

Polymer Modified Cementitious Coating

FORMERLY FLEXCRETE CEMPROTEC E942

PRODUCT DESCRIPTION

A two component, water-based (VOC-free), epoxy and polymer modified cementitious coating for the protection of concrete and ferrous metals. It exhibits a high degree of thixotropy for easy application by brush or spray to give a smooth surface finish without sagging. It cures to form a dense, highly alkaline coating offering low permeability to water and very high diffusion resistance to chloride ions and oxygen, ensuring long-term protection.

INTENDED USES

Specifically designed for the structural waterproofing and protection of concrete substrates where improved chemical and abrasion resistance is required. Intercrete 4840 can be reinforced with Intercrete 4872 tape to accommodate movement of cracks and joints.

Intercrete 4840 offers low permeability to water at 10 bar positive and negative pressure along with excellent resistance to carbon dioxide gas and chloride ion diffusion.

It can also be used as a one or two coat, direct-to-metal corrosion protection system for suitably prepared steel substrates.

CE-marked in accordance with BS EN 1504-2. Suitable for surface protection systems principles 1.3, 2.2, 5.1, 6.1, 8.2 as defined in BS EN 1504-2.

PRACTICAL INFORMATION FOR INTERCRETE 4840

Colour	Grey
Gloss Level	Not applicable
Volume Solids	100%
Density	1850 kg/m ³ (115 lb/ft ³)
Typical Thickness	2000 microns (80 mils) dry
Practical Coverage	On prepared substrates, a 15kg pack will cover 4m ² per pack at 2mm thickness On prepared surfaces, a 30kg pack will cover approximately 8.33m ² at 2mm thickness. Practical coverage will depend upon the complexity and porosity of the area being coated and appropriate losses must be taken into consideration.
Method of Application	Airless Spray, Brush, Trowel, Skid Leveller
Shelf Life	12 months at 25°C (77°F).
Pack Size	15kg or 30kg composite packs
Working Pot Life	20°C (68°F) 30 minutes

Drying Time	Overcoating interval with self			
	Touch Dry	Hard Dry	Minimum	Maximum
20°C (68°F)	5 hours	18 hours ¹	45 minutes	7 days ²

¹ Applied at 2000µm (80 mils); may depend on weather conditions

² If the maximum overcoating interval is exceeded the surface must be thoroughly cleaned and saturated prior to overcoating.

COMPLIANCE AND CERTIFICATION

When used as part of an approved scheme, this material has the following certification:

- Suitable for surface protection systems principles 1.3, 2.2, 5.1, 6.1, 8.2 as defined in BS EN 1504-2.
- Compliant with LU Standard 1-085 'Fire Safety Performance of Materials'.



Protective Coatings

Polymer Modified Cementitious Coating

SPECIFICATION CLAUSE

The structural waterproofing coating shall be a two component, water based, epoxy and polymer modified cementitious coating, incorporating microsilica, fibre, epoxy and styrene acrylic copolymer technology. It shall be CE-marked in accordance with BS EN 1504-2, and shall comply with the following performance specification:

- Impermeable to water under 10 bar hydrostatic pressure such that a 2.0mm coating is equivalent to 6000mm of concrete.
- Oxygen diffusion resistance coefficient of at least $4.42 \times 10^{-5} \text{ cm}^2/\text{sec}$ in accordance with the Taywood Test
- Adhesive strength of at least 2MPa onto concrete and 3MPa onto steel in accordance with BS 4551.

SURFACE PREPARATION

Concrete Substrates

Concrete should have a minimum strength of 20MPa. All surfaces should be clean and free from laitance, curing compounds, release agents, efflorescence, grease, oil, dirt, organic growth, old coatings and loose or disintegrating concrete. Smooth surfaces should be roughened, using high pressure water jetting or similar techniques. The prepared substrate should be thoroughly soaked with clean water until uniformly saturated without any standing water. All concrete floors, decks and highly porous substrates should be appropriately sealed using Intercrete 4850.

Steel Substrates

Intercrete 4840 is self-priming and requires direct contact with the steel to afford maximum corrosion protection. For maximum durability, steel should be cleaned back to bright metal, ideally to ISO8501-1 Sa2½ (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. Handheld power tools capable of achieving the necessary preparation can be used. Metal prepared in this way should be to minimum standard of ISO8501-1 St3 (SSPC-SP3). Arrises and welds should be ground to remove sharp edges.

APPLICATION

Mixing

Intercrete 4840 is supplied in two parts; a liquid component (Part A) and a powder component (Part B). MIX FULL UNITS ONLY. Shake Part A thoroughly and pour into a suitable mixing container, then slowly add Part B whilst stirring with a mechanical agitator. Mixing should be carried out with a suitable slow-speed drill and paddle. Mix for 5 minutes with regular scraping of the container sides to prevent lumps from forming. For spray application, material should be filtered through a 4mm sieve. Once the unit has been mixed it should be used within the working pot life specified.

Airless Spray

Recommended	Tip size 1.09 mm (43 thou)
	Total output fluid pressure at spray tip not less than 189 kg/cm ² (2690 p.s.i.)

