Cemprotec E-Floor

Epoxy and Polymer Modified Cementitious Flooring System: 2mm

Product Overview

Two component, epoxy and polymer modified cementitious coating for the protection of concrete floors. CE-marked in accordance with BS EN 1504-2 and BS EN 13813.

Uses

Protection of concrete floors and decks subject to trafficking in demanding internal and external environments. Suitable for surface protection systems principles 2.2, 5.1, 6.1,8.2 as defined in BS EN 1504-2.

Advantages

- Pre-packaged material only requiring mixing on site.
- A unique blend of surfactants gives high flow to enable fast and easy application.
- Excellent abrasion and impact resistance. Very high resistance to a wide range of aggressive chemicals.
- Can be applied without risk of osmotic blistering to 'green' concrete, wet substrates or floors with no effective waterproofing membrane.
- Excellent adhesion to dry or damp cementitious substrates.
- Hydrates to give high early strength, enabling rapid reinstatement of traffic.
- 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 chlorides and oxygen.
- Easily treated with resin coatings or overlayed with wood flooring, carpets or tiles.

Description

CEMPROTEC E-FLOOR is a two component, water-based, epoxy and polymer modified cementitious coating for the protection of concrete floors. It exhibits a high degree of flow for easy application by pouring or pumping techniques to give a smooth surface finish.

CEMPROTEC E-FLOOR cures to form a dense, hard-wearing durable coating offering low permeability to water and providing very high chemical and abrasion resistance to ensure long-term protection. It can be reinforced with **CEMPROTEC 2000-S** tape to accommodate movement over cracks and around joints where further movement is expected.

Compliance

- CE-marked in accordance with BS EN 1504 Part 2. Suitable for surface protection systems principles 2.2, 5.1, 6.1,8.2 as defined in BS EN 1504-2.
- CE-Marked in accordance with BS EN 13813 class CT-C50-F10-AR0,5.
- Compliant with LU Standard 1-085 'Fire Safety Performance of Materials'.

Specification Clause

The protective coating to concrete floors shall be a 2-component epoxy and polymer modified cementitious coating CE-marked in accordance with BS EN 1504-2 and comply with the following performance specification:

- Impermeable to water under 10 bar hydrostatic positive and negative pressure
- Can be applied to "green" concrete.

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EN1504-2: Surface Protection Systems - Coating
Moisture Control (MCC) Rigid Trafficked System

Compressive Strength	:	Class II ≥ 50 MPa
Adhesive Bond	:	≥ 2.0 MPa
Water Vapour Permeability	:	Class I < 5m
Coefficient of Thermal Exp.	:	≤ 30 x 10^{-6} K^{-1}
Therm. Comp. EN 13687-1	:	> 2.0 MPa
Capillary Absorption	:	Class III < 0.1 $kg.m^{-2}.h^{-0.5}$
Dangerous Substances	:	Complies with 5.4
Reaction to Fire	:	Euroclass $A2_{FL}$-s1

Technical Data / Mechanical Characteristics

Property	Standard	BS EN 1504-2 Requirement	Result
Compressive Strength	EN 12190	≥ 50 MPa (Class II)	28 days: 54 MPa
Compressive Strength Development @ 20°C	BS4551		4 hours 8.0 MPa 7 days 33.5 MPa 1 day 18.0 MPa 28 days 55.0 MPa
Flexural Strength	EN196-1		28 days: >12 MPa
Adhesive Bond	EN 1542	≥ 2.00 MPa	3.36 MPa
Water Vapour Permeability (Equivalent Air Layer Thickness)	BS EN ISO 7783-2	Class I S_D ≤ 5m	S_D = 1.12m
Thermal Compatibility	EN13687-1	≥ 2.00 MPa	3.10MPa
Water Permeability Coefficient Equivalent Concrete Thickness	Vinci Test		1.12 x 10^{-16} m/sec after 7 days' cure. 2mm = 2310mm of concrete
Resistance to Water Pressure	DIN 1048		10 bar (100m hydrostatic head) positive and negative.
Wear Resistance	EN13813		Exceeds AR0,5: Highest classification of wear resistance
Liquid Water Transmission Rate (Capillary Absorption and Permeability to Liquid water)	EN1062-3	Class III w< 0.1 kg.m^{-2}.$h^{-0.5}$	w = 0.073 kg.m^{-2}.$h^{-0.5}$
Coefficient of Thermal Expansion	EN1770	≤ 30 x 10^{-6} K^{-1}	23.7 x 10^{-6} K^{-1}
Surface Resistance	BS2050	0.05-100MΩ Antistatic flooring	60 MΩ
Application Thickness			2mm in 1 coat
Reaction to Fire	EN 13501-1	Euroclass	Euroclass $A2_{FL}$ – s1
Mixed Colour			Grey
Mixed Density			1850 kgs/m³
Minimum Application Temp Maximum Application Temp			5ºC 35ºC
Working Life (approx.)			30 minutes at 20ºC
Drying Time			30 minutes at 20ºC
Finishing Time			Within 10 minutes of placing

The properties given above are obtained from laboratory tests: results obtained from on-site testing may vary according to site conditions.

