

GRACE

Construction Products

1. Product Name

Procor® Fluid-Applied Waterproofing Systems

2. Manufacturer

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3. Product Description

BASIC USE

Procor® fluid-applied waterproofing membranes are ideal for waterproofing concrete, masonry and plywood surfaces below grade and in split slab construction. Typical below-grade applications include foundation walls, tunnels and earth sheltered structures. Typical split slab applications include plaza decks, balconies, pedestrian walkways and parking decks.

Procor membranes are ideally suited for interior use conditions where the membrane will be covered such as floors in mechanical rooms, laboratories, kitchens, wet rooms and bathrooms. They also can be used in planters. Procor fluid-applied waterproofing membranes are especially suited for jobs where the use of solvents is restricted. They can be used in new construction and retrofit applications. Procor is available for both hand and spray applications.

Procor 10 waterproofing membrane is intended primarily for horizontal hand applications. Procor 20 waterproofing membrane is intended primarily for vertical hand applications. Procor 75 waterproofing membrane is intended for all spray applications.

COMPOSITION & MATERIALS

Procor 10, Procor 20 and Procor 75 fluid-applied waterproofing membranes are 2-part, self-curing rubber-based materials. The volatile organic compound (VOC) content of Procor waterproofing membranes as applied is 75 g/L.

COMPATIBILITY

Procor is not compatible with petroleum solvents, fuels and oils, materials containing creosote, pentachlorophenol or linseed oil.

Procor membranes are not compatible with certain types of prefabricated drainage systems that damage waterproofing membranes when exposed to soil pressures.

LIMITATIONS

Do not specify Procor membranes in areas where they will be permanently exposed to sunlight, weather or traffic. If an exposure period of greater than 30 days is anticipated, some form of temporary protection should be used. Do not specify Procor for exposed interior use.

Apply Procor membranes directly to structural surfaces. Do not apply Procor membranes over lightweight insulating concrete. Insulation, if used, must be installed over the membrane.

Procor membranes are not recommended for use as a tank or containment structure liner unless in split slab construction.

In horizontal applications where a minimum slope of 0.125 in/ft (10.6 mm/m) cannot be achieved, a 2-coat application of Procor membrane is recommended to achieve a total thickness of 120 mil (3 mm).

4. Technical Data

APPLICABLE STANDARDS

ASTM International

- ASTM C836 Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course
- ASTM C898 Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane With Separate Wearing Course
- ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension
- ASTM D903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
- ASTM D1644 Standard Test Methods for Nonvolatile Content of Varnishes
- ASTM D1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- ASTM D3767 Standard Practice for Rubber-Measurement of Dimensions
- ASTM D5295 Standard Guide for Preparation of Concrete Surfaces for Adhered (Bonded) Membrane Waterproofing Systems

PHYSICAL PROPERTIES

Procor 10, Procor 20 and Procor 75 fluid-applied waterproofing membranes meet or exceed the performance requirements of ASTM C836.

See Table 1.

5. Installation

SAFETY, STORAGE & HANDLING

Procor waterproofing membranes, Parts A and B, should be stored under cover in original sealed containers between 40 - 90 degrees F (4 - 32 degrees C). Part A reacts with water releasing heat. Do not allow Part A to come in contact with water. Prevent Part B from freezing during storage. In cool temperatures, store the material for several hours at room temperature to facilitate mixing and application. The shelf life is 9 months in unopened containers. Shelf life will be reduced if stored in temperatures above 90 degrees F (32 degrees C).

Refer to product label and Material Safety Data Sheet (MSDS) before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product labels and MSDS before use, or contact Grace Construction Products.

PREPARATORY WORK

Concrete

All concrete and masonry surfaces must be smooth, monolithic and free of frost, voids, spalled areas, loose substrate and sharp protrusions, dirt, oil, grease and debris and must contain no other contaminants or any visible coarse aggregate. Repair defects such as spalled or poorly consolidated areas.

Tie-holes, bugholes, voids and surface irregularities larger than 1/2" (13 mm) in diameter or deeper than 1/8" (3 mm), or both, should be either pretreated with Procor or repaired with a lean concrete mix of grout. See ASTM D5295, Preparation of Concrete Surfaces for Adhered Membrane Waterproofing Systems, for further details concerning substrate preparation.

Cracked, pitted, honeycombed or heavily bugholed surfaces can be filled by spraying from close in, 10" - 12", but high material usage will result. Under these circumstances, it may be more efficient to fill the surface with a parge coat of lean mortar mix before application of the Procor. It is also acceptable to fill in gaps with a compatible sealant or caulk.

Remove windows, sharp protrusions and form match lines. Also remove high spots greater than 1/32" (0.8 mm) in height. On highly porous and rough surfaces, it may be necessary to apply Procor Concrete Sealer or a scratch coat of Procor to provide a smooth surface before applying the liquid membrane.

All substrates must be wire-brushed, swept with a stiff broom or blown off with low pressure air to remove dirt, dust and loose stones. Poor quality surfaces with excessive laitance may require shotblasting or pressure washing to provide a dense, smooth surface free from contaminants.

