

DATA Sheet



CEMPROTEC E942

USES

CEMPROTEC E942 is a major advancement in coating technology incorporating the benefits of copolymer and epoxy resin technologies into a water based cementitious system. These chemically combine to give a hard, durable coating with excellent resistance to water, chloride ions, oxygen and aggressive chemicals for the protection of steel and concrete in the most demanding environments.

ADVANTAGES

SIMPLE:	Materials are pre-packaged in a convenient and easy to handle size, requiring only mixing on site.
THIXOTROPIC:	A 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.
RESISTANT:	Excellent abrasion and impact resistance. Very high resistance to a wide range of aggressive chemicals.
ADHESIVE:	Excellent adhesion to steel and cementitious substrates. Tolerant to lower levels of steel preparation.
SELF PRIMING:	Hydrates to provide an alkaline environment which chemically reacts with the substrate to accelerate the re-passivation of steel and enhance the bond to concrete.
SAFE:	Water-based product which cures without the release of hazardous solvents. Equipment easily cleaned with water.
LOW PERMEABILITY:	Dense matrix offers low permeability to water, even at 10 bar pressure, and very high diffusion resistance to chlorides and oxygen.

PRODUCT DESCRIPTION

CEMPROTEC E942 is a two component, water based, epoxy and cementitious modified polymer coating for the protection of concrete and ferrous metals. It incorporates advanced cement chemistry, microsilica, fibre, epoxy and styrene acrylic copolymer technology to provide multi-functional protection with enhanced chemical resistance. When mixed, it exhibits a high degree of thixotropy to enable ease of application by brush or spray techniques and gives a smooth surface finish with no sagging even in vertical situations. It hydrates to form a dense, highly alkaline coating, exhibiting both polymeric and resinous properties, which offers low permeability to water and provides 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 temperatures upto 95°C.

TECHNICAL DATA

Basis:	Cement and epoxy modified, styrene acrylic copolymer.
Mixed Colour:	Grey, Charcoal Black and White.
Mixed Density:	1850kg/m ³ .
Min. Application Temp.:	5°C.
Max. Application Temp.:	35°C.
Working Life:	30 minutes at 20°C.
Drying Time:	2-3 hours.
No. of Coats Required:	Normally two at 1mm thickness.

MECHANICAL CHARACTERISTICS (TYPICAL)

Compressive Strength:	BS 4551 Tested at 20°C
1 day	5-10N/mm ² .
7 days	30-40N/mm ² .
28 days	50-60N/mm ² .
Flexural Strength:	BS 4551 Tested at 20°C
28 days	11-14N/mm ² .
Adhesive Strength:	2N/mm ² (concrete). 3N/mm ² (steel).
Water Permeability Coefficient:	DIN 1048 Part 1 1.43 x 10 ⁻¹⁷ m/sec. i.e. 2mm E942 = 6000mm of typical concrete.
Oxygen Diffusion Coefficient:	Taywood Test D _{O2} = 4.42 x 10 ⁻⁵ cm ² s ⁻¹ .
Chloride Ion Diffusion (851):	Taywood Test No steady state of flux of chloride ions after a test period of over 15 years.
Fire Properties:	BS 476 (Tested on 3mm thick mild steel)
Part 6	I ₁ = 0 I = 2.1
Part 7	Class 1
Parts 6 & 7	Class 0

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. Smooth surfaces should be roughened and all loose rust, scale and surface laitance removed using blast cleaning techniques. 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. 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, such as needle gunning, 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. Please contact our Technical Department for further advice.

Concrete

The prepared substrate should be thoroughly soaked (preferably 24 hours before) with clean water until uniformly saturated without any standing water. Highly porous substrates may require sealing with either **POLYMER ADMIXTURE 850** or **BONDING BRIDGE 842**.

MIXING

Pour the contents of one of the bottles marked Part A into a suitable mixing vessel. Slowly add one of the packs marked Part B and mix for a minimum of 5 minutes until homogeneous. The modules must be mechanically mixed using a drill and paddle specially designed to entrap as little air as possible. Repeat with the second containers of Parts A and B provided.

PLACING

On steel, apply a 1mm stripe coat of **CEMPROTEC E942** by brush to all welds, cut edges and fixings, e.g. nuts and boltheads. On welds and cut edges, embed **CEMPROTEC EDGE SCRIM**. Allow to become stable, approximately 60 minutes – depending on temperature.

CEMPROTEC E942 is ideally suited to brush application, although spray techniques should be used in large areas. Please contact our Technical Department for details on suitable spray equipment. 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). To assist application and to act as a guide to coverage rates, we recommend that two colours of **E942** be used, i.e. white over grey.

Carefully check on completion for pinholes and misses and spot treat where necessary. The total thickness of the 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. The **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**, polythene sheeting, damp hessian or similar.

CLEANING

All tools should be cleaned with water immediately after use.

STORAGE

Store in dry, frost free conditions at moderate temperatures not greater than 25°C.

SHELF LIFE

12 months with unopened containers under the above conditions.

PACKAGING AND COVERAGE

Pack Size: 25kg. Consisting of 2 x 12½kg composite packs.

Yield: 13.5 litres per 25kg pack.

Coverage: 1.85kg/mm/m². Each 12½kg composite pack at 1mm thickness will cover 6.75m².

IMPORTANT NOTES

Experience has shown that condensation can form on surfaces treated with **E942**, particularly in cold conditions which will cause a darkening and may retard the setting. Although the **E942** can be applied to damp substrates care must be taken to remove standing water, particularly condensation which may form on metal surfaces.

SAFETY DATA

Safety Data Sheet available on request.

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Flexcrete Technologies Limited

Tomlinson Road • Leyland • Lancashire
• PR25 2DY • England

Tel: +44 (0) 845 260 7005 • Fax: +44 (0) 845 260 7006

e-mail: info@flexcrete.com

www.flexcrete.com

