



**Permaroof 500 Liquid Membrane application  
onto:-**

**Concrete**

Permaroof UK Ltd  
[www.permarroof.co.uk](http://www.permarroof.co.uk)  
[sales@permarroof.co.uk](mailto:sales@permarroof.co.uk)  
Tel: 0800 161 3722

## ***Substrate preparation for existing concrete***

Inspect existing concrete, brush any loose chippings, moss, mildew and remove. Existing flat areas must be clean, dry and free from any contaminants such as oil, grease and dust. Thoroughly clean and allow to dry. Remove all drain covers and clean outlets before applying the liquid coating.



Any small cracks and damaged areas can be repaired with matting embedded in a coat of liquid membrane (**AFTER PRIMING**). Any significant cracks to be filled using any approved polyurethane based mastic (**BEFORE PRIMER IS APPLIED**). **AVOID the use of silicone based mastics.**

## ***Priming the concrete substrate***

**PRIMER** is a mono-component, low viscosity, high solids content. It has been specifically designed to increase bonding and improve the surface levelling of the substrates prior to the application of the liquid membrane.

**PRIMER** can be applied with roller or brush straight out of the tin at a coverage rate of 150-200ml per sq. m. Tin size is 5ltr (therefore minimum coverage of 25 sq. m can be achieved).

**PRIMER** is translucent with excellent bonding onto porous surfaces. **IMPORTANT: If the surface to be treated is very uneven, apply an initial coat of PRIMER PU-1000 mixed with mineral fillings (ie silica sand) to level it.**

Tack time: 60 minutes (at 20°C) – Wait until completely dry before applying liquid membrane.

**PRIMER** must be used in all concrete, TPO, EPDM single ply and rubber outlets.

## ***Joints and splits***

Matting must be used on any joints, cracks or change of materials. Accelerated liquid membrane is applied to the surface, the matting is rolled into the membrane (until liquid membrane is drawn through), then another coat of liquid membrane is applied ensuring the matting is fully embedded.

This must be repeated on all relevant areas before the main flat roof area is covered. Joints must be lapped 50mm each side and on any change of material.

## ***Penetrations and outlets***

Penetrations through the roof are a typical source of water ingress. They are difficult to waterproof satisfactorily in traditional materials, but can easily be formed around such details with matting, again ensuring the matting is fully embedded in accelerated liquid membrane. If the detail is tight against the wall (like the picture below), it may be necessary to use a long handled (radiator) brush to enable access to the tight spots.



## ***Internal outlets***

Any internal outlets, apply the system into the pipe itself, ensuring that the junction between the waterproofing and the outlet pipe is encapsulated. This will ensure that if the outlet backs up, water cannot creep under the existing waterproofing and into the building.



## ***Perimeter upstands and flashings***

Before coating the main area, apply accelerated liquid membrane to perimeter upstands and dry roll the matting (until the liquid is drawn through), then apply another coat of liquid membrane ensuring the matting is fully embedded. This method is used to allow the required thickness to be applied (without slumping).

The liquid membrane is self-terminating if the brickwork is okay, strike a line with tape and coat up to it, no lead flashing is required. A termination bar similar flashing is required if the brickwork is in poor condition.

**These areas will be coated again when the main area of the roof is coated. Significant cracks must be filled using a polyurethane-based mastic.**

## ***Accelerating liquid membrane***



When first opening liquid membrane tins, the product must be stirred thoroughly ensuring any settlement at the bottom is mixed in. Accelerator is then added at the exact ratio of 110ml (of accelerator) per litre of liquid membrane (or 2Ltr/25kg tin or 500ml/6kg tin of liquid membrane) and mixed at a slow speed to avoid air entrapment/bubbles.\*

Make sure the accelerator and liquid membrane are thoroughly mixed together before applying (This should take a couple of minutes).

\*For measurements see chart at the end of this document.

