

BITUTHENE[®] 3000 Membrane



Product Description

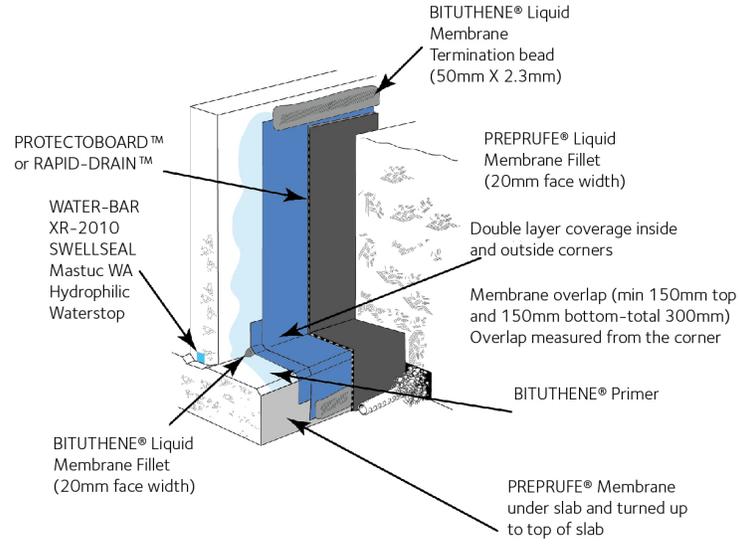
BITUTHENE[®] 3000 is a self-adhesive, rubberised asphalt/polyethylene waterproofing membrane for basements, and other subterranean applications.

GCP Applied Technologies' ("GCP") BITUTHENE 3000 Membrane combine a robust, flexible, high performance, cross laminated, HDPE carrier film with a tacky, self-adhesive rubberized asphalt compound specifically designed to adhere to cured concrete surfaces.

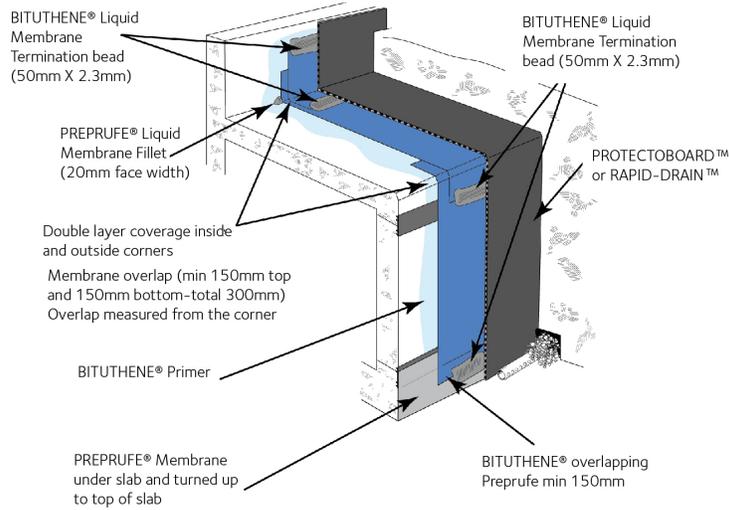
Product Advantages

- GCP (Singapore) Pte Ltd is certified to ISO 9001 and ISO 14001
- Specifically designed as a barrier to water, moisture and gas by physically isolating the structure from the surrounding substrate
- Resistant to hydrostatic head pressure
- Cross laminated film is dimensionally stable with, high tear strength, puncture and impact resistance
- Cold applied – No flame hazard; self-adhesive overlaps designed to provide membrane continuity
- Chemically resistant to most soil conditions, membrane is designed to provide effective external protection against aggressive soils and groundwater
- Flexible – Elongation in excess of 300% helps accommodate minor settlement and shrinkage movement
- Tanking security — combined flexible membrane and GCP waterstop system available for security
- Controlled thickness – Factory-made sheet allows for constant, non-variable site application
- Wide application window – BITUTHENE 3000 Membrane for use when surface and ambient temperatures are between 5°C and 35°C

Wall and Footing



Cut and Cover Construction



Drawing is for illustration purposes only.
For complete details please check with GCP technical department.

System Components

Membranes

BITUTHENE 3000

Ancillary Components

- BITUTHENE Solvent Primer - bitumen-based primer used to prime dry structural concrete and masonry surfaces, with moisture content below 5.0%
- BITUTHENE Solvent Primer Vertical - bitumen-based high-tack primer for vertical applications in code weather, to dry (< 5.0% moisture content) structural concrete and masonry surfaces
- BITUTHENE Primer Type C - water borne bitumen-based primer, used to prime damp or green concrete, with moisture content below 10.0%
- BITUTHENE Liquid Membrane - two component, elastomeric, liquid applied detailing compound.
- PROTECTOBOARD™ /HYDRODUCT® - membrane protection/drainage system
- BITUSTIK™ Tape Super - double sided adhesive tape
- Water-Bar /Swellseal® waterstops - for construction and expansion joints

The most current Data Sheets for most system components are available at gcpat.com. For more information on any system or ancillary component contact your local GCP technical service advisor.

