STIRLING LLOYD

PERMARE® EP

Primary & Secondary Containment Waterproofing Membrane

Product Description

PERMARE® EP is a two component, seamless liquid system which combines the features of both epoxies and polysulphides to produce a coating with outstanding physical properties. The material cures to produce a tough, flexible coating especially suited to applications where abrasion and chemical resistance is required.

Product Uses

PERMARE® EP is designed to retain, exclude or protect structures from water (including sea water), oils, fuels and many aggressive chemicals. Typical applications include:

- Storage tanks and silos
- Sewage treatment processes including sludge tanks, drop manholes & benching, effluent trenches and channels.
- Secondary containment - bund lining or earthen containment bunds (using a fabric carrier for the coating)
- Petrochemical Industry
- Concrete, masonry, asphalt or steel substrates requiring a chemical and/or abrasion resistant coating
- Floor protection in industrial environments (the addition of an aggregate overscatter provides a slip resistant finish)
- Silage units
- Canals and culverts
- Sea water applications
- Above or below ground applications

Product Features

- Excellent chemical, abrasion and impact resistance
- Good low temperature flexibility
- Low gas permeability
- Excellent UV and weather resistance
- Does not contain solvents
- Liquid applied - providing a seamless coating
- Can accommodate difficult surface profiles and shapes
- High bond strength to substrate
- Two component, colour coded system to ensure homogeneous mixing on site

- Long and effective life
- On site quality assurance programme
- Applied only by authorised and trained contractors

Technical Data

PROPERTY	VALUE
Application Temperature Range[1]	5 – 50°C
Maximum Humidity During Application	85%
Working Life (Typical)[2] (Material Temperature)	
@ 50°C	15-25 mins
@ 40°C	20-30 mins
@ 30°C	30-40 mins
@ 20°C	60-70 mins
@ 10°C	75-85 mins
Minimum Overcoating Time[3] (Ambient Temperature)	
@ 50°C	4 hrs
@ 40°C	8 hrs
@ 30°C	16 hrs
@ 20°C	21 hrs
@ 10°C	29 hrs
@ 5°C	33 hrs
Typical Tensile Strength (BS903: A2:1995) @ 23°C	6.5 MPa
Typical Elongation at Break (BS903: A2:1995) @ 23°C	35%
Adhesion to Substrate (BS EN ISO 4624: 2003)	
Steel	> 2 MPa
Concrete	> 1 MPa
Hardness (Shore D) (BS2782: Pt 3: Method 365B: 1992 ISO 868: 1985)	55
Water Vapour Transmission Rate (1mm coating. ASTM E96-80)	0.8-1.3g/m^2/day

Water Vapour Resistivity (x105MNs/g) (ASTM E96-80)	1.6 - 2.6
Petrol Transmission Rate (ASTM E96-80)	Zero
Abrasion Resistance: (ASTM D1044-85, CS-17 wheel, 500g load)	
100 cycles	30 - 35 mg
500 cycles	80 - 95 mg
1000 cycles (1000g load)	94 mg
Low Temperature Flexibility (0.25 mm coating) (ASTM D3111-88)	Pass at -26°C

For information about the chemical resistance of PERMARE® EP please consult our Technical Services Department.

Surface Preparation

It should be stressed that the success of any waterproofing system is dependent on the thoroughness of the surface preparation.

Concrete

New concrete substrates should be a minimum of seven days old. The substrate must be clean, dry and structurally sound.

[1] For temperatures outside this application range please contact our Technical Services Department.
[2] PERMARE® EP may be applied when the ambient temperature is below 10°C though the material may require heating to facilitate good mixing and ease of application. For further information please contact our Techncial Services Department.
[3] Minimum overcoating time is based on good air circulation. This may increase in enclosed situations.

It must be free from laitance, oils and all other surface contaminants. Repairs to damaged concrete can be made using METASET® Rapid Repair Mortar.

Steel

On steel surfaces all rust, dirt and contamination should be removed to expose bright metal to achieve a surface finish to comply with Swedish standard Sa 2.5.

If existing coatings are present, ensure that they are firmly adhered to the substrate. If the bond is unsatisfactory, the existing coatings should be removed back to a sound surface. It may be necessary to check the compatibility of the existing coating with PERMARE® EP.

For compatibility with other construction materials or where additives, cement replacement or curing compounds have been used please consult our Technical Services Department.

Application

Primer

Primer is not usually required however under certain circumstances it may assist application.

For excessively porous concrete substrates an appropriate GCP primer may be used to seal the substrate prior to application of the PEMARE® EP membrane.