### **PLEASE NOTE:**

You have approximately 20-30 minutes working time for mixed product. Only mix what you will use in this time, i.e., mix small tins for detail work, until you get familiar with the working time. Once applied the liquid membrane will be touch dry in 30-40mins.

**AVOID the use of silicone based mastics as they are not compatible.** In the presence of roof repair coatings on the roof, check compatibility with the liquid membrane before applying the product.

### **JOINTS AT ROOFLIGHTS**

If the rooflights have been coated with another roof system, the change of material also needs to be reinforced with the matting (as above), where it meets the liquid membrane.

## **Applying the liquid membrane**

Apply accelerated liquid membrane to the whole area of the roof in one layer using a solvent resistant roller. Liquid membrane is self-levelling, do not overwork the product, it's easier to work out the coverage for the mixed tin, pour and spread by roller. Product is to be installed at 1.8kg/m<sup>2</sup> evenly or a thickness of 1.4mm minimum.

Any big variation in levels should be reinforced to make sure the product is not applied too thin on raised areas (big variations in thicknesses will cause weak spots on any thin areas).

On completing inspect for any pinholes and apply another thin layer if required. Drying time is approx. 1-2 hours (depending on temperature and humidity). Application temperature range -5 °C to 35°C.

**Avoid a big difference in thickness in the product in close areas i.e., 1.4mm to 3mm. This may cause tensions in the product. In case of substrate irregularities, it is recommended to use the matting.**

In case of high pitch roofs, liquid membrane must be applied in 2 or 3 layers to avoid the product running or it can be applied in one layer with Permathix (Application of Permathix is described in a separate document).

## **TOPCOAT APPLICATION**

The use of Topcoat is recommended to increase UV stability, for trafficable areas or achieve longer guarantee.

Topcoat comes in two parts (4.3Lts + 0.7Lts drums) which must be mixed completely and applied at a ratio of 6-1 and yield 150grs per sq. m in one layer, to cover around 25sq. m per pack.

Topcoat must be applied no later than 48 hours after liquid membrane was applied and on a clean and dry surface.

Topcoat has a pot life of 2 hours and drying time once applied, of 2 hours. For car parks and high traffic areas 2 layers of Topcoat must be applied.

## **BALCONIES, WALKWAYS AND ANTI-SLIP SURFACES**

To achieve the desired surface, we have 3 options which need to be considered depending on the level of traffic and aesthetic required.

**Anti-slip beads.** Must be mixed with the mixed Topcoat and applied with a roller onto liquid membrane.

**Silica sand.** To be broadcasted onto the Topcoat to completely cover the area. Allow the Topcoat to dry and brush away the loose sand. For a stronger bonding, it is recommended to give an additional coat of Topcoat over the silica sand, once the first layer is completely dry.

**Mineral slate granules.** To be broadcasted onto the Topcoat to cover completely the area. Allow the Topcoat to dry and brush the loose granules. For a stronger bonding or higher gloss finish, it is recommended to give an additional coat of Transparent clear coating, over the slate granules, once the first layer is completely dry.

## LIQUID MEMBRANE IN VERTICAL SURFACES – PERMATHIX

When liquid membrane needs to be applied in vertical surfaces, Permathix will be used to facilitate application. Permathix will provide Thixotropic properties to liquid membrane which will allow it to be applied easily without runs.

Permathix comes in 1Lt tins and can be mixed up to 1Lt per 25Kg of liquid membrane. Usually adding 250ml per 25kg drum is enough to reach the desired consistency.

If no accelerator is used, liquid membrane must be applied in 2 layers of a maximum 1kg per layer.

When mixing accelerator and Permathix at the same time, the accelerator must be mixed first at the same ratio of 110ml per Litre of liquid membrane and later mixed with a maximum of 250ml of Permathix for 25kg drum or 60ml per 6kg tin.

### **General repairs on liquid membrane**

In case of damages caused to a liquid membrane roof, the system can be repaired very easily. It must be cleaned, gently sanded to open slightly the pore. Liquid membrane can be applied directly on top of the existing liquid membrane, **but always accelerated.**

In case of repairs to larger areas the use of matting it is recommended.

