

Monolevel 844SP

Class R4 Waterproof Screed and Pore Filler

Product Overview

Waterproof, engineering quality fairing coat and render for filling blow holes and surface defects and for levelling concrete surfaces. CE-marked in accordance with BS EN 1504-3 Class R4.

Uses

Filling minor blow holes and surface defects and repairing surface cavities and honeycombed concrete. Levelling screed to provide a fair faced finish and reinstate cover. Suitable for repair methods 3.1, 3.3, 7.1, 7.2 as defined by BS EN 1504-3.

Advantages

- Incorporates the latest proven cement chemistry, microsilica, fibre and styrene acrylic copolymer technology.
- Pre-packaged material only requiring mixing with water on-site.
- Can be applied using bag-rubbing techniques or as a render in single thicknesses up to 6mm in vertical, horizontal and overhead situations.
- Suitable for wet spray application.
- High bond strength exceeds the tensile strength of concrete, ensuring monolithic performance of the repair.
- Dense matrix offers low permeability to water at 10 bar pressure and very high diffusion resistance to acid gases and chloride ions.
- Non-toxic when cured and listed as authorised for use under Regulation 31 for use in the supply of drinking water.
- Economic mortar requiring no substrate or inter-layer priming. Part bags can be mixed. Suitable for feather edging.
- Easily overcoated with specialist membranes to provide further protection and aesthetic properties.

Description

MONOLEVEL 844SP is a single component, polymer modified, fibre reinforced, cementitious repair mortar with high adhesive properties, allowing it to be used as a filler to provide a fair-faced finish and waterproof screed. It provides high waterproofing properties, excellent protection from acid gases, chlorides and freeze/thaw cycles, as well as enhanced chemical resistance. It is supplied as a single component system requiring only the addition of clean water.

Compliance

- CE-marked in accordance with BS EN 1504-3 Class R4. Suitable for repair methods 3.1, 3.3, 7.1, 7.2 as defined by BS EN 1504-3.
- Listed under Regulation 31 – England: Regulation 33 – Scotland: Regulation 30 – NI: for use with potable water. WRAS Approved for use with potable water.
- Highways Standard Series 5700 (Concrete Repairs) and CS 462 (Repair & Management of Deteriorated Concrete Structures).
- Compliant with LU Standard 1-085 'Fire Safety Performance of Materials'.

Specification Clause

The mortar shall be a single component, waterproof, thixotropic, polymer modified cementitious formulation with high adhesive properties. It shall be CE-marked in accordance with BS EN 1504-3 Class R4 and shall exhibit compressive strength at 20°C of circa 23MPa in 1 day and 60MPa in 28 days. It shall also be impermeable to water under 10 bar hydrostatic pressure such that 1mm of mortar is equivalent to 1000mm of concrete and have an oxygen diffusion coefficient of circa $4.90 \times 10^{-5} \text{cm}^2/\text{s}$, such that a 6mm coating is equivalent to 220mm of concrete cover.

CE
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Flexcrete Technologies Ltd
Tomlinson Road, Leyland PR25 2DY England

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EN1504-3: Concrete repair product for structural repair
PCC mortar (based on hydraulic cement polymer modified)

Compressive Strength	: Class R4 ≥ 45 MPa
Adhesive Bond	: Class R4 ≥ 2.0 MPa
Chloride Ion Content	: ≤ 0.05%
Carbonation Resistance	: Passes
Elastic Modulus	: 17.3 GPa
Thermal Capability Part 1	: Class R4 ≥ 2.0 MPa
Capillary Absorption	: $0.047 \text{ kg} \cdot \text{m}^{-2} \cdot \text{h}^{-0.5}$
Dangerous Substances	: Complies with 5.4
Reaction to Fire	: Euroclass A2-s1, d0



Technical Data

Property	Standard	BS EN 1504 R4 Requirement	Typical Result
Compressive Strength	EN 12190	≥ 45 MPa	28 days: 55.7 MPa
Compressive Strength Development @ 20°C	BS4551		1 day 23 MPa 7 days 46 MPa 28 days 60 MPa
Adhesive Bond	EN 1542	≥ 2.00 MPa	2.66 MPa
Chloride Ion Content	EN 1015-17	≤ 0.05%	≤ 0.05%
Carbonation Resistance	EN 13295	≤ ref concrete	Passes
Elastic Modulus	EN 13412	≥ 20 GPa	17.3 GPa Class R3 ≥15MPa
Capillary Absorption	EN 13057	≤ 0.5 kg/m ² /h ⁰⁵	0.047kg/m ² /h ⁰⁵
Freeze/Thaw Cycling	EN 13687-1	≥ 2.0 MPa	2.56 MPa
Water Permeability Coefficient Equivalent Concrete Thickness	Taywood Test	-	6.94 x 10 ⁻¹⁶ m/sec 1.00mm of MONOLEVEL 844SP = 1000mm of concrete
Oxygen Diffusion Coefficient	Taywood Test		4.90 x 10 ⁻⁵ cm ² /s
Flexural Strength	EN196-1	-	10.5 MPa
Tensile Strength	BS 6319: 7	-	5.02 MPa
Shrinkage	BS EN 12617-4	-	0.060% after 7 days
Mixed Density		-	1860kg/m ³ at 0.14 water: powder ratio
Mixed Colour		-	Concrete grey
Min Application Thickness Max Application Thickness		-	Feather edge 6mm per layer
Min Application Temperature Max Application Temperature		-	5°C 40°C
Working Life (approx.)		-	30 minutes at 20°C
Reaction to Fire	EN 13501-1	Euroclass	Euroclass A2 – s1, d0

