

Monolite

Class R2 Lightweight Repair Mortar

Product Overview

Low density, high build, lightweight, fibre reinforced, polymer modified shrinkage compensated mortar for the repair and reinstatement of concrete, brick or stone substrates. CE-marked in accordance with BS EN 1504-3 Class R2.

Uses

Non-structural repairs of vertical, horizontal and overhead surfaces. Suitable for repair methods 3.1, 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 up to 100mm in a single layer in vertical, horizontal and overhead situations.
- Ideal for non-structural repairs and applications where additional dead load must be kept to a minimum.
- High bond strength exceeds tensile strength of concrete, ensuring monolithic performance of the repair.
- Improved tensile and impact strength. Excellent low sag properties.
- Economic mortar requiring no substrate or inter-layer priming. Part bags can be mixed.
- Easily overcoated with specialist membranes to provide further protection and aesthetic properties.

Description

MONOLITE is a single component, polymer modified, fibre reinforced, low density cementitious repair mortar. The thixotropic nature of the product enables easy high build hand and trowel application for the repair of voids and the rendering and re-profiling of vertical, horizontal and overhead surfaces. It is supplied as a single component system requiring only the addition of clean water.

Compliance

- CE-marked in accordance with EN 1504-3 Class R2. Suitable for repair methods 3.1, 7.1, 7.2 as defined by BS EN 1504-3.
- 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 repair mortar shall be a single component cementitious mortar, incorporating microsilica, fibre and styrene acrylic copolymer technology. It shall be CE-marked in accordance with BS EN 1504-3 Class R2, and exhibit a compressive strength at 20°C of circa 13 MPa in 1 hour and 30 MPa in 28 days. It will allow up to 100mm single layer application thicknesses (including overhead).

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Flexcrete Technologies Ltd
Tomlinson Road, Leyland PR25 2DY England

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

Compressive Strength	: Class R2 ≥ 15 MPa
Adhesive Bond	: Class R3 ≥ 1.5 MPa
Chloride Ion Content	: ≤ 0.05%
Thermal Capability Part 1	: Class R3 ≥ 1.5 MPa
Capillary Absorption	: 0.082 kg.m ⁻² .h ^{0.5}
Dangerous Substances	: Complies with 5.4
Reaction to Fire	: Euroclass A2-s1, d0



Technical Data

Property	Standard	EN 1504 R2 Requirement	Typical Result
Compressive Strength	EN 12190	≥ 15 MPa	28 days: 27.6 MPa
Compressive Strength Development @ 20°C	BS4551		1 day 13.0 MPa 7 days 24.5 MPa 28 days 30.0 MPa
Adhesive Bond	EN 1542	≥ 0.8 MPa	1.59 MPa Class R3 ≥ 1.5MPa
Chloride Ion Content	EN 1015-17	≤ 0.05%	≤ 0.05%
Elastic Modulus	EN 13412	No Requirement	11.5 GPa
Capillary Absorption	EN 13057	≤ 0.5 kg/m ² /h ⁻⁰⁵	0.082 kg/m ² /h ⁻⁰⁵
Freeze/Thaw Cycling	EN 13687-1	≥ 0.8MPa	1.56 MPa Class R3 ≥ 1.5MPa
Water Permeability Coefficient Equivalent Concrete Thickness	DIN 1048	-	4.86 x 10 ⁻¹⁴ m/sec 8.7mm of MONOLITE = 1000mm of concrete
Flexural Strength	EN196-1	-	5.68 MPa
Shrinkage	BS EN 12617-4	-	0.061% after 7 days
Mixed Density		-	1250kg/m ³ at 0.14 water: powder ratio
Mixed Colour		-	Concrete grey
Min Application Thickness Max Application Thickness		-	5mm 100mm per layer
Min Application Temperature Max Application Temperature		-	5°C 40°C
Working Life (approx.)		-	60 minutes at 20°C 30 minutes at 40°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, brick or stone back to a sound core. Wherever possible, the full circumference of the steel reinforcement should be exposed to at least 25mm behind the bars and 50mm beyond the point at which corrosion is visible.

On cutting back, feather edges must be avoided. The perimeter of the repair area should be stepped to a depth of 10mm by means of saw, disc cutting or preferably using a power chisel.

The areas to be repaired 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 20 MPa.

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).

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

Priming of Concrete

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





Mixing

MONOLITE 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 2.7 - 3.1 litres of clean water per 18kg bag. For part bags, use 6 - 7 volumes of powder to one volume of water. Typically, for high build applications use 2.9 litres of clean water per 18kg bag which gives a water: powder ratio of 16%. 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

MONOLITE can be applied by float or trowel as a render, resulting in application thicknesses of 100mm, even in soffit situations. If necessary, support with shuttering to allow for compaction if working to reveals, etc. The application thickness achievable is dependent upon the substrate and care should be taken to ensure that an initial thickness of **MONOLITE** is well placed and adhered before building up to larger depths.

For repairs which require multi-layer applications, it is important to ensure that previous layers are well keyed and stable but not fully set (2-6 hours dependent on temperature) prior to the application of subsequent layers. No inter-layer priming is required. Final profiling of a high quality is easily achieved with a steel float.

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 **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

MONOLITE is supplied in 18kg bags.

Yield and Coverage

16.7 litres per 18kg bag.

An 18kg bag as supplied covers 1.67m² at 10mm thickness.

Limitations

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

Health and Safety

Safety Data Sheets are available on request.

Application Top Tips

1. For multi-layer application, use the fingers of a gloved hand to stipple the surface of the first layer.
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**. If the mortar begins to slump, allow to stabilise and refinish.
5. When finishing, trowel from centre out towards the perimeter working into the edges of the repair.
6. For structural repairs, use **MONOMIX** and for areas subject to vehicular traffic use **MONOMIX HD**.
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.

