

CEMPROTEC E942

Epoxy and Polymer Modified Cementitious Coating

USES

CEMPROTEC E942 incorporates the benefits of copolymer and epoxy resin technologies into a water based cementitious system to give a hard, durable coating with excellent resistance to water, chloride ions, oxygen and aggressive chemicals. Can be used as a stand-alone anti-corrosion coating for ferrous metals as well as waterproofing and protection of concrete where enhanced chemical and abrasion resistance is needed.

ADVANTAGES

- Pre-packaged in convenient and easy to handle sizes, only requiring mixing on site.
- Unique blend of surfactants enables easy brush or spray application. Gel structure breaks down under shear to produce a smooth finish, which rapidly recovers to prevent sagging.
- Excellent abrasion and impact resistance. Resistant to a range of chemicals including hydrogen sulphide.
- Excellent adhesion to steel and cementitious substrates. Tolerant to lower levels of steel preparation.
- Hydrates to provide an alkaline environment which chemically reacts with the substrate to accelerate the passivation of steel and enhance the bond to concrete.
- Water-based product, cures without the release of hazardous solvents. Equipment easily cleaned with water.
- Dense matrix offers low permeability to water, even at 10 bar positive and negative pressure, and very high diffusion resistance to carbon dioxide gas and chloride ions.

COMPLIANCE

CE marked in accordance with BS EN 1504 Part 2. Compliant with LU Standard 1-085 'Fire Safety Performance of Materials'.

PRODUCT DESCRIPTION

CEMPROTEC E942 is a two component, water based, epoxy and polymer modified cementitious coating for the protection of concrete and ferrous metals. Advanced cement chemistry, microsilica, fibre, epoxy and styrene acrylic copolymer technology provide multi-functional protection with enhanced chemical resistance. Exhibits a high degree of thixotropy for easy application by brush or spray to give a smooth surface finish without sagging. Hydrates to a dense, highly alkaline coating with polymeric and resinous properties, offering low permeability to water and very high diffusion resistance to chloride ions and oxygen, to ensure long term protection. It is specially formulated to chemically accelerate the passivation of ferrous metals and give maximum adhesion to steel and concrete. Proven to be suitable for use in conjunction with cathodic protection systems at up to 95°C. Can be reinforced with **CEMPROTEC 2000-S** tape to accommodate movement around details. and over cracks and joints.



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| EN1504-2: Surface Protection Systems - Coating Protection Against Ingress (PIC) Rigid Trafficked System | |
| Compressive Strength: | Class II ≥ 50 MPa |
| Permeability to CO ₂ : | Equivalent to 100mm of concrete |
| Permeability to Water Vapour: | Class I < 5 m |
| Capillary Absorption: | Class III $< 0.1 \text{ kg/m}^2 \cdot \text{h}^{-0.5}$ |
| Coefficient of Thermal Expansion: | $\leq 30 \times 10^{-6} \text{ K}^{-1}$ |
| Thermal Compatibility EN 13687-1: | > 2.0 MPa |
| Adhesive Bond: | ≥ 2.0 MPa |
| Dangerous Substances: | Complies with 5.4 |
| Reaction to Fire: | Euroclass A2-s1, d0 |

TECHNICAL DATA

| | |
|---------------------------|------------------------|
| Mixed Colour: | Grey |
| Mixed Density: | 1850 kg/m ³ |
| Application Thickness: | 2mm in 1-2 coats |
| Application Temperatures: | 5°C to 35°C |
| Working Life (Approx): | 30 minutes at 20°C |
| Drying Time: | 2-3 hours |

MECHANICAL CHARACTERISTICS (TYPICAL)

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|---------------------------------|---|
| Compressive Strength: | BS 4551 Tested at 20°C |
| 1 day | 5-10 MPa |
| 7 days | 30-40 MPa |
| 28 days | 50-60 MPa |
| Flexural Strength: | BS 4551 Tested at 20°C |
| 28 days | 11-14 MPa |
| Adhesive Strength: | Concrete > 2 MPa Steel > 3 MPa |
| Water Permeability Coefficient: | DIN 1048 - Part 1 $1.43 \times 10^{-17} \text{ m/sec}$ ie. 2mm E942 = 6000mm of typical concrete |
| Oxygen Diffusion Coefficient: | Taywood Test $D_{O_2} = 4.42 \times 10^{-5} \text{ cm}^2 \cdot \text{s}^{-1}$ |
| Cathodic Disbondment: | 25°C (ASTM G8) Pass 95°C (ASTM G42 Mod.) Pass |

APPLICATION DATA

Application Guide available on request.

