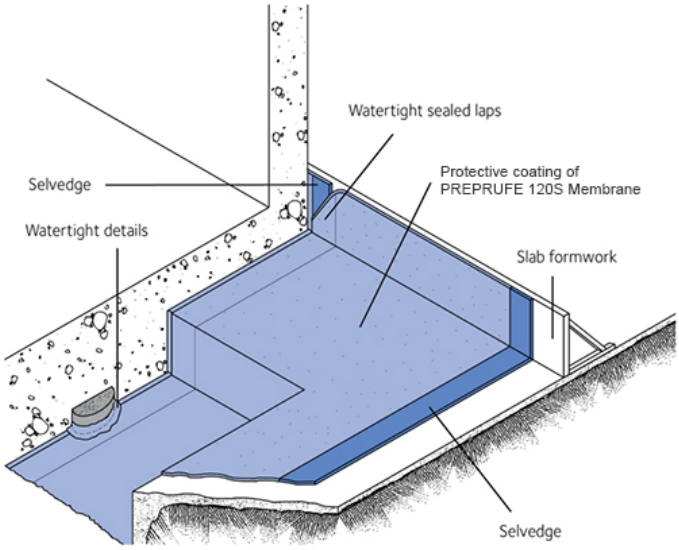
PREPRUFE® 120S Membrane

Pre-applied waterproofing membrane that bonds integrally to poured concrete for use with below foundation slabs and below ground cast-in-place walls on confined sites where single-sided formworks will be used

Product Description

GCP Applied Technologies ("GCP") PREPRUFE® 120S pre-applied waterproofing membrane is a unique composite sheet comprised of a thick HDPE film, pressure sensitive adhesive and weather resistant particulate protective coating. PREPRUFE® 120S membrane forms an integral adhesive bond to poured concrete. This integral bond is specifically designed to provide a robust barrier to water, moisture and soil contamination, and prevents both the ingress and lateral migration of water.

Click here to download the PREPRUFE® 120S product brochure



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

Advantages

- Cold applied - No flame or hot works permits. No specialist equipment
- Simple and quick to install requiring no priming or fillets.
- Forms a continuous adhesive bond to concrete poured against it that is specifically designed to prevent water migration between the membrane and the concrete
- Continuous bond to poured concrete allows PREPRUFE® 120S membrane to remain bonded to the concrete even where ground settlement occurs
- Can be placed directly over concrete blinding or properly prepared compacted soil. Damp tolerant, no primer
- Does not activate prematurely from water exposure during construction. Fully adhered watertight laps and detailing

- Provides a barrier to water, moisture and contamination - physically isolating the structure from the ground Impermeable - Perm rating less than 0.1 perms
- 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
- Waterproofing is not reliant on confining pressures or hydration, 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 groundwaters

Applications

PREPRUFE®120S is an economical waterproofing solution intended for lower groundwater pressure or intermittent water conditions. Applications include below ground construction such as garages, plant rooms and utility grade basements.

For certain below ground projects (infrastructure, very high water pressure, special occupied spaces with sensitive environments), GCP recommends the use of PREPRUFE®Plus with dual adhesive ZipLapTM technology.
See separate data sheet for more details.

Click here to access the GCP WATERPROOFING SELECTOR TOOL for assistance with selecting the correct grade of PREPRUFE®for each project.

System Components

Membrane

- PREPRUFE® 120S waterproofing membrane for horizontal use below concrete slabs or vertically against soil retention systems. Intended for use with cast-in-place structural reinforced concrete.

Ancillary Components (refer to the most current data sheets for all system components available on gcpat.ae or contact your local GCP representative.

- PREPRUFE® Detail Tape – standard tape for primary sealing of cut edges, roll ends and corners
- PREPRUFE® Sanded Tape – sanded tape for secondary sealing of cut edges, roll ends and corners
- PREPRUFE® DS Tape – double-sided tape for cut edges, roll ends, corners and repairs
- BITUTHENE® Liquid Membrane – two component liquid membrane for sealing around penetrations and detailing
- PREPRUFE® DLM – one component liquid membrane for sealing around penetrations and detailing
- BENTORUB® waterstop – hydrophilic waterbar for joints in concrete walls and slabs
- RE-INJECTO® – Re-Injectable injection hose for concrete joints

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® 120S membrane is not intended for any other use. Contact GCP Technical Services where any other use is anticipated or intended
- PREPRUFE® 120S membrane is designed for in-service temperatures below 49°C
- PREPRUFE® 120S membrane should not be used with conventional two-sided formwork
- Note that because of local regulations, test standards and customs, product literature and offerings may be different in various locations. If you have any questions or comments, please contact your local customer service office.

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. SDSs can be obtained by contacting your local GCP representative or office.

Storage

- Observe one-year shelf life and use on a first in, first out basis
- Store in dry conditions between 5°C and 35°C
- Store off ground under cover protected from rain and ground moisture
- See PREPRUFE® Technical Letter #TL-0030 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 literature at (gcpat.com). Documents in hard copy as well as information found on websites other than gcpat.com may be out of date or in error. Before using this product it is important that information be confirmed by accessing 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® 120S 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 contact your local GCP representative.

Temperature Requirements

- PREPRUFE® 120S membrane can be applied at temperatures of 5°C or above.

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 12mm out of alignment.

Membrane Application

PREPRUFE® 120S membrane is supplied in rolls 1.2m wide, with an adhesive selvedge on one side to provide self-adhered laps for continuity between rolls. Kick-out rolls allow for easier and faster application.