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

Application Instructions

Preparation

Mechanically remove all damaged concrete back to a sound core.

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 and reinforcement cleaned to bright steel using wet grit blasting techniques or equivalent approved methods.

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.

Treatment of Steel Reinforcement

All exposed steel reinforcement should be treated with 2 x 1mm coats of **STEEL REINFORCEMENT PROTECTOR 841** applied by brush (See separate Data Sheet for full details).

Please Note: When carrying out repairs in new construction, it is not necessary to fully expose any reinforcing bars.

Priming of Concrete

MONOLEVEL 844SP is highly polymer modified and as a result concrete surfaces do not generally require a primer. Waterproof concrete should be sealed with a **POLYMER ADMIXTURE 850** slurry coat when treating larger areas. Other highly porous substrates should be primed with **BONDING BRIDGE 842**. See separate Data Sheets for full details.





Mixing

MONOLEVEL 844SP should be mechanically mixed using a forced action pan mixer or in a clean drum using a drill and paddle. A normal concrete mixer is **NOT** suitable.

For normal applications, typically use between 2.8 - 3.2 litres of clean water per 25kg bag. For part bags, use 6.5 volumes of powder to one volume of water. Typically, for screeding applications use 3 litres of clean water per 25kg bag, which gives a water:powder ratio of 0.12. Normal mixing time depends upon the type of mixer used: 2-3 minutes is average. Mix so as to entrain as little air as possible. Use without delay.

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

MONOLEVEL 844SP can be applied to localised minor voids and surface defects using a palette knife. For large areas of pore filling, work well into the prepared substrate using a wooden float or 'bag-rubbing' techniques.

When used as a highly alkaline thin screed for the protection of concrete and for structural waterproofing, **MONOLEVEL 844SP** should be applied to the prepared substrate using a steel float to provide a smooth polymer rich surface finish. An initial thin layer should be worked well into the surface to fill blow holes and minor defects prior to building up the thickness to a maximum of 6mm. Alternatively, spray techniques can be used.

For repairs which require multi-layer applications, it is important to ensure that previous layers have been finished with a wood or plastic float and are stable, but not fully set (2-6 hours dependent on temperature) prior to the application of subsequent layers. No inter-layer priming is required. Once the last layer has stabilised, trowel marks can be removed using a wooden float or damp sponge to produce a surface comparable to emery paper, which provides an excellent finish for the subsequent application of a surface coating.

Curing

Particular attention should be paid to adequate curing of **MONOLEVEL 844SP**. It is important that the surface of the mortar is protected from strong sunlight and drying winds with **FLEXCRETE CURING MEMBRANE WB**, polythene sheeting, damp hessian or similar (See separate Data Sheet for full details).

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

MONOLEVEL 844SP is supplied in 25kg bags.

Yield and Coverage

15 litres per 25kg bag.

A 25kg bag covers 5m² at 3mm thickness.

Limitations

Do not use **MONOLEVEL 844SP** when the temperature is below 5°C and falling. Do not use on waterproof concrete without referring to Flexcrete's Technical Department. Not suitable for use on trafficked areas.

Health and Safety

Safety Data Sheets are available on request.

Application Top Tips

1. During early mixing, the material appears dry. **DO NOT** add extra water at this stage as full mixing produces a smooth consistency.
2. **DO NOT WET OUT OR PRIME** between layers.
3. If the mortar thickens, remix but **DO NOT ADD EXTRA WATER**.
4. **DO NOT OVER TROWEL** when applied as a thin screed, otherwise blisters could form in the material, which must be removed.
5. Remove trowel marks using a wooden float or damp sponge once the surface has stabilised.
6. Can be overcoated with Flexcrete membranes to give a coloured, aesthetic finish.
7. Cold Weather Working (See separate Guide)
 - ≥3°C on a rising thermometer.
 - ≥5°C on a falling thermometer.
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 it should make them known in writing to Flexcrete Technologies Limited, and obtain further advice accordingly.