Please refer to Tech Letter #2, "Inspection and Repair of Concrete," for more information.

Masonry

Apply a scratch coat of Procor to provide a smooth surface before applying the liquid membrane.

Wood/Plywood

Apply Procor membrane over a securely fastened sound surface. To create a smooth surface, ensure that all joints and fasteners are flush.

Contact Grace Construction Products if the suitability of the substrate is in question.

Temperature

Hand Application - Apply Procor 10 and 20 membranes at ambient and substrate temperatures above 40 degrees F (4 degrees C). Do not apply the material if the ambient temperature is likely to fall below 32 degrees F (0 degrees C) within one hour of application completion.

Spray Application - In spray applications using Procor 75, it is possible to work at temperatures below 40 degrees F (4 degrees C) provided there is no frost or condensation on the substrate. The minimum temperature for spray application is 20 degrees F (-7 degrees C). Refer to Technical Bulletin 13, "Spraying Procor 75 at Low Temperatures," or contact a Grace Construction Products representative for cold weather spraying guidelines.

Application to "Green" Concrete or Damp Surfaces

Procor may be applied to "green" (minimum 3 days) concrete or over surfaces that are damp to the touch. Remove any visible water prior to application. In "green" concrete or damp substrate applications, direct sunlight may cause the surface temperature to rise rapidly, drawing moisture from the substrate and resulting in blisters and pinholes in the membrane. Under these conditions, it may be necessary to apply Procor Concrete Sealer or a scratch coat of Procor before applying the liquid membrane.

Do not apply Procor waterproofing membranes in wet weather. Once applied, the membranes will not be affected by light rain showers.

MIXING

If Procor waterproofing membranes are stored in cold temperatures, allow the material to stand at room temperature for several hours to facilitate mixing and application.

Handmixing (Procor 10 and 20 only): Open the Part A container and stir or mix for about 15 seconds. Add the entire contents of the Part B container to the Part A container and mix either mechanically or by hand. For mechanical mixing, use a slow speed (300 - 450 rpm), heavy duty drill with a spiral mixing paddle (such as the Goldblatt® Paint/Mud Mixer by Stanley Tools) and mix for about 1 minute. Use a flat board or paddle and mix for about 2 - 3 minutes using a slow folding motion.

Spray applications (Procor 75 only): Parts A and B are pumped separately through hoses and mixed within the spray gun assembly. Premix Part A prior to pumping to bring any settled material back into solution. Contact a Grace representative for qualified plural component spray equipment systems.

The mixed product should have a uniform color, free of any white streaks. Take care to scrape material from the side and bottom of the container to ensure thorough mixing. Do not over-mix, as over-mixing will result in premature thickening of the material in the container and decrease the pot life.

Once properly mixed, the pot life is typically 30 - 60 minutes depending on ambient temperature. The pot life may be reduced to about 15 minutes in temperatures above 86 degrees F (30 degrees C). Do not use water or any other material to thin the product.

DETAILING

Detailing should be completed prior to applying the full coverage of Procor membrane. The continuous field application should completely cover the detail areas to provide double thickness coverage. For a complete

description and instructions on Procor details, consult the separate Detail Sheets.

Inside and Outside Corners

- Apply a 0.060" (1.5 mm) coating of Procor membrane starting in the corner and extending 6" (152 mm) from each side of the corner. For added protection over rough surfaces on inside corners, install a 1" (25.4 mm) fillet of Procor 20 or Bituthene® Liquid Membrane by hand to reinforce the corner

Non-Moving Joints and Hairline Cracks

- Apply a 0.060" (1.5 mm) coating of Procor membrane over non-moving joints or hairline cracks and extend the material 6" (152 mm) from each side of the opening
- Non-moving joints are defined in ASTM C898 as cold joints, construction joints, isolation joints and control joints held together with steel reinforcing bars or wire fabric. These joints are generally considered by the designer of the structural system as non-moving or static joints. Hairline cracks are defined as cracks less than 0.060" (1.5 mm) in width

Drains and Penetrations

- In drain applications, apply a 0.060" (1.5 mm) coating of Procor membrane over the drain flange and extend it 6" (152 mm) beyond the flange
- Penetration openings must be sealed and stabilized prior to the application of Procor membrane
- Once sealed and stabilized, install a 1" (25.4 mm) fillet of Procor 20 or Bituthene Liquid Membrane around the protrusion. Extend the Procor membrane 6" (152 mm) onto the structural substrate and at least 2" (51 mm) onto the penetration. For plastic pipes and other low adhesion substrates, a tie-in using Preprufe® Tape will be needed

| TABLE 1 PHYSICAL PROPERTIES PF PROCOR WATERPROOFING MEMBRANES | |
|---|-----------------------------------|
| Property & test method | Typical value |
| ASTM C836 | Meets or exceeds all requirements |
| Color, mixed | Terra cotta |
| Dry film thickness, ASTM D3767 (Method A) | 0.060" (1.5 mm) nominal |
| Solids content, ASTM D1644 | 100% |
| Flexibility, 180° bend over 1" (25.4 mm) mandrel at -25°F (-32°C), ASTM D1970 | Unaffected |
| Elongation, ASTM D412 | 500% |
| Peel adhesion to concrete, ASTM D903 (Modified) ¹ | 5 lb/in (880 N/m) |

¹ Procor waterproofing membrane is applied to concrete and allowed to cure. Peel adhesion of the membrane is measured at a rate of 2" (51 mm) per minute with a peel angle of 90° at room temperature.



