to PREPRUFE® Membrane installation

## Membrane Application

PREPRUFE® 300R & 160R Membranes are supplied in rolls 1.2m wide, with a selvedge on one side to provide self-adhered laps for continuity between rolls. The rolls of PREPRUFE® Membrane and PREPRUFE® Tape are manufactured with a disposable plastic release liner must be removed before placing reinforcement and concrete. NOTE that the release liner must also be removed before application of any required Tapes and at all surfaces where a bond between layers is to be formed.

Horizontal substrates – PREPRUFE® 300R Membrane only. (PREPRUFE® 160R Membrane is for vertical use only)

PREPRUFE® 300R Membrane can be applied horizontally to smooth prepared concrete or well rolled and compacted earth or crushed stone substrate. Place the PREPRUFE® 300R Membrane with the clear plastic release liner and adhesive side facing the concrete pour and HDPE film side facing the substrate. End laps should be staggered to avoid a buildup of layers. Leave plastic release liner in position until overlap positioning is completed. When completed, remove release liner. When installing over carton forms, contact your local GCP representative.

Accurately position succeeding sheets to overlap the previous sheet 75 mm along the marked selvedge. 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 allowing the two overlapped layers to bond together. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller. Completely remove the plastic liner to expose the white protective coating. Any initial tack will quickly disappear.

PREPRUFE® 300R Membrane can be returned up the inside face of slab formwork to attain a fully bonded system. After removal of formwork this allows a tie in with BITUTHENE® self-adhered Membrane or SILCOR® Waterproofing Membrane. For more information on SILCOR® Waterproofing Membrane products contact your local GCP Representative.

### Notes:

PREPRUFE® 300R Membrane can be returned up the inside face of slab formwork to attain a fully bonded system. After removal of formwork this allows a tie in with BITUTHENE® self-adhered Membrane or SILCOR® Waterproofing Membrane. For more information on SILCOR® Waterproofing Membrane products contact your local GCP Representative.

Vertical substrates –

PREPRUFE® 300R & 160R Membranes can be applied vertically to permanent formwork or adjoining structures. Concrete should then be cast directly against the adhesive side of the Membrane. The Membrane may be installed in any convenient length. The clear plastic release liner must be facing towards the concrete pour. Membrane must be shingle overlapped a minimum of 75mm. All laps over cut edges must be taped using PREPRUFE® Tape.

Vertically placed sheets can be held in place using fasteners appropriate to the substrate. Fastening should only be made through the selvedge overlap area using a small and low profile head fastener so that the Membrane lays flat and allows firmly rolled overlaps. Fasteners should be placed in the selvedge approximately 12.5mm from the edge of the Membrane. The adhesive selvedge of successive Membrane sheets must completely cover any fasteners by a minimum of 25mm. After rolling immediately remove the plastic release liner. When placing successive sheets insure the underside of each succeeding sheet is clean, dry and free from contamination before attempting to overlap. After placement roll the Membrane firmly to ensure a watertight seal.

Note that PREPRUFE® 300R & 160R Membranes are not recommended for use with conventional twin-sided formwork. (See PREPRUFE® Technical Letter TL-0013 (AP) Forming Systems For Use with PREPRUFE® Membranes)

Roll ends and cut edges –

Overlap all roll ends and cut edges by a minimum 75 mm. Remove the release liner from the PREPRUFE® membrane where the tape is to be applied at the lap and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow surface to dry and apply PREPRUFE® Tape LT\* (or HC\*\* in hot climates) centered over the lap edges and roll firmly. Immediately remove the plastic release liner from the PREPRUFE® Tape.

\*LT denotes Low Temperature (between -4°C and +30°C)

\*\*HC denotes Hot Climates (>+10°C)

## Membrane Repair

Inspect the Membrane before installation of steel reinforcement, formwork and final placement of concrete. The Membrane can be easily cleaned with low pressure power washing if required. Repair damaged areas by wiping the area with a damp cloth to ensure the area is clean and free from dust, and other contaminants and allow the Membrane to dry. Repair small punctures and slices (12 mm or less) by applying PREPRUFE® Tape centered over the damaged area. Repair punctures and holes larger than 12mm by applying a patch of PREPRUFE® Membrane. Extend the patch 150 mm beyond the damaged area. Seal all edges of the patch with PREPRUFE® Tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh PREPRUFE® Tape. Any areas of damage or poor adhesion should be patched with PREPRUFE® Tape. All PREPRUFE® Tape must be rolled firmly and the tinted release liner removed.

Slices or relief cuts can be butted or overlapped and repaired by applying PREPRUFE® Tape centered over the edge of the overlap or center of the butt joint. Where it is not possible to create a butt joint or overlap, repair with fresh Membrane and PREPRUFE® Tape as detailed above.

## Pouring of Concrete

Ensure the plastic release liner is removed from all areas of PREPRUFE® 300R & 160R Membrane and PREPRUFE® Tape. The PREPRUFE® membrane surface must be free of contaminants, dirt and debris and all standing water prior to placement of the concrete. Under most climatic conditions concrete should be poured within 56 days of membrane installation. Where ambient temperatures will exceed 38 °C for more than a total of 7 days, concrete must be placed within 42 days of installation of the membrane. Following proper American Concrete Institute guidelines or respective national concrete standards, concrete must be placed carefully and consolidated properly to avoid damage to the membrane. Never use a sharp object to consolidate the concrete. Provide temporary protection from concrete splash over for areas of the PREPRUFE® membrane that are adjacent to the concrete pour.