Limitations of Use

- Information contained in this document does not cover all possible application scenarios or imply product suitability for an application. Please contact your local GCP representative or the GCP Technical Department for further information.
- BITUTHENE Membranes are designed where in-service temperatures will not exceed 54°C.
- Do not use BITUTHENE Mastic to terminate BITUTHENE Membranes to PREPRUFE® pre-applied waterproofing membrane systems. Terminations to PREPRUFE membranes should only be done with BITUTHENE Liquid Membrane.
- Do not apply BITUTHENE Membranes over insulation or lightweight insulating concrete.

Safety and Handling Information

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, and in some cases from our local GCP website.

Storage

- Observe one-year shelf life and use on a first in, first out basis.
- Store in dry conditions between 5°C and 32°C.
- Store off ground, under tarps or otherwise protected from rain and ground moisture.
- See Technical Letter #TL-0030(AP) Shelf Life/Storage and Handling of GCP Waterproofing.

Installation

Temperature

Apply BITUTHENE 3000 Membrane only in dry weather and when air and surface temperatures and at 5°C to 35°C.

Surface Preparation

Surfaces must be structurally sound and free of voids, spalled areas, loose aggregate and sharp protrusions. Remove contaminants such as grease, oil and wax from exposed surfaces. Remove dust, dirt, loose stone and debris. Concrete must be properly cured (minimum 7-days for normal structural concrete and 14-days for lightweight structural concrete). For horizontal applications, double the above cure times of concrete if placed over non-vented decks.

Certain conditions may require longer dry times, such as unusually wet weather or late removal of forms.

Use form release agents which will not transfer to the concrete. Remove forms as soon as possible from below horizontal slabs to prevent entrapment of excess moisture. Excess moisture may lead to blistering of the membrane.

Cure concrete with clear, resin-based curing compounds which do not contain oil, wax or pigment. See Technical Letter TL-0005 Curing Compounds and Form Release Agents. Do not apply any products to frozen concrete.

Repair defects such as spalled or poorly consolidated areas. Remove sharp protrusions and form match lines.

Priming

- Horizontal surfaces: For substrates with moisture content below 5.0%, prime the horizontal surfaces with BITUTHENE Solvent Primer when substrates and ambient temperatures are between 5~35°C. Apply primer by brush or roller at a rate of 6-8 m² / litre depending on the porosity of the surface, and allow to dry completely before the application of BITUTHENE 3000. Porous substrates may require more than one coat. Do not apply any primer directly onto any BITUTHENE Membranes.
- Vertical surfaces: For substrates with moisture content below 5.0%, prime the vertical surfaces with BITUTHENE Solvent Primer when substrates and ambient temperatures are between 10~35°C. Apply primer by brush or roller at a rate of 6-8 m² / litre depending on the porosity of the surface, and allow to dry completely before the application of BITUTHENE 3000. Porous substrates may require more than one coat. Do not apply any primer directly onto any BITUTHENE Membranes. During cold weather, apply Bituthene Solvent Primer Vertical when substrates and ambient temperatures are between 5~10°C to dry (<5.0% moisture content) structural concrete and masonry surfaces. Refer to technical datasheet of Bituthene Solvent primer Vertical for details
- For damp or green concrete with moisture content between 5~10%, apply Bituthene Primer Type C when substrates and ambient temperatures are between 5~35°C. Refer to technical datasheet of Bituthene Primer Type C for details.

Application on Horizontal Surfaces

(Note: PREPRUFE pre-applied membranes are recommended for below slab or for any application where the membrane is applied before concreting. See PREPRUFE Waterproofing Membrane product information sheets.)

All horizontal surfaces should be sloped to drain at least 11 mm/m.

Apply membrane from the low point to the high point so that laps shed water. Overlap all seams at least 50 mm. Stagger all end laps. Roll the entire membrane firmly and completely as soon as possible. Use a linoleum roller or standard water-filled garden roller less than 760 mm wide, weighing a minimum of 34 kg when filled. Cover the face of the roller with a resilient material such as a 13 mm plastic foam or two wraps of indoor-outdoor carpet to allow the membrane to fully contact the primed substrate. Seal all T-joints and membrane terminations with BITUTHENE Liquid Membrane by the end of the day.

Application on Vertical Surfaces

Apply membrane in lengths up to 2.5 m. Overlap all seams at least 50 mm. On higher walls apply membrane in two or more sections with the upper overlapping the lower by at least 50 mm. Roll all membrane with a hand roller.