Alternatively a thin coat of render applied after the preparation stage would be an economical and effective method of filling the imperfections and sealing the surface pores of the concrete. Steel substrates may be primed using ZED S94 to prevent corrosion.

The choice of primers will be dependent on the substrate type and weather conditions. Please consult the appropriate datasheets or our Technical Services Department for advice.

Mixing

PEMARE® EP is a two-component system, supplied in pre-weighed quantities ready for on-site mixing.

To ease application we recommend that the material is warmed to between 15°C and 25°C.

Settlement may occur during storage and transportation; prior to use each component should be stirred separately using a mechanical stirrer, such as an air-driven drill (400-800rpm) and paddle. The contents of each component (Part A & B) should then be combined together and stirring continued until the two components are fully mixed and a uniform colour is produced.

Membrane

The membrane is applied in two coats.

PEMARE® EP can be applied by spray, brush or short fleece roller to give a minimum measured wet film thickness of 0.5mm per coat.

When applying by brush or short fleece roller apply the mixed material to the substrate in even strokes, ensuring that an even thickness of material is applied. The direction of the application strokes should alternate from a vertical to horizontal movement during application.

When spray applying use a plural component unit with in-line heaters. For further details, please contact our Customer Services Department.

Allow the first coat to become ‘tack-free’ before application of the second coat.

Slip Resistant Membrane

Where a waterproof slip-resistant finish is required, the first coat of PEMARE® EP should be applied to give a minimum wet film thickness of 0.75mm, which will require a minimum coverage rate of 0.9kg/m^2. Allow the first coat to become 'tack-free' before application of the second coat.

The second coat should be applied to give a minimum wet film thickness of 0.5mm which will require a minimum indicative coverage rate of 0.6kg/m^2. This should then be broadcast, until refusal, with a suitable aggregate before the coating cures. In heavily trafficked applications the addition of a sealer coat will enhance long-term aggregate retention.

For information on recommended aggregates and sealers please consult our Technical Services Department.

Coverage

Standard Application: 0.3kg/m²/coat (to give a 0.25mm thick coat)

Aggressive Environment[4]: 0.6kg/m^2/coat (to give a 0.5mm coat)

This coverage rate is based on a smooth substrate. The required coverage rate will vary with surface texture and porosity.

Colours

PEMARE® EP is available in Dark Grey[5]. Other colours are available subject to minimum order quantities.

Cleaning

All tools and equipment should be cleaned with GCP Solvent No.1 before the material is allowed to cure.

Packaging & Storage

Available in 20kg and 420kg kits.

All components of the PEMARE® EP system should be stored in cool, dry, protected conditions, out of direct sunlight and in accordance with the relevant site Health & Safety regulations. Long term storage temperatures must not exceed 25°C. Stored in unopened containers, under the correct conditions, the components have a shelf life of twelve months.

Ancillaries

GCP produces a range of products to complement the PEMARE® EP system. These include:

- METASET® ResiFilla – a range of rapid curing concrete repair and levelling compounds.
- SENTINEL® – a range of Expansion Joints
- SAFETRACK® Sealants – a range of flexible sealants for all joints and cracks.
- PERMARE® Reinforcement Scrim

Health & Safety

Please refer to our safety datasheets for further information.

General Information

PERMARE® EP is part of a wide range of specialist waterproofing, surfacing and repair materials manufactured and supplied by GCP If you require any further information on this or any other of our products, please contact our Customer Services Department or visit www.gcpat.com

[4] Where the membrane is in constant contact with aggressive materials or gases e.g. drop manholes,
[5] The colour of PERMARE® EP may change under UV light, although there is no adverse effect on the membrane's physical properties.

ISOQAR REGISTERED
UKAS MANAGEMENT SYSTEMS 0026
Certificate Number 15174
ISO 9001, ISO 14001

GCP Applied Technologies Inc., 62 Whittemore Avenue, Cambridge, MA 02140 USA.

GCP Applied Technologies (UK) Limited, 580-581 Ipswich Road, Slough, Berkshire, SL1 4EQ, UK

This document is only current as of the last updated date stated below and is valid only for use in the United Kingdom. It is important that you always refer to the currently available information at the URL below to provide the most current product information at the time of use. Additional literature such as Contractor Manuals, Technical Bulletins, Detail Drawings and detailing recommendations and other relevant documents are also available on www.gcpat.uk. Information found on other websites must not be relied upon, as they may not be up-to-date or applicable to the conditions in your location and we do not accept any responsibility for their content. If there are any conflicts or if you need more information, please contact GCP Customer Service.

Last Updated: 2020-01-20

gcpat.uk/solutions/products/permare-waterproofing-solutions/permare-ep