PERM-A-BARRIER® VPL Data Sheet

Fluid-applied vapor permeable air barrier membrane

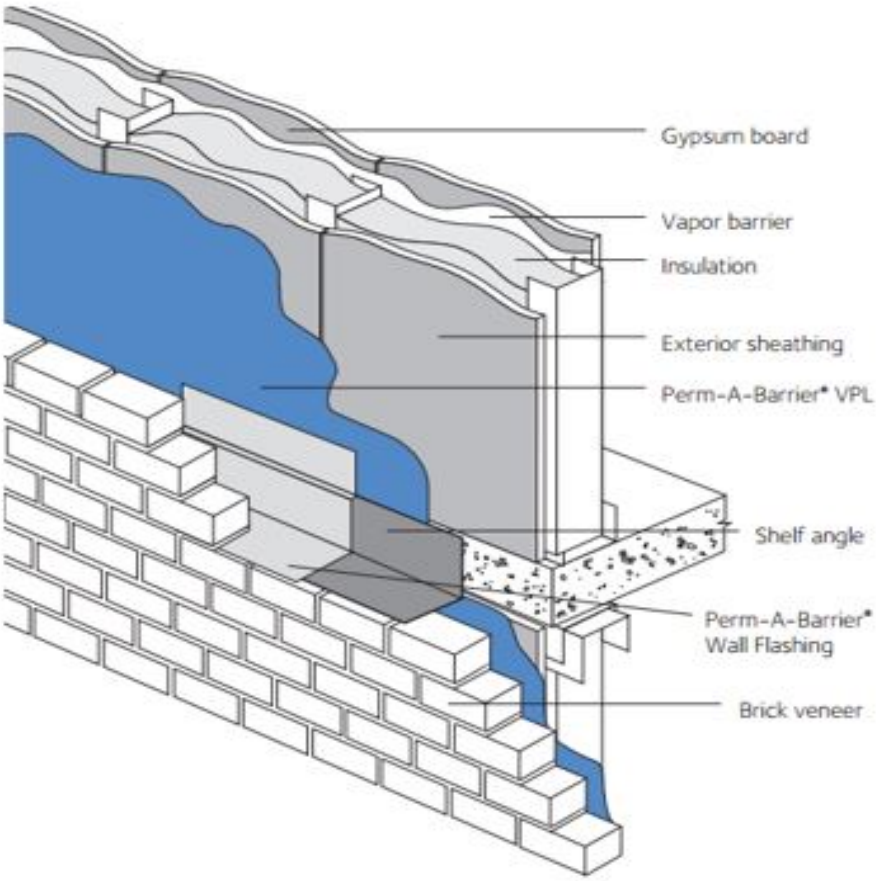
Product Description

PERM-A-BARRIER® VPL is a fluid applied, one component, acrylic membrane that cures to form a resilient, monolithic, fully bonded elastomeric sheet when applied to construction surfaces. For application at temperatures between 20 °F (-7°C) and rising to 60 °F (16°C), please consider PERM-A-BARRIER® VPL LT. (Please see a different datasheet).

PERM-A-BARRIER® VPL membrane provides superior protection against the damaging effects of air and liquid water ingress on building structures. The product creates a solid barrier against air infiltration and exfiltration, which minimizes associated energy loss and condensation problems.

PERM-A-BARRIER® VPL membrane is vapor permeable for wall assemblies requiring this “breathable” characteristic. As a vapor permeable membrane, it permits the transfusion of water vapor that may otherwise condense in the wall structure; but is impermeable to liquid water, which allows the material to act as a water drainage plain.

The Volatile Organic Compound (VOC) content of PERM-A-BARRIER® VPL membrane is less than 30 g/L.



Product Advantages

- Fire resistant - meets NFPA 285 as part of various wall assemblies with foam plastic insulation
- Plasticizer, Phthalate and Halogen-free - safe and environmentally-friendly
- Air tight - protects against air passage and associated energy losses. Meets new ASTM E2357 standard
- Vapor permeable - prevents moisture from being trapped in the wall cavity by allowing walls the ability to dry
- Single component - fast and easy application with simple spray equipment
- Fully bonded - transmits wind loads directly to the substrate
- Seamless - continuous membrane integrity with no laps
- Damp surface tolerant - can be applied to damp-totouch surfaces
- Strong adhesion to common construction substrates such as wood, block, concrete, OSB, gypsum sheathing and metal
- Compatible with PERM-A-BARRIER® Flashing Systems

Principal Applications

Vapor permeable air barrier for new and remedial commercial and residential applications:

- Concrete block walls with brick veneer or pre-formed cladding panels
- Steel or wood stud walls with exterior gypsum sheathing, brick veneer or pre-formed panels, plywood and OSB

System Components

- PERM-A-BARRIER® VPL membrane - for vertical applications
- PERM-A-BARRIER® Universal Flashing & Sealant - one part moisture curing, STPE sealant for sealing penetrations, terminations, brick ties, final terminations & flashing application.
- BITUTHENE® Liquid Membrane - for details and terminations
- PERM-A-BARRIER® Wall Flashing - heavy duty fully adhered membrane for through-wall flashing detailing
- PERM-A-BARRIER® Detail Membrane - flexible, fully-adhered membrane for detail flashing areas
- PERM-A-BARRIER® Aluminum Flashing - flexible, aluminum faced, fully-adhered membrane for detail flashing areas

Installation

Safety

Refer to product label and Safety Data Sheet 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 SDS before use.

