PREPRUFE® 250

Pre-applied waterproofing membrane for foundation slabs and below-grade cast-in-place walls.

Description

Preprufe® 250 is a composite sheet comprised of an HDPE film, an aggressive pressure sensitive adhesive and a weather resistant protective coating. Using GCP's unique Advanced Bond Technology, Preprufe 250 provides a continuous seal to cured concrete, prevents lateral water migration and provides long-term waterproofing performance.

The **Preprufe 250** system includes:

- **Preprufe® 250—**Waterproofing membrane for horizontal use below concrete slabs or vertically against soil retention systems. Intended for cast-in-place concrete.
- **Preprufe® Tape—**for covering cut edges, roll ends, penetrations and detailing. LT grade intended for use between 25F (-4C) and 86F (+30C). HC grade available for use above 50F (10C).
- **Preprufe® CJ Tape—**self-adhesive 8 in. (200 mm) wide strip applied to the surface of the membrane along the line of all concrete joints. LT grade intended for use between 25F (-4C) and 86F (+30C). HC grade available for 50F (10C) and above.
- **Bituthene® Liquid Membrane—**for sealing around penetrations, etc.

Preprufe 250 is applied either horizontally to smooth prepared concrete, well-rolled and compacted sand, or compacted crushed stone blinding; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membrane. The specially developed Preprufe adhesive forms a continuous and integral seal to the poured concrete.

Preprufe 250 is intended for use with cast-in-place concrete.

Product Advantages

- Prevents lateral water migration
- Fast and easy installation
- Helps to avoid project delays
- Excellent gas and vapor barrier
- Inherently waterproof, non-reactive system
- Chemical resistant

Advantages

- **Prevents lateral water migration—**GCP's Advanced Bond Technology™ forms a continuous, adhesive and integral seal to concrete poured against it
- **Fast and easy installation—**primerless adhesive laps
- **Excellent gas and vapor barrier—**protects the structure from the harmful effects of moisture
- **Inherently waterproof, non-reactive system—**
  - — Cannot activate prematurely or be washed away
  - — Not reliant on confining pressures or hydration
  - — Unaffected by freeze/thaw, wet/dry cycling
  - — Protects against salt, sulfate and a wide range of contaminants
- **Self protecting—**ready for immediate placement of reinforcing steel and concrete without costly protective layers

Applications

Preprufe 250 is intended for low hydrostatic pressure or intermittent water conditions (typically characterized by less than 12 ft (4 m) of hydrostatic head pressure). 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.

Limitations

Preprufe 250 membrane can be turned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene self-adhesive membrane for walls after removal of formwork for a fully-bonded system to all structural surfaces.

Use

Preprufe 250 is supplied in rolls 4 ft (1.2 m) wide, interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

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. An angular profiled blinding is recommended rather than a sloping or rounded substrate. 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 in. (12 mm) out of alignment.

Membrane Installation

Preprufe 250 membrane can be applied at temperatures of 50F (10C) and above. Below 50F (10C) all Preprufe 250 laps should be secured with Preprufe Tape LT. Preprufe 250 LT membrane is suitable for application between 25F (-4C) and 86F (+30C).

Horizontal substrates—Place the 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 build up of layers. Leave plastic release liner in position until overlap procedure is completed.

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 as the two layers are bonded together.

Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller. Completely remove the plastic liner to expose the protective coating. Any initial tack will quickly disappear.

Refer to GCP Tech Letter 15 for information on suitable rebar chairs for Preprufe products.

Vertical substrates—Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the clear plastic release liner facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge using a small and low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps.

Immediately remove the plastic release liner. 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 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 to dry and apply Preprufe® Tape LT (or HC in hot climates) centered over the lap edges and roll firmly. Immediately remove the tinted plastic release liner from the tape.

Details

Detail drawings are available at gcpat.com

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 with water if required. Repair damage by wiping the area with a damp cloth to ensure that the area is clean and free from dust, allow to dry. Repair small punctures (0.5 in. (12 mm) or less) and slices by applying Preprufe Tape centered over the damaged area. Repair holes and large punctures by applying a patch of Preprufe 250 membrane, which extends 6 in. (150 mm) beyond the damaged area. Seal all edges of the patch with Preprufe Tape. Any areas of damaged adhesive should be covered with Preprufe Tape. Where the selvedge has been exposed or laps have not been sealed, ensure that the area is clean and dry and cover with Preprufe Tape. All Preprufe Tape must be rolled firmly and the tinted release liner removed.

Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe 250 membrane and Preprufe Tape.

It is recommended that concrete be poured within 40 days (30 days in hot climates) of application 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

Preprufe 250 membrane can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond. Preprufe 250 Membrane is not recommended for conventional twin-sided wall forming systems.

A minimum concrete compressive strength of 3000 psi (20 N/mm^2) is recommended prior to stripping formwork supporting Preprufe 250. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

Refer to Tech Letter 17 for information on the removal of formwork for Preprufe products.

Supply

Dimensions (Nominal)	Preprufe 250 Membrane	Preprufe CJ Tape (LT or HC*)	Preprufe Tape (LT or HC*)
Thickness	0.030 in. (0.8 mm)		
Roll size	4 ft x 115 ft (1.2 m x 35 m)	8 in. x 49 ft (200 mm x 15 m)	4 in. x 49 ft (100 mm x 15 m)
Roll area	460 ft2 (42 m^2)		
Roll weight	92 lbs (42 kg)	8.6 lbs (4 kg)	4.3 lbs (2 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)	3 in. (75 mm)
* LT denotes Low Temperature (between 25°F and 86°F), HC denotes Hot Climate (>50°F)			
Ancillary Products			
Bituthene Liquid Membrane (LM)			

Physical Properties

Property	Typical Value	Test Method
Color	White	
Film thickness (nominal)	0.020 in. (0.5 mm)	ASTM D3767—method A
Low temperature flexibility	Unaffected at -10°F (-23°C)	ASTM D1970
Lateral water migration	Pass at 180 ft (55 m) of hydrostatic head pressure	ASTM D5385, modified[1]
Elongation	300% min.	ASTM D412 modified[2]
Crack cycling at -10°F (-23°C)	Pass	ASTM C836[3]
Tensile strength, film	4000 psi (27.6 MPa) min.	ASTM D412
Peel adhesion to concrete	4 lbs/in. (700 N/m) min.	ASTM D903 modified[4]
Lap peel adhesion	4 lbs/in. (700 N/m)	ASTM D1876, modified[5]
Resistance to hydrostatic head	180 ft (55 m)	ASTM D5385 modified[6]
Puncture resistance	135 lbs (600 N) min.	ASTM E154
Permeance	0,01 perms (0.6 ng/m^2Pa)	ASTM E96—method B
Water absorption	0.5% maximum	ASTM D570

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 lateral water migration between the concrete and the membrane.
2. Elongation of the membrane is assessed at a rate of 2 in. (50 mm) per minute.
3. Concrete is cast against the Preprufe membrane.
4. Concrete is cast against the protective coating surface of the Preprufe membrane and allowed to properly cure (7 days minimum). Peel adhesion of the 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 (per GCP published recommendations) and assessed at a rate of 2 in. (50 mm) per minute at 72F (22C).
6. Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before concrete cures, a 0.125 in. (3 mm) spacer bar 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 hydrostatic head pressure indicated.

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