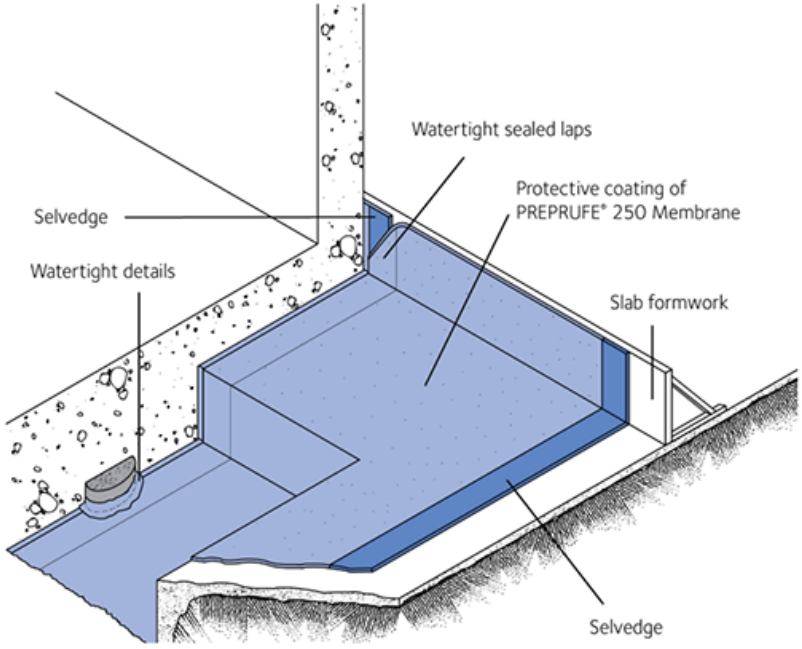
# PREPRUFE® 250 Membrane Data Sheet

Pre-applied waterproofing membrane that bonds integrally to poured concrete for use below foundation slabs and below-grade cast-in-place walls on confined sites

VIEW SUSTAINABILITY CERTIFICATIONS: 250

## Product Description

PREPRUFE® 250 pre-applied waterproofing membrane is a unique composite sheets comprised of a thick HDPE film, pressure sensitive adhesive and weather resistant protective coating. PREPRUFE® 250 membrane forms a unique, integral bond to poured concrete. This integral bond is specifically designed to provide a robust barrier to water, moisture and gas and prevents both the ingress and lateral migration of water.




Drawings are for illustration purposes only.
Please refer to gcpat.com for specific application details.

## Advantages

- Forms a continuous adhesive bond to concrete poured against it
- Specifically designed to prevent water migration
- Continuous bond to poured concrete means PREPRUFE® 250 membrane is unaffected by ground settlement
- Can be placed directly over properly prepared compacted soil
- Does not activate prematurely during construction
- Fully adhered watertight laps and detailing
- Provides a barrier to water, moisture and gas - physically isolating the structure from the surrounding ground
- Impermeable- Perm rating less than 0.1 perms
- Solar reflective - Reduced temperature gain during construction
- Simple and quick to install
- Can be applied to permanent formwork - Maximizes use of confined sites
- Allows for foot traffic immediately after application
- Ready for immediate placing of reinforcing steel
- Inherently waterproof--Does not require water activation
- Waterproofing is not reliant on confining pressures or hydration
- Installed membrane is not affected by exposure to water during construction
- Waterproofing performance unaffected by wet/dry cycling
- Chemical resistance – Protects structure from salt and sulfate attack, and is effective in most types of soils and waters

## Applications:

PREPRUFE® 250 is intended for low hydrostatic pressure or intermittent water conditions. Applications include construction such as garages, plant rooms and utility grade basements.

For critical projects (i.e., occupied space and sensitive environments), GCP recommends the use of PREPRUFE® Plus with dual adhesive ZipLap™ technology. For high-risk and critical shotcrete applications, PREPRUFE® SCS - the only pre-applied waterproofing system designed specifically for shotcrete – is recommended for long-term waterproofing performance. See separate data sheets for more details.