Horizontal substrates – PREPRUFE® 120S membrane can be applied horizontally to smooth prepared concrete or well rolled and compacted substrate. Kick-out the roll of PREPRUFE®120S membrane which places the HDPE film side to the substrate and the particulate surface facing towards the concrete pour. End laps should be staggered to avoid a build-up of layers. Leave plastic release liner on selvedge in position until side lap procedure is ready to be completed. 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 on the selvedge, allowing the two overlapped layers to bond together using the adhesive on the selvedge. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.

Notes: PREPRUFE®120S membrane can be returned up the inside face of slab stop-end formwork. This allows for a fully bonded system by tying in with BITUTHENE®self-adhered membrane as and when applied to vertical structural surfaces after removal of formwork. Rebar Chairs: See PREPRUFE®Technical Letter #TL-0015 “Rebar Chairs on PREPRUFE®Membranes.”

Vertical substrates – PREPRUFE® 120S membrane can be applied vertically to permanent formwork or adjoining structures. Concrete should then be cast directly against the particulate surface of the membrane. The membrane may be installed in any convenient length. Roll ends and cut edges shall be butt-jointed and taped using PREPRUFE®Detail Tape. Alternatively, roll ends and cut edges can be over-lapped 100mm and sealed with PREPRUFE®DS 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 low-profile head fastener so that the membrane lays flat and allows firmly rolled overlaps. Fasteners should be placed in the selvedge approximately 12 mm from the edge of the membrane. The adhesive selvedge of successive membrane sheets must completely cover any fasteners by a minimum of 25mm and well rolled. When placing successive sheets, ensure the underside of each succeeding sheet is clean, dry and free from contamination before attempting to overlap. After forming the lap, roll the membrane firmly to ensure a watertight seal.

Roll ends and cut edges – All roll ends and cut edges must be clean and free from contamination, wiping with a cloth if necessary. Butt-joint the roll ends or cut edges and seal with an under-lap of primary PREPRUFE®Detail Tape under the full width of the overlap, extending 50mm beyond the full width. Alternatively roll ends and cut edges can be over-lapped 100mm, with removal of the particulate surface from the lower membrane sheet and application of PREPRUFE® DS Tape to seal the full width of the lap.

Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by low pressure power washing if required. Repair damage by wiping the affected area with a damp cloth to ensure the area is clean and free from dust and contaminants, allow the membrane to dry. Repair non-puncture surface membrane damage with PREPRUFE®Sanded Tape. Damage with cuts, punctures and holes larger than 12mm should be repaired by removing particulate surface, applying PREPRUFE®DS Tape, and replacing a fresh patch of membrane onto the DS Tape. All repair patches of fresh membrane on PREPRUFE®DS Tape must be rolled firmly and further sealed with PREPRUFE®Sanded Tape around all edges.

Pouring of Concrete

Concrete should be poured within 42 days of membrane installation. 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 20 N/mm2 is required prior to stripping formwork supporting PREPRUFE®120S membrane. 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®120S membrane must be protected from damage with an approved protective board or similar.

Supply

Dimensions (Nominal)	PREPRUFE® 120S Membrane	PREPRUFE® Detail Tape	PREPRUFE® DS Tape	PREPRUFE® Sanded Tape
Roll size[1]	1.2m x 20m	160mm x 20m	100mm x 30m	100mm x 20m
Roll weight	43kg	6kg	5.5kg	5kg

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

Physical Properties

PROPERTY	TYPICAL VALUE PREPRUFE® 120S	TEST METHOD
Color	White	
Thickness	Min 1.2 mm	ASTM D3767
Lateral Water Migration Resistance	Pass at 71 m of hydrostatic head pressure	ASTM D5385[1]
Low temperature flexibility	Unaffected at -29°C	ASTM D1970
Resistance to hydrostatic head	71 m	ASTM D5385[2]
Elongation	300%	ASTM D412[3]
Tensile strength, film	>27 MPa	ASTM D412
Crack cycling at -23°C, 100 cycles	Unaffected, Pass	ASTM C836
Puncture resistance	600 N	ASTM E154
Peel adhesion to concrete	880 N/m	ASTM D903[4]
Lap peel adhesion	700 N/m	ASTM D1876[5]
Permeance to water vapor transmission	0.01 perms	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 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 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 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 at 22°C.
6. Lab to lab variation can be +/- 10%

Declared values

PROPERTY	DECLARED VALUE PREPRUFE® 120S	TEST METHOD
Visible defects - MDV	None	EN 1850-2
Straightness - MDV	Pass	EN 1848-2
Length (m) - MDV	20 ± 0.25	EN 1848-2
Thickness (mm) - MDV	Min 1.2	EN 1849-2

Width (mm)	1200 ± 10	EN 1848-2
Watertightness to liquid water (60kPa)	Pass	EN1928
Resistance to impact (AI-Board) (mm) - MLV	≥ 150	EN 12691
Resistance to tearing (Nail Shank) (N) – MLV	≥ 375	EN 12310-1
Joint Strength (N/50mm) – MLV	≥ 450	EN 12317-2
Water vapour transmission (μ=sD/d) - MLV	750,000 ± 30%	EN 1931 Method B
Compatibility with bitumen	Pass	EN 1548
Resistance to static loading	≥ 20 - Pass	EN 12730
Tensile Properties – unreinforced sheets (Maximum tensile force N/50mm) - MLV	Longitudinal ≥ 500 Transversal ≥ 500	EN 12311-2 Method A
Tensile Properties – unreinforced sheets (Elongation at maximum tensile force %) - MLV	Longitudinal ≥ 4 Transversal ≥ 4	EN 12311-2 Method A
Reaction to fire (class)	E	EN 13501-1

Footnotes:

1. Longitudinal – related to the roll direction
2. Transversal – related to the roll direction
3. MDV: Manufacturer Declared Value
4. MLV: Manufactured Limiting Value

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gcpat.uk/solutions/products/preprufe-120s-membrane