### **Use of Primer**

Liquid membrane has an excellent adhesion with most of substrates, metal, plywood, bitumen felt, lead, GRP systems and PVC single ply.

However when you are unsure of the substrate, it is important to check the compatibility with materials.

Primer must be used on concrete, TPO single ply and some other single plies with a different composition than PVC.

**PRIMER** is a mono-component, low viscosity, high solids content. It has been specifically designed to increase bonding and improve the surface levelling of the substrates prior to the application of the liquid membrane.

**PRIMER** can be applied with roller or brush straight out of the tin at a coverage rate of 150-200ml per sq. m. Tin size is 5ltr (therefore minimum coverage of 25 sq. m can be achieved).

**PRIMER** is translucent with excellent bonding onto porous surfaces.

**IMPORTANT: If the surface to be treated is very uneven, apply an initial coat of PRIMER mixed with mineral filings (i.e., silica sand) to level it.**

Tack time: 60 minutes (at 20 degrees Celsius) – Wait until completely dry before applying liquid membrane.

**Primer must be used in all concrete, TPO, EPDM single ply and rubber outlets.**

### **GREAT ADHESION TO MOST SUBSTRATES**

OSB/ plywood, GRP/ fibreglass systems, roofing felt, brickwork, metal, lead, asbestos and some single ply materials.

## Characteristics / Advantages

- Easy and quick application
- Cost effective – provides an expected cycle extension of failing roofs in excess of 25 years.
- Seamless membrane with over 600% elongation.
- Vapour permeable
- Resistant to extreme temperatures: -40°C to 80°C

PROPERTIES	VALUES
Specific gravity (kg/m <sup>3</sup> )	1.320 ~ 1.420 (ISO 1675)
Dry extract at 105°C (% weight)	>90 (EN 1768)
Ashes at 450°C (% weight)	42 ~ 47 (EN 1879)
Application temperature range	-5°C ~ 35°C
<b>Storage recommendation</b>	1 year at temperature +5°C ~ 35°C
Resistance to water vapour transmission (g/m <sup>2</sup> * hour)	0,8
Tensile Strength (at 23°C) (N/mm <sup>2</sup> – MPa)	5 ~ 7
Concrete adherence (N/mm <sup>2</sup> – MPa)	>2
Hardness	>75 (Shore A)
Drying time	30 mins tack free, 1 ~ 2 hours (depending on temperature and humidity), 4 hours trafficable. Fully cured 24hrs
Recoat Time	From 2 hours to 24hrs
Yield	1.5 to 2kg/sqm min 1.4mm Maximum in 1 layer 2kg
Elasticity (at 23 °C)	±600% ~ ±750%

*PLEASE NOTE: Temperature and humidity conditions may affect the curing times.*

*Work out the area you will cover with the 27kg tin of mixed product (please check coverage rates for different guarantees available), do not spread the product too thin.*

*Packaging Available: 25kg and 6Kg drums liquid membrane + 2Lts & 500ml accelerator.*

*In case of accidental damage to the Permaroof 500 liquid membrane waterproofing system, it can be repaired easily by using a piece of matting, embedded in liquid membrane.*

## ***Liquid membrane accelerator chart***

<b>LIQUID MEMBRANE QUANTITY FULL TINS</b>	<b>LIQUID MEMBRANE QUANTITY IN LTRS</b>	<b>ACCELERATOR IN LTRS</b>
<b>25kg drums 6kg drums</b>		<b>2 litres – full tin Full small tin</b>
	<b>5 litres</b>	<b>550ml</b>
	<b>4 litres</b>	<b>440ml</b>
	<b>3 litres</b>	<b>330ml</b>
	<b>2 litres</b>	<b>220ml</b>
	<b>1 litre</b>	<b>110ml</b>

**\*Mix thoroughly on slow speed to ensure accelerator is mixed with liquid membrane completely**