It is also important that concrete mix is designed, placed and compacted properly to ensure no segregation or excessive bleeding. This is critical for achieving desired bonding between concrete and PREPRUFE® membranes, especially for membranes installed on vertical surfaces. Extra precautions are needed for concrete with slump value higher than 130mm as it is prone to have segregation and bleeding issues especially under lower ambient temperature.

## Removal of Formwork

A minimum concrete compressive strength of 3000 psi (20 N/mm<sup>2</sup>) (minimum 3 days) is required prior to stripping formwork supporting PREPRUFE® Membranes. Premature stripping may result in displacement of the Membrane and/or spalling of the concrete.

After removal of the formwork and prior to backfilling, all exposed PREPRUFE® Membrane must be protected from damage with an approved protective course.

## Supply

### Membrane

| DIMENSIONS (NOMINAL)   | PREPRUFE® 300R MEMBRANE | PREPRUFE® 160R MEMBRANE |
|--|-------------------------|-------------------------|
| Roll size (see note #1)  | 1.2 m x 30 m            | 1.2 m x 35 m            |
| Roll weight (see note #1)  | 49 kg                   | 42 kg                   |
| Minimum side and end laps  | 75 mm                   | 75 mm                   |
| Overlap Allowance: when calculating coverage account for the minimum side & end laps |                         |                         |

Note#1 Individual roll length and weight may vary +/- 1%

## Ancillary Products

The most current supply information for ancillary products can be found at the local sites within [gcpat.com](http://gcpat.com).

## Physical Properties (ASTM Test Data Typical values and EN 13967 Declared Values)

|  | 300R  | 160R  | STANDARD                                   |
|--|---|---|--|
| Colour   | White   | White   |  |
| Thickness  | 1.2 mm  | 0.8 mm  | ASTM D3767                                 |
| Peel Adhesion to Concrete                                  | 880 N/m   | 880 N/m   | ASTM D903 <sup>4</sup>                     |
| Resistance to Hydrostatic Head                             | Pass at 71m                                     | Pass at 71m                                     | ASTM D5385 <sup>2</sup>                    |
| Lateral Water Migration Resistance                         | Pass at 71m of hydrostatic Head                 | Pass at 71m of hydrostatic Head                 | ASTM D5385 <sup>1</sup>                    |
| Low Temperature Flexibility                                | Unaffected at -29°C                             | Unaffected at -29°C                             | ASTM D1970                                 |
| Puncture Resistance  | 890 N <sup>7</sup>                              | 445 N <sup>7</sup>                              | ASTM E 154                                 |
| Elongation   | 400% minimum                                    | 400% minimum                                    | ASTM D412 <sup>3</sup>                     |
| Tensile Strength, Film                                     | 27.6 Mpa  | 27.6 Mpa  | ASTM D412                                  |
| Crack Cycling @ -23°C 100 cycles                           | Pass  | Pass  | ASTM C836 <sup>6</sup>                     |
| Lap Peel Adhesion  | 880 N/m   | 880 N/m   | ASTM D1876 <sup>5</sup>                    |
| Permeance to Water Vapour Transmission (HDPE side exposed) | <0.1 perms (5.74 ng/(Pa x s x m <sup>2</sup> )) | <0.1 perms (5.74 ng/(Pa x s x m <sup>2</sup> )) | ASTM E96, method B                         |
| Water Absorption   | 0.5%  | 0.5%  | ASTM D570                                  |
| Resistance to impact (Al board(mm)- MLV)                   | ≥400  | ≥250  | EN 12691                                   |
| Durability of water tightness against ageing/degradation   | Pass  | Pass  | EN 1296<br>EN 1928<br>Method B             |
| Durability of water tightness against chemicals at 60kPa   | Pass  | Pass  | EN 1847<br>Method B<br>EN 1928<br>Method B |
| Compatibility with bitumen                                 | Pass  | Pass  | EN 1548                                    |
| Resistance to static loading                               | ≥20 Pass  | ≥20 Pass  | EN 12730                                   |

\*MDV: the Manufacturers Declared Value; \*\* MLV: the Manufactured Limiting Value; \*\*\* No Declared Performance

All declared values are based in test results determined under laboratory conditions and with product samples taken from original stock.

Footnotes:

1. Lateral water migration resistance is tested by casting concrete against Membrane with a hole and subjecting the Membrane to hydrostatic head pressure with water. The test measures the resistance of later water migration between the concrete and the Membrane.
2. Hydrostatic head tests of PREPRUFE® Membranes are performed by casting concrete against the Membrane with a lap. Before the concrete cures, a 3 mm spacer is inserted perpendicular to the Membrane to create a gap. The cured block (cured min. 7 days) is placed in a chamber where water is introduced to the Membrane surface up to the head indicated.
3. Elongation of Membrane is run at a rate of 50 mm per minute.
4. Concrete is cast against the protective coating surface of the Membrane and allowed to properly cure (7 days minimum). Peel adhesion of Membrane to concrete is measured at a rate of 2 in. (50 mm) per minute at room temperature.
5. The test is conducted 15 minutes after the lap is formed and run at a rate of 50 mm per minute.
6. Test conducted at -23°C.
7. Independent Laboratory Test Values available on request.



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