Application Instructions

Preparation

The areas to be treated must be free from all unsound material, i.e. surface laitance, dust, oil, grease, organic growth or previous surface treatments, and smooth surfaces should be roughened. This is best achieved using totally enclosed shot blasting equipment, scarification, scabbling or grinding. Areas still exhibiting signs of oil, grease, etc. must be treated with a proprietary degreasant. In instances of heavy contamination, it may be necessary to use hot compressed air equipment, flame spalling or steam cleaning techniques. All debris should be removed to leave a thoroughly clean, dust free, open textured surface. Concrete should have a minimum strength of 20MPa.

Priming of Concrete

The prepared substrate, including **CEMPROTEC E-FLOOR HB** or any previous coats of **E-FLOOR**, should be thoroughly soaked with clean water until uniformly saturated without any standing water. To prevent out-gassing, the substrate should be sealed with **CEMPROTEC EF PRIMER**, at a typical coverage rate of 5m²/litre. Allow to become transparent, typically 1-3 hours, dependent upon climatic conditions, before proceeding.

Mixing

CEMPROTEC E-FLOOR is supplied as a two pack, Part A liquid and Part B powder. **The two components MUST NOT be split. All of Part A and all of Part B MUST be mixed.**

Shake Part A (liquid) and pour into a suitable mixing vessel. Slowly add the Part B (powder) and mix for a minimum of 5 minutes until homogenous, without any lumps. Mixing should be carried out using a slow-speed drill and paddle designed to entrap as little air as possible.

Please Note: It is vital to the success of the application that these instructions are strictly adhered to.

Flexcrete cannot be held responsible for any product failures due to incorrect mixing.

Joints

All formed joints in the existing floor or deck **MUST** be continued through into the new coating. Over construction joints and 'live' cracks, **E-FLOOR** should be reinforced with **CEMPROTEC 2000-S** using **CEMPROTEC E942** as the embedment material. Please consult separate Technical Data Sheet for further information.

Placing

CEMPROTEC E-FLOOR should be poured or pumped onto the prepared surface and spread to a minimum thickness of 2mm with a squeegee or pin leveller.

Roll the surface with a spiked roller to remove entrapped air and to ensure a dense finish. Care must be taken to ensure a minimum 2mm thickness is achieved.

To enhance the skid and abrasion resistance of the finished **E-FLOOR**, immediately broadcast **CEMPROTEC EF GRIT** into the surface ensuring that the particles are distributed evenly without disrupting the smooth surface of the coating.

Allow to cure for a minimum of 4 hours before removing any excess sand, which may be sieved and re-used.

Apply **CEMPROTEC SANDSEAL** with a roller at 5m²/litre. Finishing must be completed within the working life of the material and no later than 10 minutes after placing. Allow to cure for a minimum of 4 hours before subjecting the application to light foot traffic.

Curing

Normal procedures relating to curing of cementitious products should be strictly adhered to. The surface must be protected from strong sunlight, drying winds and high air movements, to prevent skinning during placing and rapid drying out in the plastic state. On unsanded finishes the coating must be cured using **FLEXCRETE CURING MEMBRANE WB**, taking care to avoid overspray onto surfaces yet to be treated.

Cleaning and Storage

All tools should be cleaned with water immediately after use.

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

Packaging

CEMPROTEC E-FLOOR is supplied in 30kg composite packs.

Yield and Coverage

16.2 litres per 30kg pack.

A 30kg composite pack covers 8.1m² at 2mm thickness (1.85kg/mm/m²).

Health and Safety

Safety Data Sheets are available on request.

Application Top Tips

1. Keep the wet edge live with a steady supply of mixed material and regular spike rollering.

2. Regularly clean and dry spiked rollers to avoid material build-up.

3. Use spiked shoes during application to avoid disturbing the coating.

4. Regularly check the coating thickness during application using the Flexcrete wet film thickness gauge.

5. Care should be taken during application to ensure that air is not entrapped into the surface.

6. Fresh material can be joined up to existing hardened material using a simple butt joint. Apply tape to the hardened material and apply fresh material up to it. Remove tape whilst wet to leave a neat edge.

7. In cold, humid conditions condensation may form on surfaces treated with **CEMPROTEC E-FLOOR**, resulting in darkening of finish and retardation of set.

8. Enhance adhesion of subsequent high build decorative/tiled finishes by broadcasting **CEMPROTEC EF GRIT** fine into the freshly laid material.

9. Cure for a minimum of 72 hours before overcoating or applying tiled finishes.

10. Apply **CURING MEMBRANE WB** as an even, fine mist spray. Do not over apply or allow to pond on the surface or cracking may occur.

11. When broadcasting **CEMPROTEC EF GRIT** use techniques so that the particles are thrown upwards and fall evenly without disrupting the smooth surface of the coating. Use a grit blower on larger areas.

12. Cold Weather Working (See separate Guide)

- ≥3ºC on a rising thermometer.
- ≥5ºC on a falling thermometer.

13. Hot Weather Working (See separate Guide)

- Store material in cool conditions to maximise working life.
- Shade applied material from strong sunlight.
- Spray apply a second coat of **CURING MEMBRANE WB**.
- If possible, avoid extreme temperatures by working at night.

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