## System Components:

### Membrane

- PREPRUFE® 250 waterproofing membrane for horizontal use below concrete slabs or vertically against soil retention systems. Intended for cast-in-place concrete.

Ancillary Components (refer to the most current data sheets for all system components available on 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
- 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 — For sealing around penetrations, etc.
- ADCOR® waterstop for joints in concrete walls and floors
- PREPRUFE® tieback covers — Preformed cover for soil retention wall tieback heads
- DE NEEF® INJECTO® tube groutable waterstop for non-moving concrete 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
- PREPRUFE® 250 membrane is not intended for any other use. Contact GCP Technical Services where any other use is anticipated or intended.
- PREPRUFE® 250 membrane is designed for in-service (throughout the building life) temperatures below 120°F(49°C). PREPRUFE® membrane remain unaffected during concrete curing, even when temperature temporarily exceed 120F.
- PREPRUFE® 250 membrane should not be used with conventional two-sided formwork. (See PREPRUFE® Technical Letter # 13 Forming Systems for use with PREPRUFE® membranes)
- Special Note: When this information is printed from the gcpat.com global website, a footer appearing on this document will restrict its applicability to the United States. Note that the information and references in this document are hereby expanded and apply to North, Central and South America.

## Safety and Handling

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. SDSs can be obtained by contacting your local GCP representative or office, by calling GCP toll free at 1-866-333-3SBM (3726) and in some cases from our website at gcpat.com.

## Storage

- Observe one-year shelf life and use on a first in, first out basis
- Store in dry conditions between 40°F (4.5°C)-90°F (32°C)
- Store off ground under tarps or otherwise protected from rain and ground moisture
- See PREPRUFE® Technical Letter #30 Shelf Life/Storage and Handling of GCP Waterproofing

## Installation

### Technical Support, Details and Technical Letters

The most up-to-date detail drawings and technical letters are available at gcpat.com. For complete application instructions, please refer to the current GCP Applied Technologies Contractor Handbook and literature on (www.gcpat.com). Documents in hard copy as well as information found on websites other than 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 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® 250 membrane.

Support is also available 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 call toll-free at (866) 333-3SBM (3726).

### Temperature Requirements

- PREPRUFE® 250 membrane can be applied at temperatures of 25°F (-4°C) or above. When installing PREPRUFE® 250 membrane in cold or marginal weather conditions <55°F (<13°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, and the release liner must be removed immediately after application.
- As an alternate, where temperatures are between 25°F (-4°C) and 60°F (15.5°C) PREPRUFE® 250 LT low temperature membrane can be used without taping of laps. Refer to PREPRUFE® LT Membrane data sheet and Technical Letter #16 PREPRUFE® waterproofing membranes: Cold Weather Installation for more information.
- PREPRUFE® 250 membrane is designed for in-service temperatures below 120°F (49°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 0.5 in. (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 0.5" (12mm) out of alignment.

## Membrane Application

PREPRUFE® 250 membrane is supplied in rolls 4 ft. (1.2m) wide, with a selvedge on one side to provide self-adhered laps for continuity between rolls. The rolls of PREPRUFE® 250 membrane and PREPRUFE® Tape are manufactured with a disposable plastic release liner, which 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® 250 membrane can be applied horizontally to smooth prepared concrete or well rolled and compacted earth or crushed stone substrate. Place the PREPRUFE® 250 membrane HDPE film side to the substrate with the clear plastic release liner facing towards the concrete pour. End laps should be staggered to avoid a buildup of layers. Leave plastic release liner in position until overlap procedure 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 3 in. (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.

Notes: PREPRUFE® 250 membrane can be returned up the inside face of slab formwork. To attain a fully bonded system and to allow a tie in with BITUTHENE® self-adhered membrane or PROCOR® fluid-applied membrane to all vertical structural surfaces after removal of formwork. Rebar Chairs: See PREPRUFE® Technical Letter #15 Rebar Chairs on PREPRUFE® Membranes.

