

Steel Reinforcement Protector 841

Reinforcement Corrosion Protection



Product Overview

Two component, polymer modified, cementitious coating for the anti-corrosion protection of steel reinforcement. CE-marked in accordance with BS EN 1504-7.

Uses

To protect steel reinforcement prior to the application of the relevant Flexcrete repair mortar. Suitable for Reinforcement Corrosion Protection Principles 11.1 and 11.2 as defined in BS EN1504-7

Advantages

- Brush applied in two coats with minimal inter-coat waiting time.
- Economic coating gauged as required to the correct consistency using the mixing kit provided.
- High alkalinity and corrosion inhibitors rapidly reinstate the passivating layer around reinforcement to give long term corrosion protection.
- Tolerant to lower levels of steel preparation.
- Dense matrix protects the steel from aggressive acid gases, moisture and chlorides.
- High insulation properties prevent further electrochemical corrosion.
- Produces a hard coating with a degree of elasticity.
- Excellent adhesion to steel ensures adequate pull-off resistance is achieved. Ideal for corrosion protection of steel reinforcement subjected to long term exposure on interrupted construction programmes.
- Non-toxic when cured.

Description

STEEL REINFORCEMENT PROTECTOR 841 is a two component, polymer modified, cementitious coating containing corrosion inhibitors which passivates and protects steel reinforcement. It forms a highly alkaline coating with a degree of elasticity which protects the steel from acid gases, moisture and chlorides.

Compliance

- CE-Marked in accordance with BS EN 1504-7. Suitable for Reinforcement Corrosion Protection Principles 11.1 and 11.2 as defined in EN1504-7
- BBA Approved, Certificate No. 05/4276.
- Listed under Regulation 31 – England and Wales: Regulation 33 – Scotland: Regulation 30 - NI Regulation 31 for use with potable water.

Specification Clause

The two component, corrosion prevention coating shall consist of a cementitious powder and a polymer dispersion and shall be CE-Marked in accordance with BS EN 1504-7. It shall be BBA Certified and comply with the following performance specification:

- Typical compressive strength of 32MPa and typical flexural strength of 10.5MPa.
- Impermeable to water under 10 bar hydrostatic pressure such that a 2mm coating is equivalent to 1000mm of concrete.
- Resistance to chloride ion diffusion in excess of 25 years in accordance with Taywood Test.
- Oxygen diffusion coefficient to be no greater than $5.24 \times 10^{-5} \text{ cm}^2/\text{sec}$.



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EN1504-7: Reinforcement Corrosion Protection

Shear Adhesion BS EN 15184 : Pass
Corrosion Protection BS EN 15183: Pass
Adhesive Bond : Pass
Dangerous Substances : Complies with 5.3



Technical Data / Mechanical Characteristics

Property	Standard	BS EN 1504-7 Requirement	Result
Compressive Strength	EN12190	-	>35 MPa: 28 Days
Shear Adhesion	EN 15184	Failure load of coated bars at 0.1mm displacement ≥80% of uncoated bars	112% of Control: Pass
Corrosion Protection	EN 15183	Coated area free from corrosion. Rust creep at ground edge <1mm	No corrosion on coated areas: Pass Rust creep at ground edge < 1mm: Pass
Water Permeability Coefficient Equivalent Concrete Thickness	DIN1045		6.00 x 10 ⁻¹⁶ m/sec 2mm of 841 =1000mm of concrete
Oxygen Diffusion Coefficient Equivalent Concrete Thickness	Vinci Test	-	DO ₂ =5.24 x 10 ⁻⁵ cm ² /s 2mm of 841 = 100mm of concrete
Chloride Ion Diffusion	Vinci Test	-	No steady state of flux after 28 years test period
Flexural Strength	EN196-1	-	7.0 MPa
Tensile Strength	BS 6319: 7	-	2.66 MPa
Mixed Density		-	1800 kg/m ³
Mixed Colour		-	Grey/green
Application Thickness			2 x 1mm coats
Min Application Temperature Max Application Temperature		-	5°C 35°C
Working Life (approx.)		-	60 minutes at 20°C

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

Application Instructions

Preparation

Reinforcement should be cleaned, preferably by the use of wet grit blasting to remove any loose rust or scale, back to a bright metal surface finish such as to Sa 2½, as defined in BS 7079: Part A1/ISO 8501 (SSPC.SP10) where possible. Alternatively, shot, water or equivalent blast cleaning techniques may be used.

If chlorides are absent from the concrete or environmental constraints preclude the use of blast cleaning, hand held power tools capable of achieving the necessary preparation can be used. Metal prepared in this way should be to St 2 or St 3 as defined in BS 7079: Part A1/ISO 8501 (SSPC.SP2 or SSPC.SP3).

Mixing

Mix as much **STEEL REINFORCEMENT PROTECTOR 841** to apply within the working life of the material. Place sufficient Component A (liquid) into a suitable mixing container and add the corresponding quantity of Component B (powder).

Initial Mixing Ratio:

Component B : Component A 3:1 by volume
Component B : Component A 4:1 by weight

Mix together thoroughly for 2-3 minutes to a lump free consistency. Smaller amounts are mixed by hand, and

larger amounts with a low speed electric mixer in order to entrap as little air as possible. The mixed materials should have a brushable, barely dripping consistency. If necessary, the consistency can be adjusted by the addition of one or other of the two components.

DO NOT ADD WATER OR OTHER MATERIALS TO THIS PRODUCT.

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.

Placing

Apply the first coat, by brush, onto the reinforcement as soon as possible, but no longer than 24 hours after preparation. Apply the coating to a thickness of approximately 1mm and ensure complete freedom from pin-holes, voids and misses. To give total protection a second coat must then be applied when the first is stable but not fully cured, typically 30-90 minutes (maximum 7 days). Inspect on completion then spot repair, if necessary, to ensure the reinforcement is fully protected by the dense, impervious and highly alkaline protective coating. Avoid overpainting onto the adjacent concrete.

Ideally within 2 to 6 hours (dependent upon ambient temperature) of application of the second coat, make good any areas of missing, spalled or removed concrete with the appropriate Flexcrete repair mortar.





Cleaning and Storage

All tools should be cleaned with water immediately after use.

STEEL REINFORCEMENT PROTECTOR 841 can be stored for 12 months in dry, frost free conditions with unopened containers at moderate temperatures not greater than 25°C.

Packaging

STEEL REINFORCEMENT PROTECTOR 841 is supplied in a 5kg composite pack.

Coverage

A 5kg pack applied in two coats is sufficient for approximately 45 linear metres of 10mm diameter steel bar.

Limitations

Do not use **STEEL REINFORCEMENT PROTECTOR 841** when the temperature is below 5°C and falling.

Health and Safety

Safety Data Sheets are available on request.

Application Top Tips

1. Regularly check the coating thickness during application.
2. Hold a piece of cardboard behind the reinforcement to prevent excess application onto the parent concrete.
3. Care should be taken during application to ensure that air is not entrapped into the surface
4. Ideal for the corrosion protection of steel reinforcement subjected to long term exposure on interrupted construction programmes.
5. Cold Weather Working (See separate Guide)
 - ≥3°C on a rising thermometer.
 - ≥5°C on a falling thermometer.
 - Do not use any Part A which has been frozen.
6. Hot Weather Working (See separate Guide)
 - Store material in cool conditions to maximise working life.
 - Shade applied material from strong sunlight.
 - 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 it should make them known in writing to Flexcrete Technologies Limited, and obtain further advice accordingly.



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