PREPRUFE®

Pre-applied waterproof membranes that develop an adhesive bond to poured concrete to prevent water migration. For use below slabs and on confined basement walls

Product Description

PREPRUFE waterproof membranes are composite sheets comprising a robust HPDE backing, a pressure sensitive adhesive and a trafficable weather resistant coating. Uniquely, the membrane develops a continuous adhesive bond to concrete poured against it. This prevents water migration between the structure and the membrane, substantially reducing the risk of leaks.

Product Applications

- Water and vapour proofing all basement grades to BS 8102:2009
- Waterproofing civil engineering sub - structures
- 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)

Independent Assessments

- BBA Certificate No. 97/3325
- Mott MacDonald Special Services Report May 2001
- International Certifications

Advantages

- **Versatile** - can be used beneath foundation slabs and with single sided formwork systems
- **Seals adhesively to concrete** - the only technology proven to resist water migration
- **Lightweight, flexible** - easy to handle and install without special corner pieces
- **No butt joints** - all joints have bonded 'selvedge' or Preprufe Tape overlaps for increased leak protection
- **Inert** - unaffected by groundwater contaminants, ponded water or wet/dry cycling
- **Remains sealed to structure** - even if ground settles
- **Smooth surface membrane** - site contamination easily removed
- **Excellent chemical resistance** - protects structure from salts and sulphate attack
- **Total system** - Full range of GCP hydrophilic and PVC waterstops available for concrete joint protection

SUPPLY

Preprufe	300R	160R	Tape LT*or HC*
Thickness (nominal) (mm)	1.2	0.8	0.7

Roll size (m)	1.2 x 30	1.2 x 35	100mm x 15
Roll area (m²)	36	42	
Roll weight (kg)	50	42	2
Minimum edge/end laps (mm)	75	75	75

*LT denotes for temperature between -4°C and +30°C

*HC denotes for temperature between +10°C and +40°C

Ancillary Products

Adcor 500S	6 x 5m rolls
Adcor 550MI	8 x 5m rolls
Bituthene LM	5.7 litre pack

TYPICAL PROPERTIES

	300R	160R
Thickness of carrier sheet (mm) DIN V 20000-202	0.8 ± 0.05	0.4 ± 0.04
Adhesion to concrete (N/mm)	2.88	2.88
Shear strength of joints (N/mm) EN 12317-2	9.52	9.52
Hydrostatic head resistance (m) ASTM D 5385 mod.	> 70	> 70
Puncture resistance (N)	990	445
Water vapour transmission rate (g/m²/24 hrs)	0	0
Methane permeability (ml/m².day.atm) Note 1	44.31	60.81
Radon Diffusion Coefficient (m²/s)	7.7×10^{-12}	5.7×10^{-12}

Note 1: Typical value for BRE recommended minimum standard (BRE Report 212) is 360 ml/m ^{2}/day.

System Components

- **Preprufe® 160R** - for use with concrete slab sections up to 500 mm thickness, or vertically with single sided formwork systems
- **Preprufe® 300R** - for use on all horizontal applications. Superior damage resistance
- **Preprufe® Tape** - incorporating Preprufe coating for continuous concrete adhesion at taped edges and details
- **Bituthene® LM** - high performance liquid membrane for detailing terminations at pile caps and pipe penetrations
- **Adcor® SAS 500S** - hydro-expansive waterstop for concrete construction joints
- **Adcor® 550MI** - hydro-expansive injectable waterstop for added security of concrete construction joints.

Application

Material Storage

Sequence deliveries to avoid delays, but minimise on-site storage. Select a safe, covered secure location for material storage. Store materials for each day's use in a location that won't require movement a second time. Do not double-stack pallets of waterproofing on the job site. Store protection boards flat and off the ground. Provide cover on top and all sides.

Substrate Preparation

Suitable substrates include:

- concrete blinding
- well compacted sand on rolled crushed stone
- rigid insulation
- clay heave boards
- permanent formwork
- removable formwork
- 19 mm plywood
- Hydroduct drainage sheets
- Adjacent sub-structures

Substrates should be uniform with no gaps or voids greater than 12 mm. Where these exist fill with a material of sufficient strength to support the membrane. All substrates must be free of loose aggregate and sharp protrusions. Where possible, avoid rounded concrete blinding.