Vertical substrates – PREPRUFE® 250 membrane 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. The membrane must be shingle overlapped a minimum of 3” (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 can also 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 0.5”(12.5mm) from the edge of the membrane. The adhesive selvedge of successive membrane sheets must completely cover any fasteners by a minimum of 1 in. (25mm). After rolling, immediately remove the plastic release liner. When placing successive sheets, ensure 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® 250 membrane is not recommended for use with conventional twin-sided formwork. (See PREPRUFE® Technical Letter #13 Forming Systems for Use with PREPRUFE® Membranes).

Roll ends and cut edges – Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow the membrane to dry and apply PREPRUFE® Tape LT (or HC in hot climates) centered over the lap edges and roll firmly. Immediately remove plastic release liner from the tape.

## Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing if required. Repair damage 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 0.5 in. (12 mm) or less by applying PREPRUFE® Tape centered over the damaged area. Repair punctures and holes larger than 0.5 in. (12mm) by applying a patch of PREPRUFE® membrane. Extend the patch 6 in. (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 damaged adhesive should be covered 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® 250 membrane and tape.

Under most climatic conditions, concrete should be poured within 56 days of membrane installation. Where ambient temperatures will exceed 100ºF (38°C) for more than a total of seven days, concrete should be placed within 42 days of installation of the membrane. Concrete must be placed and compacted carefully to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

## Removal of Formwork

A minimum concrete compressive strength of 3000 psi (20 $N/mm^2$) is required prior to stripping formwork supporting PREPRUFE® 250 membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete. (see PREPRUFE® Technical Letter #17 Removal of Formwork Placed against PREPRUFE® 250 Membranes).

After removal of the formwork and prior to backfilling, all exposed PREPRUFE® 250 membrane must be protected from damage with an approved protective course.

## Supply

| DIMENSIONS (NOMINAL) | PREPRUFE® 250 MEMBRANE |
|---|---|
| Roll size Note#1 | 4 ft. x 115 ft. (1.2 m x 35m) |
| Roll weight | 92 lbs. (42 kg) |
| Minimum side/end laps | 3 in. (75 mm) |
| Note#1 Individual roll length may vary +/-1% | |

## Physical Properties

| PROPERTY | TYPICAL VALUE PREPRUFE® 250 | TEST METHOD |
|---|---|---|
| Color | White | |
| Thickness | 0.030 in. (0.8 mm) | ASTM D3767 |
| Lateral Water Migration Resistance | Pass at 231 ft (71 m) of hydrostatic head pressure | ASTM D5385[1] |
| Low temperature flexibility | Unaffected at -20°F (-29°C) | ASTM D1970 |
| Resistance to hydrostatic head | 231 ft (71 m) | ASTM D5385[2] |
| Elongation | 300% | ASTM D412[3] |
| Tensile strength, film | 4000 psi (27.6 MPa) | ASTM D412 |
| Crack cycling at -9.4°F (-23°C),100 cycles | Unaffected, Pass | ASTM C836 |
| Puncture resistance | 135 lbs (600 N) | ASTM E154 |
| Peel adhesion to concrete | 4 lbs/in. (700 N/m) | ASTM D903[4] |
| Lap peel adhesion | 4 lbs/in. (700 N/m) | ASTM D1876[5] |
| Permeance to water vapor transmission | 0.01 perms (0.6 ng/(Pa x s x $m^2$)) | ASTM E96, method B |

Footnotes:

1. Lateral water migration resistance is tested by casting concrete against the membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral 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 0.125 in. (3 mm) spacer is inserted perpendicular to the membrane to create a gap. The cured block 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 2 in. (50 mm) per minute.

4. Concrete is cast against the protective coating surface of the membrane and allowed to properly dry (seven days minimum).

Peel adhesion of the membrane to the 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 2 in. (50 mm) per minute at 72°F (22°C).

6. Lab to lab variation can be +/- 10%





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