Brush

Recommended	See Product Characteristics
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Work Stoppages / Clean Up

Do not allow material to remain in hoses, guns or spray equipment. Thoroughly flush all equipment with clean water.

Clean all equipment immediately after use with clean water. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays.

All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.

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PRODUCT CHARACTERISTICS

Concrete Substrates

Application should only be made in the range 5°C - 35°C (41°F - 95°F). Do not use when the temperature is below 5°C (41°F) and falling. Avoid application in rain, direct sunlight or strong wind. For high temperature working refer to the application guidelines. Do not use Intercrete 4840 on waterproof concrete without referring to Protective Coatings Technical Department.

Placing

Intercrete 4840 is ideally suited to brush application, although spray techniques should be used in large areas. Care should be taken to ensure that air is not entrapped onto 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, Intercrete 4840 should be applied in a single 2mm layer to avoid inter-coat contamination. Intercrete 4840 must be allowed to cure for a minimum of 2 hours before being immersed. On horizontal deck applications, apply a single 2mm layer with a skid leveller or notched trowel and immediately release entrapped air with a spiked roller.

Detail Work

On steel, apply a 1mm stripe coat of Intercrete 4840 by brush to all welds, cut edges and fixings, e.g. nuts and bolt heads. On welds and cut edges, embed a suitable edge scrim. Over joints, large cracks, etc. in concrete, apply a 1mm stripe coat of Intercrete 4840 by brush and immediately embed Intercrete 4872. Allow to stabilise before proceeding. Please consult separate Technical Data Sheet.

Curing

Normal concreting procedures should be strictly adhered to. It is important that the surface of the mortar is protected from strong sunlight and drying winds with Intercrete 4870, polythene sheeting, damp hessian or similar (see separate Data Sheet for full details).

CE mark applies to products manufactured at Tomlinson Road, Leyland, PR25 2DY England, under reference 0086-CPD-530942.

APPLICATION TIPS

- Regularly check coating thickness during application using the wet film thickness gauge available from AkzoNobel.
- Apply Intercrete 4870 curing membrane as an even, fine mist spray. Do not over-apply or allow to pond on the surface or cracking may occur.
- Intercrete 4840 is not a decorative coating and may dry with a patchy appearance until uniformly weathered. It may be overcoated with Intercrete membranes to give a coloured finish.
- In cold, humid conditions, condensation may form on surfaces treated with Intercrete 4840, resulting in darkening of finish and retardation of set.
- If the Intercrete 4840 is allowed to cure for more than 7 days before application of the second coat, then the surface must be thoroughly cleaned and saturated before proceeding.
- In a tidal zone, Intercrete 4840 can be applied in a single 2mm layer. Allow to cure for a minimum of 2 hours before immersion. Protect from abrasion or aggressive tidal flow until set.
- Cold Weather Working (See separate Guide): $\geq 3^{\circ}\text{C}$ (37°F) on a rising thermometer, $\geq 5^{\circ}\text{C}$ (41°F) on a falling thermometer.
- 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 Intercrete 4870. If possible, avoid extreme temperatures by working at night.

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TECHNICAL DATA / MECHANICAL CHARACTERISTICS

Standard and Property	BS EN 1504-2 Requirement	Result
EN 12190 Compressive Strength	≥ 50 MPa (Class II)	28 days: 54.1MPa
BS4551 Compressive Strength Development @ 20°C		1 day : 5-10MPa 7 days: 30-40MPa 28 days: 50-60MPa
EN 1542 Adhesive Bond (concrete)	≥ 2.00 MPa	3.30MPa
EN13687-1 Thermal Compatibility	≥ 2.00 MPa	3.24MPa
Vinci Test Water Permeability Coefficient (Equivalent Concrete Thickness)		1.43×10^{-17} m/sec 2mm = 6000mm of concrete
EN 1062-6 Permeability to CO ₂	$R \geq 50$ m	2mm equivalent to 100mm of concrete
BS EN ISO 7783-2 Water Vapour Permeability (Equivalent Air Layer Thickness)	Class 1 S _D $\rightarrow \geq 5$ m	S _D = 1.29m
EN 13501-1 Reaction to Fire	Euroclass	Euroclass A2 – s1, d0
DIN 1048 Resistance to Water Pressure		10 bar (100m hydrostatic head) positive and negative)
EN1770 Coefficient of Thermal Expansion	$\geq 30 \times 10^{-6}$ K ⁻¹	23.4×10^{-6} K ⁻¹
BS 6319-7 Tensile Strength		4.93MPa
EN13813 Wear Resistance		Exceeds BCA AR0,5: Highest classification of wear resistance
EN 1062-3 Liquid Water Transmission Rate (Capillary Absorption and Permeability to Liquid water)		w = 0.01 kg.m ⁻² .h ^{-0.5}

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

SAFETY PRECAUTIONS

This product is intended for use only by professional applicators in industrial situations in accordance with the advice given on this sheet, the Safety Data Sheet and the container(s), and should not be used without reference to the Safety Data Sheet (SDS).

All work involving the application and use of this product should be performed in compliance with all relevant national, Health, Safety & Environmental standards and regulations.

In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation.

If in doubt regarding the suitability of use of this product, consult International Protective Coatings for further advice.

Important Note

The information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

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