

Cemprotec 851F

Waterproofing and Protection of Concrete

Product Overview

Two component, flexible, polymer-modified, cementitious waterproof coating. CE-marked in accordance with BS EN 1504-2.

Uses

Internal and external waterproofing of concrete and other mineral substrates. Provides chloride protection on highway and coastal structures and enhances the durability of reinforced concrete by reinstating effective cover to achieve the specified design life.

Advantages

- Incorporates the latest proven cement chemistry, metakaolin, fibre and styrene acrylic copolymer technology.
- Pre-packaged material only requiring mixing on-site.
- Brush, trowel or spray applied normally in two coats. Roofs and decks only require a single coat application.
- Excellent adhesion to sound prepared concrete.
- Dense matrix offers low permeability to water at 10 bar positive and negative pressure and very high diffusion resistance to a carbon dioxide gas and chloride ions.
- Protects concrete in sulphate contaminated ground conditions.
- Non-toxic when cured and listed as authorised for use under Regulation 31 for use in the supply of drinking water.
- Easily overcoated with specialist membranes to provide further protection and aesthetic properties.

Description

CEMPROTEC 851F is a two component, thixotropic, polymer modified, cementitious waterproofing coating. It cures to form a durable, highly alkaline coating with a good degree of flexibility to protect concrete and other mineral substrates from the effects of water ingress, chlorides, and carbonation.

Compliance

- Listed under Regulation 31 – England and Wales: Regulation 33 – Scotland: Regulation 30 - NI: for use with potable water.

Specification Clause

The structural waterproofing coating shall be a two component, thixotropic, polymer modified cementitious coating. It shall be CE-marked in accordance with BS EN 1504-2, Protection against Ingress and shall be impermeable to water under 10 bar hydrostatic pressure such that a 2.0mm coating is equivalent to 16 metres of concrete.



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EN1504-2: Surface Protection Systems - Coating
 Protection against Ingress (PIC) Rigid trafficked system

Permeability to Water Vapour	: Class I < 5m
Capillary Absorption	: Class III < 0.1 kg.m ⁻² .h ^{-0.5}
Adhesive Bond	: ≥ 1.5 MPa
Static crack bridging	: Class A3
Dangerous Substances	: Complies with 5.4

Technical Data

Property	Standard	BS EN 1504-2 Requirement	Typical Results
Compressive Strength Development @20°C	BS4551		1 day 1.5MPa 7 days 12.5MPa 28 days 17.5MPa
Adhesive Bond	EN 1542	≥ 1.5 MPa	1.60MPa
Chloride Ion Diffusion Resistance	ASTM C-1202		485C Very Low penetrability category
Permeability to Water Vapour	BS EN ISO7783-2	Class 1: $S_D \leq 5m$	$S_D = 1.44$
Water Permeability Coefficient Equivalent Concrete Thickness	DIN 1048		$3.45 \times 10^{-18}m/sec$ 2mm = 16 metres of concrete @ 10bar
Resistance to Water Pressure	DIN 1048		10 bar (100m hydrostatic head)
Tensile Strength	BS 6319:7		2.3 MPa
Static Crack Bridging	BS EN 1062-7	Declared Class	A3 > 500µm (20°C) Air cure 680 µm
Liquid Water Transmission Rate (Capillary Absorption and Permeability to Liquid water)	EN1062-3	Class III (low) $w < 0.1kg.m^{-2}.h^{-0.5}$	$w = 0.018kg.m^{-2}.h^{-0.5}$
Mixed Colour			Off White
Mixed Density			1950 kg/m ³
Application Thickness			2mm in 1 or 2 coats
Minimum Application Temp			≥3°C on a rising thermometer ≥5°C on a falling thermometer
Working Life (approx.)			30 minutes at 20°C
Overcoat Time			30-90 minutes depending on temperature

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, dust, oil, grease, corrosion by-products and organic growth.

Smooth surfaces should be roughened, all loose material and surface laitance removed. Any defective concrete should be reinstated with the appropriate Flexcrete repair mortar.

The strength of the concrete sub-base should be a minimum of 20MPa.

The prepared substrate should be thoroughly soaked with clean water until uniformly saturated without any standing water.

Any active water infiltration must first be stopped using **FASTFILL WP**.

Priming of Concrete

Highly porous substrates may require sealing with **CEMPROTEC EF PRIMER**. All roof and deck applications must be primed with **CEMPROTEC EF PRIMER**. In drinking water applications, use **POLYMER ADMIXTURE 850** diluted with clean water (See separate Data Sheets for further information).

Mixing

CEMPROTEC 851F 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: These instructions must be strictly adhered to. Flexcrete cannot be held responsible for any product failures due to incorrect mixing.

Placing

CEMPROTEC 851F is applied using brush, trowel or spray techniques. Care should be taken to ensure that air is not entrapped onto the surface.

For vertical and overhead applications, apply in 2 x 1mm thick coats, applying the second coat when the first coat is stable but not fully set (typically 30-90 minutes depending on temperature). On horizontal applications (roofs or decks) apply in a single 2mm thick layer, spreading with a notched trowel, squeegee or skid leveller, and immediately use a spiked roller to remove entrapped air.

Detail Work

Where movement is anticipated around penetrations and over joints or cracks, apply a 1mm thick stripe coat of **CEMPROTEC 851F** by brush and immediately embed **CEMPROTEC 2000-S** tape. Allow to stabilise before proceeding with the main application.

Curing

Normal concreting procedures should be strictly adhered to. It is important that the surface of the coating is protected from strong sunlight and drying winds with **CURING MEMBRANE WB**. On roofs or decks, **CEMPROTEC EF GRIT** can be broadcast onto the surface of the wet coating to provide effective curing, whilst also providing an abrasion and slip-resistant finish. In exposed conditions, curing **MUST** commence immediately as work progresses.

Important Notes

1. **CEMPROTEC 851F** is not a decorative finish and may temporarily discolour until uniformly weathered. Can be overcoated with Flexcrete membranes to give a coloured finish.
2. When treating potable water structures please refer to the IFU Document (contact Technical Dept).

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 packaging bags at 20°C.

Packaging

CEMPROTEC 851F is supplied in a 30kg composite pack.

Coverage and Yield

15.4 litres per 30kg pack.

A 30kg pack will cover approximately 7.7m² at 2mm thickness.

Health and Safety

Safety Data Sheets are available on request.

Application Top Tips

1. Regularly check the coating thickness during application using a wet film thickness gauge.
2. Apply **CURING MEMBRANE WB** as an even, fine mist spray. Do not over apply or allow to pond on the surface as cracking may occur.
3. **CEMPROTEC 851F** is not a decorative coating and may dry with a patchy appearance until uniformly weathered. It can be overcoated with Flexcrete membranes to give a coloured finish.
4. When broadcasting **CEMPROTEC EF GRIT** use techniques so that the particles are projected upwards to fall evenly without disrupting the smooth surface of the coating. Use a grit blower on larger areas.
5. In cold, humid conditions condensation may form on surfaces treated with **CEMPROTEC 851F**, resulting in darkening of the finish and retardation of set.
6. Seal sanded surfaces with **CEMPROTEC SANDSEAL WB**.
7. Cold Weather Working (See separate Guide): minimum application temperatures:
 - Do not use any Part A which has been frozen.
 - **When applying to potable water structures the minimum application temperature is 7°C: see IFU document for full information.**
8. 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 mist coat of **CURING MEMBRANE WB**.
 - If possible, avoid extreme temperatures by working at night.

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 they should make them known in writing to Flexcrete Technologies Limited and obtain further advice accordingly.