SDSs can be obtained from our web site at gcpat.com or by contacting us toll free at 866-333-3SBM (3726).

Surface Preparation

All surfaces must be sound and free from spalled areas, loose aggregate, loose nails or screws, sharp protrusions or other matter that will hinder the adhesion or regularity of the membrane installation. The surface must also be free from frost, dirt, grease, oil or other contaminants. Clean loose dust and dirt from the surface by brushing or wiping with a clean, dry cloth.

Concrete and Other Monolithic Cementitious Surfaces

Surface irregularities greater than 1/4 in. (6 mm) across and/or 1/8 in. (3 mm) in depth should be pre-treated with BITUTHENE® Liquid Membrane or repaired with a lean mortar mix or nonshrinking grout. Remove concrete form lines and any high spots greater than 1/8 in. (3 mm) in height to ensure uniform surface. On highly dusty or porous substrates it may be necessary to apply a scratch coat of PERM-A-BARRIER® VPL membrane prior to spraying to full thickness.

PERM-A-BARRIER® VPL membrane may be applied to green (minimum 3 day cure time) concrete or over damp to-touch surfaces Remove any visible water prior to application.

Concrete Masonry Units (CMU)

The CMU surface should be smooth and free from projections. Strike all mortar joints full and flush to the face of the concrete block. Fill all voids and holes, particularly at the mortar joints, with a lean mortar mix or nonshrinking grout. Alternatively, a parge coat (typically one part cement to three parts sand) may be used over the entire surface.

Exterior Sheathing Panels

PERM-A-BARRIER® VPL membrane may be applied directly to exterior sheathing panels such as exterior drywall, plywood and oriented strand board (OSB) and glass faced wall boards. To avoid deflection at the panel joints, fasten corners and edges with appropriate screws. Fasteners should be driven flush with the panel surface (not counter sunk) and into the framing system in accordance with the manufacturers recommendations. Completely fill the sheathing joint with Universal Flashing & Sealant Sealant and then install a scratch coat (approx. 15-30 mils) of Universal Flashing & Sealant Sealant with a margin trowel or similar onto the face of the sheathing approximately 1 in. (25 mm) on each side of the sheathing joint, ensuring the edges are tapered to prevent shadowing of the spray application. Once the sealant is tack free, the PERM-A-BARRIER® VPL membrane may be applied.

Detailing

Detailing should be completed prior to applying the full coverage of PERM-A-BARRIER® VPL membrane. The field application should completely cover the detail areas to provide a continuous membrane.

For a complete description and instructions on individual details, consult the separate detail sheets found on our web site at gcpat.com.

Transitions to beams, columns, window and door frames, etc. should be made with a strip of PERM-A-BARRIER® Detail Membrane, PERM-A-BARRIER® Aluminum Flashing or PERM-A-BARRIER® Wall Flashing product. Only PERM-A-BARRIER® Wall Flashing membrane can be used for through wall flashing applications or under masonry units. Optimum adhesion will be achieved when the membrane or flashing is lapped onto the cured PERM-A-BARRIER® VPL membrane. As soon as it is cured (approximately 24 hrs after application at 50% R.H, 68°F), the product is ready to accept self-adhered membranes or flashings.

A minimum 6 in. (150 mm) wide strip of PERM-A-BARRIER® Detail Membrane, PERM-A-BARRIER® Aluminum Flashing or PERM-A-BARRIER® Wall Flashing product should be installed and centered over all outside corners ensuring that all horizontal laps shed water. Installation of the self-adhered flashing at corners may be installed prior to the PERM-A-BARRIER® VPL LT application in accordance with the applicable data sheet and installation instructions or after the

PERM-A-BARRIER® VPL LT product has cured. Avoid installing Universal Flashing & Sealant under self-adhered flashing. Best practice would be to install corner flashing prior to detailing exterior sheathing joints with Universal Flashing & Sealant. Any gaps around penetrations should be grouted solid or caulked with BITUTHENE® Liquid Membrane or a polyurethane sealant prior to the PERM-A-BARRIER® VPL membrane application. Refer to GCP standard penetration details.

Membrane Application

PERM-A-BARRIER® VPL product can be installed through a spray application. It may be applied by roller or brush, however spray application is the preferred method. If applying PERM-A-BARRIER® VPL product by roller or brush, multiple material passes may be necessary to ensure that the required wet thickness is achieved.

Contact GCP for further details of local applicators, application techniques and spray equipment.

APPLICATION TEMPERATURE - In spray applications, PERM-A-BARRIER® VPL membrane may be applied at temperatures as low as 40°F (4°C). It is not recommended for use when cold and/ or damp conditions exist for prolonged periods. The product is a water-based material. As with all water-based materials, it is subject to freezing at temperatures below 32°F (0°C).

