PermaSEAL PRO Liquid Gas Membrane

Description

PermaSEAL PRO Liquid Gas Membrane is a high-performance, single-component, elastomeric membrane designed to provide an effective barrier against ground gases (including methane, carbon dioxide, and radon), moisture, and water vapour transmission. Formulated from styrene-butadiene rubber (SBR) latex, the product cures to form a seamless, flexible, and highly durable film.

This membrane is suitable for use in both new-build and retrofit applications, in accordance with relevant gas protection and damp proofing standards. It functions as both a gas-resistant membrane and a damp proof membrane (DPM) for floors, walls, and other critical interfaces.

PermaSEAL PRO Liquid Gas Membrane is designed for application to damp (but not saturated) substrates and can be applied using brush, roller, or airless spray equipment. Under standard site conditions (approximately 20°C, 65% RH), the membrane becomes touch dry within approximately 60 minutes, with full cure dependent on ambient conditions and film thickness.

Benefits

- Single pack system
- Red - for good site visibility
- Water based product that can be applied to damp backgrounds
- Non-toxic, non-hazardous, solvent and plasticiser free
- Quick drying - typically touch dry in 1 hour
- Good bond to many substrates
- Durable, high flexibility, extensibility and good crack bridging properties
- Low water vapour permeability
- Alkali resistant - can be applied to alkaline surfaces

Preparation

All surfaces should be clean, free from dust, debris and loose material, oil, paint, fungal growth, etc.

Non-structural cracks, less than 0.5mm must be filled. Structural cracks must be first repaired and filled. The substrate must be sound and ideally present a smooth face. Fill holes and re-point flush to the finish using PermaSEAL Fillet Seal. Old repairs must be inspected and repaired if necessary.

New laid concrete should have a clean textured surface. Internal angles should have a 45° fillet, use PermaSEAL Fillet Seal where required.

For all construction joints, including day joints, angle joints, movement and expansion joints, use the PermaSEAL PRO Flex Tape system.

The background surface should be smooth or have a light even texture. Any masonry should be flush pointed and defects in existing surfaces made good.

The surface needs to be clean, sound and free from dust, loose material and surface water. The membrane should not be applied in wet conditions or where these conditions are likely to occur before the membrane has dried. The membrane should not be applied when the temperature of the background, or the air temperature, is below 7°C.

Priming

Priming is not required prior to application. However, to promote optimal substrate wetting and membrane adhesion,

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the surface may be lightly pre-dampened. The substrate should be uniformly damp but free from standing water, surface condensation, or visible water droplets at the time of application.

Coating

Stir well before use. The membrane may be applied by brush, roller or airless spray. If necessary, the liquid compound may be diluted with a little water (max 5% by vol.) to reduce the viscosity.

Note: Care should be taken to ensure that the correct dry coat application thickness is achieved and that the drying time is not unacceptably extended.

To ensure effective gas resistance, a minimum dry film thickness (DFT) of 1 mm is required. This corresponds to a total application rate of 2 kg/m². The specified film thickness can be achieved in a single coat when applied by airless spray, or in multiple coats when applied by brush or roller (3 coats minimum).

When applying two or more coats it is recommended that subsequent coats are applied at right angles to the previous coat. Before applying a second coat it is necessary to allow the first coat to become touch dry, typically one hour. The second or third coat should be applied within 24 hours of applying the previous coat.

When applying a screed or render over PermaSEAL PRO Liquid Gas Membrane, an additional bonding coat of the membrane should first be applied to the cured surface at a rate of 0.25 kg/m². Once this bonding coat reaches a tacky (semi-cured) state, the screed or render should be applied directly to ensure optimal adhesion.

Curing

No special curing is required. Application of the membrane should not be undertaken if rain or water ingress is expected before the coating can fully dry. Do not apply in temperatures below 7°C or falling. After all coats have been applied the membrane should be left for at least 4 days before attempting any ponding tests. Under unfavourable conditions this period may need to be extended.

Coverage

To ensure effective gas resistance, a minimum dry film thickness (DFT) of 1 mm is required. This corresponds to a total application rate of 2 kg/m². The required quantity of material may vary depending on the substrate texture and absorption.

Do not use/apply if the temperature of the material, air or substrate is below +7°C or above +25 °C.

Typical Membrane Properties

The following data were obtained from measurements of 0.6mm thick films (dried and conditioned in air for 7 days at about 23˚C and 50% RH).

Tensile strength at break = 4 N/mm2
Elongation at break = 350%
(Test speed at 500mm/min)

Film Hardness

Shore A hardness value of 70 was measured.

Resistance To Water Penetration (positive head pressure)

Resists a water pressure of 0.2N/mm2 (equivalent to 20 metres head of water)

Water Vapour Permeability

Water vapour permeability is <4g/m²/24 hours at 25°C/75% RH (using Payne cups, 0.6mm dry film thickness) (BS 3177)

Carbon Dioxide Permeability

On the basis that the carbon dioxide permeability of a coating is ten times less than its water vapour permeability, 0.6mm thick dry film of the membrane will have a carbon dioxide resistance of 100 metres of still air. (Recommendation for anti CO2 coatings at least 50m)

Methane Permeability

Gas transmission rate of 79mL/m²/24 hours at 23°C/1bar (BS 903)

Accelerated Ageing

Ageing in "Xenotest" equipment showed that an exposure equivalent to two years of Arizona sunlight did not embrittle the film.

Radon Test Data

Subject of the test: PermaSEAL PRO Liquid Gas Membrane
Testing procedure: Determination of the radon diffusion coefficient
Test regulation: ISO/TS 11665-13, method A
Test execution date: 25.11.2020 – 7.12.2020
Test execution place: laboratory OL124 – D2044d

Test Method

Radon diffusion coefficient was determined according to the method A of ISO/TS 11665-13. The tested samples were placed between the source and the receiver containers. Radon diffuses through the samples from the source container, which is connected to the radon source RF 100, to the receiver containers. Concentrations on both sides of the tested samples are measured continuously by radon detectors TSR-4 of the TERA system (receiver containers) and current mode ionization chambers (source container). Radon diffusion coefficient was derived from the process of fitting the

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numerical solution to the curves of radon concentration measured in the receiver containers. Numerical solution is based on the one-dimensional time-dependent diffusion equation describing radon transport through the tested material.

Laboratory Conditions
Steady state radon concentration in the (source) container:

- 2,300 – 100 kBq/m³

Maximum radon concentration in the (receiver) containers:

- 7.0 – 0.3 kBq/m³

Laboratory temperature: 22°C - 1°C
Relative humidity of air in the laboratory: 47% - 3%
Pressure difference between the lower and the upper containers: 1 Pa - 1 Pa

Test Device
Radon detectors TSR-4 of the TERA system (N17)

Measuring system with ionization chambers operating in current mode (N14)

Radon concentration measuring system RM-2 (N15)
Micrometer (N11)

Chemical Resistance – general guide only

Chemical	Good	Medium	Poor
Alkalis & salt solution	O		
Silage	O		
*Dilute Acid **	O		
Cooking Oil		O	
Transformer Oil		O	
Oxidising Agents			O
Organic Solvents			O

*(except oxidising acids e.g. nitric acid)

Packaging
15kg Metal pails, supplied individually or in pallet quantities.

Appearance
The liquid compound may exhibit a slight colour difference compared to the fully dried membrane, and shade variations can occur between production batches. Supplied as a viscous liquid with a consistency comparable to thick emulsion paint, the product cures to form a durable, semi-gloss membrane.

Health and Safety
For further information and advice, contact our Technical Department and consult the safety data sheet, which is available upon request or can be downloaded from our website.

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