APPLICATION

After detailing is complete, apply a uniform coating of Procor waterproofing membrane at a minimum thickness of 0.060" (1.5 mm) over the entire area to be waterproofed.

Horizontal Applications

On horizontal applications, use the pour-and-spread method. Pour the mixed material directly from the container and spread using a rounded-edge steel trowel, float or screed. A rubber squeegee or notched trowel is not recommended since it will leave thin spots in the waterproofing. A metal squeegee with thickness guides at the ends is acceptable.

Care must be taken to ensure that any thin areas in the material from the thickness guides are brought to the recommended thickness. Plan the application sequence so that there is no need to walk on the freshly applied material. The membrane can typically accept foot traffic after 24 - 48 hours.

In a horizontal application where a minimum slope of 0.125 in/ft (10.6 mm/m) cannot be achieved, apply 2 coats of floor membrane to achieve total thickness of 120 mil (3 mm).

Vertical Applications

On vertical applications, apply Procor fluid-applied waterproofing using the pour-and-trowel method. Pour the mixed material directly from the container onto the vertical surface and follow directly behind it with a 12" - 18" (305 - 457 mm) straight-edge steel trowel. Spread the material uniformly across the surface with only 1 or 2 passes, starting at the bottom of the wall and pulling the material up the wall. Additional passes with the trowel over the material will cause material to become stringy and difficult to trowel.

Thickness Control

Swipe and trowel marks are acceptable as long as the minimum thickness is maintained. Check the thickness using a wet film thickness gauge.

Spray Application

Procor 75 membrane may be spray applied to horizontal or vertical surfaces. Contact Grace Construction Products for recommended plural component spray equipment.

Coverage

Procor fluid-applied waterproofing membranes are typically applied at a minimum thickness of 0.060" (1.5 mm). The coverage rate, not including waste, at a 0.060" (1.5 mm) thickness is about 25 ft²/gal (0.6 m²/L). The coverage will be lower on rough surfaces.

Application of Drainage, Protection or Insulation

Protect Procor membranes to avoid damage from other trades, construction materials and backfill. Protection products can be installed on the same day as the Procor membrane. Bonding of the protection products to the Procor membrane is achieved if the protection products are installed when the Procor membrane is tacky; this is generally 1 - 2 hours after the Procor membrane is installed. To achieve nonbonded protection, wait until the Procor membrane surface is no longer tacky or spread cement dust or lime to remove the tack prior to applying the protection layer. Be careful not to displace the Procor membrane.

On horizontal applications, use Hydroduct® 660 Drainage Composite. Alternate methods of protection are 1/8" or 1/4" (3 or 6.4 mm) asphaltic hardboard.

On vertical applications, use Hydroduct 220 Drainage Composite. Alternate methods of protection are 1" (25.4 mm) expanded polystyrene or 1/4" (6.4 mm) extruded polystyrene with a minimum 10 psi (69 kN/m²) compressive strength. Such alternatives do not provide positive drainage to the system. If 1/4" (6.4 mm) extruded polystyrene protection board is used, backfill should not contain sharp rock or aggregate over 2" (51 mm) in diameter.

Extruded polystyrene insulation boards also can be used and are compatible with Procor membranes.

CURING, BACKFILL & FLOOD TESTS

Allow Procor waterproofing membrane to cure at least 24 hours prior to backfill to avoid displacement of the membrane and at least 48 hours prior to flood testing. Use care during the overburden placement operation to avoid damage to the waterproofing system.

Flood test all horizontal applications with a minimum 2" (51 mm) head of water for at least 24 hours. Mark any leaks and repair when the membrane is dry. Before flood testing, ensure that the structure will withstand the dead load of the water. For well-sloped decks, segment the flood test to avoid deep water near drains. Begin the flood test 48 hours after completing the application of Procor fluid-applied waterproofing. Low voltage electronic leak detection techniques may also be suitable.

6. Availability & Cost

AVAILABILITY

A network of distributors carries Procor waterproofing membrane products for prompt delivery to project sites.

COST

Procor waterproofing membrane products are competitively priced. For specific pricing information, contact a local distributor or call Grace Construction Products for the nearest distributor.

7. Warranty

A 5 year material warranty is available upon request.

8. Maintenance

Procor membranes will not require maintenance when installed in accordance with Grace's recommendations.

9. Technical Services

Support is provided by full-time, technically trained Grace field sales representatives and technical service personnel, backed by a central research and development staff.

10. Filing Systems

- Reed First Source®
- Additional product information is available from the manufacturer.

W. R. Grace & Co.-Conn. hopes the information here will be helpful. It is based upon data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations and suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.-Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, W.R. Grace & Co. Canada, Ltd., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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