Thickness Control

Application thickness is controlled in vertical applications by marking the area and spot-checking the thickness with a wet film thickness gauge. Swipe marks on the surface of the PERM-A-BARRIER® VPL product are acceptable as long as the minimum thickness is maintained.

Coverage Rates

PERM-A-BARRIER® VPL membrane is typically applied at a minimum thickness of 44 mils wet. The theoretical coverage rate (not including waste) at a thickness of 44 mils is approximately 37 ft^2/gal to reach a 25 mil dry thickness.

Coverage may vary depending on application technique and may be reduced over rough and uneven substrates.

Note: Above listed coverage rates are minimums, installing at a greater thickness is acceptable. For more information, please contact your GCP Representative.

Drying

PERM-A-BARRIER® VPL membrane is dry to touch and can be overcoated within 4 hours under normal conditions (50% R.H, 68°F). The product dries through in 24 hours at normal conditions (50% R.H, 68°F). Drying and skinning times may vary depending on temperature, humidity and surface conditions.

Application of Insulation and Finishes

PERM-A-BARRIER® VPL membrane is not suitable for permanent exposure. Insulation boards may be installed after the product has fully cured. If the insulation or exterior finish cannot be applied within 6 months of the product application, some form of temporary protection (such as tarpaulins) should be used to protect the product from the effects of sunlight. Installation of insulation boards can be accomplished by using compatible mechanical fasteners or, solvent free insulation adhesive.

Cleaning

Tools and equipment are most effectively cleaned using a damp cloth and removing material as soon as possible to prevent curing on tools and equipment. For short shutdown periods, material can remain in the lines and equipment. Material should not be left in the lines for any period of time if temperatures are expected to drop below 40°F (4°C). For long-term storage, thoroughly flush the entire system with water and then purge with PROCOR® Flushing Oil. Good preventative maintenance will lengthen the life of the pumps.

Storage and Handling

PERM-A-BARRIER® VPL membrane should be stored under cover in original sealed containers above 40°F (4°C) and below 90°F (35°C). The shelf life is 12 months in unopened containers.

Store opened containers with plastic protective liner covering the material.

Limitations

PERM-A-BARRIER® VPL should not be used in areas where it will be permanently exposed to sunlight, weather or traffic. Maximum UV exposure period is 6 months. For indirect or intermittent UV exposure applications, refer to PERM-A-BARRIER® VPL50RS UV Stable.

Do not apply the product in wet weather. It should not be applied if rain or temperatures below 40°F (4°C) are expected within 24 hrs. For applications below 40°F (4°C), refer to PERM-A-BARRIER® VPL LT.

PERM-A-BARRIER® VPL membrane should be kept from freezing as it is subject to freezing at temperatures below 32°F (0°C).

PERM-A-BARRIER® VPL has a maximum in-service temperature of 160°F (71.1°C).

Physical Properties

PROPERTY	TYPICAL VALUE	TEST METHOD
Color	Green	
Thickness	44Mils wet film 25Mils dry film	
Solids content by volume	59% (approx.)	
Drying time @ 50% R.H., 68°F1	4 hours - tack free 24 hours - fully dry	
Water resistance of in-place membrane	Pass	ASTM E331
Air permeance	<0.0001 cfm/ft^2 @ 75 Pa	ASTM E2178
Assembly air permeance	Pass	ASTM E2357
Water vapor transmission	20 perms	ASTM E96 - Method B
Pull adhesion to glass-mat faced gypsum sheathing[2]	30 psi	ASTM D4541
Pull adhesion to concrete	100 psi	ASTM D4541
Tensile strength	110 psi	ASTM D412 - Die C
Elongation	250%	ASTM D412 - Die C
Nail sealability	Pass	ASTM D1970
Low temperature flexibility	Pass at -20°F (-29°C)	ASTM D1970
Wall assembly fire test	Pass as part of various wall assemblies with foam plastic insulation	NFPA 285

ICC-ES AC 212 Acceptance Criteria For Water-Resistive Coatings used as Water-Resistive Barriers over Exterior Sheathing

Structural	Pass - No cracking within the field of the panel or at the substrate joints	ASTM E1233 Procedure A
Racking	Pass - No cracking within the field of the panel or at the substrate joints	ASTM E72
Restrained environmental cycling test	Pass - No cracking within the field of the panel or at the substrate joints	ICC-ES AC 212
Water penetration testing	Pass - No water penetration at the sheathing joints at the backside of the panel	ASTM E331
Freeze-thaw	Pass - No sign of deleterious effects after 10 cycles	ASTM E2485 - Method B

FOOTNOTES:

1. Drying and skinning times may vary depending on temperature, humidity and surface conditions.
2. Failure occurs when glass facing pulls away from gypsum core.

Finished and exposed surfaces should be protected from overspray. PERM-A-BARRIER® VPL membrane should not be used in waterproofing applications in hydrostatic condition

PERM-A-BARRIER® VPL membrane is not compatible with petroleum solvents, fuels and oils, materials containing creosote, pentachlorophenol or linseed oil.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate, and is offered for consideration, investigation and verification by the user, 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 that would infringe any patent, copyright, or other third party right.

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