In crushed stone applications, it is important to create a sound and solid substrate around "through slab" penetrations to eliminate movement during the concrete pour. Excessive movement may jeopardise the waterproofing integrity around the penetration. Grout around the penetration prior to installing the membrane for stabilisation.

The surface does not need to be dry, but standing water must be removed. Substrates must have sufficient rigidity not to move during the concrete pour. Boarded substrates must be close butted to provide support and not more than 12 mm out of alignment.

Installation - General

Tools /materials required:

- Heavy duty lap roller
- Stanley /Utility knives
- Tape measure
- Cotton cleaning cloths
- Plywood or similar cutting board
- Thin metal straight edge
- Chalk line
- Broom
- 2 metre long pipe or heavy broom handle
- Sprial mixing paddle for Bituthene LM
- Round nose trowel or spatula
- Required protection and/or drainage boards and other ancillary products

Preprufe membranes are supplied in rolls 1.2m wide with a self adhesive selvedge on one edge to enable fully bonded laps between adjacent rolls. All other laps must be taped with Preprufe Tape. Minimum application temperature +5ºC.

When installing Preprufe in cold or marginal weather conditions (<13°C) the use of Preprufe Tape LT is recommended at all laps and detailing. Preprufe Tape LT should be applied to clean dry surfaces and the release liner must be removed immediately after application.

Installation - Horizontal

Place the membrane with the removeable plastic release liner uppermost. 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 subsequent sheets to overlap the previous sheet 75 mm along the 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. On completion of the installation, **ensure complete removal of the plastic release liner from all membrane and tape.**

End Laps and Cut Edges

Overlap all roll ends and cut edges by a minimum 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 centred over the lap and roll firmly. Refer also to Preprufe Standard Details.

Internal & External Corners

Internal & external corners should be formed as shown in the diagrams below. Ensure that all laps are 100 mm minimum, taped with Preprufe Tape and well rolled. Crease and fold the membrane to ensure a close fit to the substrate profile.

Corners

Internal and external corners should be formed as shown in the diagrams returning the membrane a minimum of 100 mm and sealing with Preprufe Tape. Ensure that the apex of the corner is covered and sealed with Tape and roll firmly. Crease and fold the membrane to ensure a close fit to the substrate profile and avoid hollows.

Penetrations

To seal around penetrations such as service pipes, pile heads, lightning conductors, etc. mark and cut membrane tight to the penetration. If the membrane is not aligned within 12mm of the penetration, apply Preprufe Tape lapped onto the membrane and butted tight to the penetration. For pipe penetrations, wrap the pipe with Preprufe Tape. Mix and apply Bituthene LM around the penetrations using a fillet to provide a watertight seal between the Preprufe membrane and Tape. Refer also to Preprufe Standard Details.

Membrane Repair

Inspect the membrane for damage before installation of reinforcement steel, shuttering and final placement of concrete. Clean by jet washing if required.

Wipe the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. For minor repairs, apply Preprufe Tape centrally over the damaged area and roll firmly. For larger repairs use a patch of Preprufe and tape all edges with Preprufe Tape. Remove plastic release liner from Tape.

Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and overband with Preprufe Tape and roll firmly.

Installation - Vertical

Apply the membrane with the thick white plastic face against the substrate. Mechanically fasten the membrane vertically using flat headed fixings appropriate to the substrate. The membrane may be installed in any convenient length. Secure the top of the membrane using a batten or fixing 50 mm below the top edge. Use fixings at typically 600 mm centres to secure the membrane flat against the substrate. Fixings can be made through the selvedge, this allows firmly rolled overlaps, which are covered by the subsequent strip of Preprufe. Any exposed fixings should be patched with Preprufe Tape.

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. On completion of the installation, **completely remove the plastic release liner from all membrane and tape.**

Removal of Formwork

Preprufe membranes can be applied to removable single sided formwork, slab perimeter formwork, pile caps, etc. Once concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond with Preprufe.

A minimum concrete compressive strength of 10 N/mm ^{2} is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in loss of adhesion between the membrane and concrete.