PREPARATION

The areas to be treated must be free from all unsound material, i.e. dust, oil, grease, corrosion by-products and organic growth. Concrete should have a minimum strength of 20 MPa and surfaces should be cleaned to remove release agents, curing compounds and surface laitance, preferably using wet grit or water blasting techniques or equivalent approved methods. For maximum durability, steel should be cleaned back to bright metal, ideally to Sa2½ as defined in BS 7079: Part A1/ISO 8501 (SSPC.SP10) using an angular grit to achieve a surface profile of 75-110 microns. For marine structures, ultra high pressure jetting at circa 20,000psi is effective. Where environmental constraints preclude blast cleaning, lower forms of preparation are acceptable providing all loose oxides are removed. Hand held power tools capable of achieving the necessary preparation can be used. Metal prepared in this way should be to minimum standard of St 3 as defined in BS 7079: Part A1/ISO 8501 (SSPC.SP3). Arrises and welds should be ground to remove sharp edges.

PRIMING

- Steel:** **CEMPROTEC E942** is self-priming and requires direct contact with the steel to afford maximum corrosion protection.
- Concrete:** The prepared substrate should be thoroughly soaked with clean water until uniformly saturated without any standing water. All floor and deck applications must be primed with **CEMPROTEC EF PRIMER**.

MIXING

Mix using a drill and paddle specially designed to entrap as little air as possible. Shake Part A (liquid), pour into a suitable mixing vessel and slowly add the Part B (powder). Mix for a minimum of 5 minutes until homogeneous. The bottles of liquid and bags of powder are **not** to be split.

DETAIL WORK

On steel, apply a 1mm stripe coat of **CEMPROTEC E942** by brush to all welds, cut edges and fixings, e.g. Nuts and bolts. On welds and cut edges, embed **CEMPROTEC EDGE SCRIM**. Over joints, large cracks, etc, in concrete, apply a 1mm stripe coat of **CEMPROTEC E942** by brush and immediately embed **CEMPROTEC 2000-S**. Allow to stabilise before proceeding. Please consult separate Technical Data Sheet.

PLACING

CEMPROTEC E942 is ideally suited to brush application, although spray techniques should be used in large areas. Care must be taken to ensure that air is not entrapped into the surface.

Apply the first coat, approximately 1mm thick, onto the prepared substrate. To ensure total protection, a second coat should be applied in the same way, after waiting approximately 60 minutes (depending on temperature) when the first coat is stable but not fully cured (maximum 7 days).

Carefully check on completion for pinholes and misses and spot treat where necessary. The total finished coating must be at least 2mm thick to provide complete protection. When treating structures in a tidal zone, **E942** should be applied in a single 2mm layer to avoid inter-coat contamination. **E942** must be allowed to cure for a minimum of 2 hours before being immersed.

CURING

Normal procedures relating to curing of cementitious products should be strictly adhered to. It is important that the surface of the coating is protected from strong sunlight and drying winds with **FLEXCRETE CURING MEMBRANE WB**, polythene sheeting or similar. Curing **must** commence within 10-15 minutes of the completed application of the coating.

CLEANING

All tools should be cleaned with water immediately after use.

SHELF LIFE

12 months in dry, frost free conditions with unopened bags stored at 20°C.

PACKAGING AND COVERAGE

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|------------|---|---|
| Pack Size: | 15kg | 30kg |
| Yield: | 8.1 litres per 15kg bucket | 16.2 litres per 30kg pack |
| Coverage: | 4m ² at 2mm thickness per 15kg | 8.1m ² at 2mm thickness per 30kg |

SAFETY DATA

Safety Data Sheet available on request.

The information herein is correct to the best of our knowledge, but it does not necessarily refer to the particular requirements of the customer. If the customer has any particular requirements it should make them known in writing to Flexcrete Technologies Limited, and obtain further advice accordingly.



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