Terminate the membrane at grade level. Press the membrane firmly to the wall with the butt end of a hardwood tool such as a hammer handle or secure into a reglet. Failure to use heavy pressure at terminations can result in a poor seal. All top of wall terminations must be sealed with BITUTHENE Liquid Membrane. A termination bar may be used to ensure a tight seal. At the end of each working day, if the wall has been only partially covered, apply a maximum 6mm bead of BITUTHENE Liquid Membrane along the exposed edges of the membrane at its temporary terminations to prevent vertical drainage of precipitation undermining the membrane adhesion. Terminate the membrane at the base of the wall if the bottom of the interior floor slab is at least 150 mm above the footing.

Otherwise, use appropriate inside corner detail where the wall and footing meet. A 3 mm x 25 mm aluminum termination bar aligned with the top of the membrane is recommended for terminations on CMU, in earth covered decks, and in earth bermed applications where soil cannot be fully compacted. See Technical Letter TL-0026(AP) BITUTHENE Membrane Terminations for additional information.

For technical assistance with detailing and problem solving please call your local GCP representative.

Membrane Repairs

Patch tears and inadequately lapped seams with the same membrane as used on the surrounding surface. Clean the in place membrane with a damp cloth and completely dry. Slit fishmouths and repair with a patch extending 50 mm in all directions from the slit and seal edges of the patch with BITUTHENE Liquid Membrane. Inspect the membrane thoroughly before covering and make all repairs prior to testing, covering or backfilling.

Flood Testing (Horizontal Surfaces Only)

- Flood test all horizontal applications with a minimum 50 mm head of water for 24-hours. Mark any leaks and repair when the membrane is dry. Before flood testing, be sure the structure will withstand the dead load of the water. For sloped decks, it may be necessary to segment the flood test to avoid deep water near drains
- Conduct the flood test 24-hours after completing the application of BITUTHENE waterproofing system. Immediately after flood test is completed, and all necessary repairs made, install drainage composite to protect the BITUTHENE membrane from traffic and other trades.
- As an alternate to flood testing, appropriate electronic leak detection may be used to check the integrity of the system.

Drainage

HYDRODUCT drainage composites are recommended for both active drainage and protection of the membrane. See HYDRODUCT product data sheet on your local GCP website.

Insulation

Always apply BITUTHENE Membrane directly to primed or conditioned structural substrates. Insulation, if used, must be applied over the membrane. Do not apply BITUTHENE membranes over insulation or lightweight insulating concrete.

Protection of Membrane

Protect BITUTHENE Membranes to avoid damage from other trades, construction materials or backfill. At temperatures above 25 °C to avoid potential formation of blisters place protection immediately.

Following the application, care should be taken to prevent damage by following trades by using PROTECTBOARD™ spot bonded with BITUSTIK™ Tape Super or a 25mm screed as horizontal protection. Vertical faces to be protected against damage from backfilling and reinforcement by using PROTECTBOARD spot bonded with BITUSTIK Tape Super.

Placing Steel

On horizontal applications when placing steel over properly protected membrane, use concrete bar supports (dobies) or chairs with plastic tips or rolled feet to prevent damage from sharp edges. Use special care when using wire mesh, especially if the mesh is curled.

Backfill

Place backfill as soon as possible. (See Protection of Membrane section above) Use care during backfill operation to avoid damage to the waterproofing system. Follow generally accepted practices for backfilling and compaction. Backfill should be added and compacted in 150 mm to 300 mm lifts.

Physical Properties

PROPERTY	TYPICAL VALUE	TEST METHOD
Colour	Dark gray-black	
Roll Dimensions ³	1m x 20m	
Roll Weight	39 kg	

Thickness	1.5 mm(nominal)	ASTM D3767 - method A
Flexibility, 180° bend over 25 mm mandrel at -32 °C,	Unaffected	ASTM D1970
Tensile strength, membrane	4N/mm	minimum ASTM D412 ¹
Tensile strength, film	34.5 MPa minimum	ASTM D882 ¹
Elongation, ultimate failure of rubberized asphalt	300% minimum	ASTM D412 ¹
Crack cycling at -32 °C, 100 cycles,	Unaffected	ASTM C836
Lap Adhesion @ 23 °C	683N/m	ASTM D1876
Peel strength	1576 N/m	ASTM D903 ⁴
Tear Resistance	23N/mm	ASTM D624
Puncture resistance, membrane	>222 N	ASTM E154
Resistance to hydrostatic head	70m of water	ASTM D5385
Permeance	5.7ng/pa/s/m ²	ASTM E96, section 12 - water method
Water absorption	<0.1%	ASTM D570

Footnotes:

1. The test is run at a rate of 2 in. (50 mm) per minute.
2. The test is conducted at 4 in. (102 mm) per min.
3. Individual roll length may vary +/- 1%
4. Peel strength on primed concrete

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GCP Applied Technologies Inc., 2325 Lakeview Parkway, Alpharetta, GA 30009, USA

GCP Australia Pty. Ltd., 14 Colebard Street West, Archerfield, Brisbane, Queensland 4108, Australia

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