Wall Waterproofing Options

For conventional application to walls after formwork removal use Preprufe 800PA - self adhesive sheet waterproofing membrane. See separate data sheet for further information.

Preprufe Preparation for Preprufe 800PA

Inspect the Preprufe around the perimeter edge of the concrete slab. Identify any exposed non-selvedge overlaps in Preprufe. To ensure continuity of the fully bonded system, carefully cut and remove a 75 mm triangular piece of the top flap of Preprufe only, as shown shaded in the standard detail, Slab Perimeter Detail - non selvedge lap.

Slab Perimeter Detail

1. Taped non-selvedge lap
2. Poured Concrete
3. Remove formwork
4. Cut and remove shaded piece before applying Preprufe post applied membrane

Ancillary Products

Adcor SAS 500S – Hydrophilic waterstop for construction joints and pipe entries.

AT System – Co-extruded PVC waterstops for movement joints. Bituthene Protection Board – protection against damage from backfill.

Limitations of Use

- Do not use Preprufe between concrete infilled hollow block walls
- It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane.

NBS Specification

Refer to clause J40 297.

Health and Safety

There is no legal requirement for a Safety Data Sheet for Preprufe. For health and safety questions on this product please contact GCP. For Bituthene LM read the product carton and Safety Data Sheet (SDS) before use. Users must comply with all risk and safety phrases. SDS's can be obtained from GCP Applied Technologies.

DECLARED VALUES ACCORDING TO EN 13967

Property	Declared Value		Test Method	Property	Property Declared Value		Test Method
Preprufe	160R	300R		Preprufe	160R	300R	
Visible defects - MDV	No	No	EN 1850-2	**Straightness** - MDV	Pass	Pass	EN 1848-2
Length (m) - MDV	35 ± 0.15	30 ± 0.15	EN 1848-2	**Thickness** (mm) - MDV	0.8 ± 0.05	1.2 ± 0.05	EN 1849-2
Width Carrier Sheet (m) - MDV	1.203 ± 0.005	1.203 ± 0.005	EN 1848-2	**Mass per unit area** (g/m²) - MDV	810 ± 50	1150 ± 70	EN 1849-2
Width Overall (roll) (m) - MDV	1.203 ± 0.005	1.203 ± 0.005	EN 1848-2	**Durability of water tightness against ageing/degradation** (at 60 kPa)	Pass	Pass	EN 1296 EN 1928 Method B
Water tightness to liquid water (at 60 kPa)	Pass	Pass	EN 1928	**Durability of water tightness against chemicals** (at 60 kPa)	Pass	Pass	EN 1847 Method B EN 1928 Method B
Resistance to impact (Al-board (mm) - MLV)	250 -Pass	400 -Pass	EN 12691	**Compatibility with bitumen**	Pass	Pass	EN 1548
Resistance to impact (base EPS (mm) - MLV	1000 -Pass	1500 -Pass	EN 12691	**Resistance to static loading**	Pass	Pass	EN 12730

Resistance to tearing (Nail Shank)- unreinforced sheets (N) - MLV	Long[1] 300 Trans[2] 450	Long[1] 450 Trans[2] 600	EN 12310-1	**Tensile properties - unreinforced sheets** (N/6mm) - MLV	Long[1] 60 Trans[2] 60	Long[1] 110 Trans[2] 120	EN 12311-2 Method B
Joint strength (N/50mm) - MLV	480	850	EN 12317-2	**Tensile properties - unreinforced sheets** (Elongation %) - MLV	Long[1] 4.5 Trans[2] 4	Long[1] 4.5 Trans[2] 4	EN 12311-2 Method B
Water vapour transmission (μ= sD/d) - MDV	950.000 ±30%	950.000 ±30%	EN 1931 Method B	**Reaction to fire** (Class; test conditions)	E	E	EN 13501-1
Resistance to deformation under load	NPD[5]	NPD[5]	EN 13967 Annex B				

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*
5. *NPD: No Performance Declared*

All declared values shown in this data sheet are based on test results determined under laboratory conditions and with the product sample taken directly from stock in its original packing without any alteration or modification of its component parts.