



Marine Mortar S

Class R4 Rapid Setting Structural Repair Mortar

Product Overview

Portland cement based, high strength, fibre reinforced, rapid setting shrinkage compensated, waterproof mortar for structural repair of concrete.

Description

MARINE MORTAR S is purpose-designed for use in areas subject to early immersion. It is a polymer modified and fibre reinforced cementitious mortar which achieves excellent adhesion to a saturated substrate. It cures rapidly to produce a high strength mortar with enhanced polymeric properties for the repair of voids in marine environments.

Uses

Class R4 mortar, suitable for repair methods 3.1, 3.2, 7.1, 7.2 as defined by EN 1504-3.

Advantages

- Incorporates the latest cement chemistry, microsilica, fibre and styrene acrylic copolymer technology.
- Twin pack mortar ready for mixing.
- Generally requires no substrate or inter-layer priming.
- Thixotropic mortar for easy trowel application.
- High build, up to 50mm per layer.
- Excellent resistance to early wash-out.
- Low shrinkage and high bond ensure monolithic performance of the repair.
- Fibre reinforced for high tensile and impact strength.
- Dense matrix with low permeability to water.
- High diffusion resistance to acid gases & chloride ions.
- Non-toxic when cured.

Compliance

- UKCA & CE marked in accordance with EN 1504-3.
- BBA Approved, Certificate No. 05/4276.
- Highways Standard Series 5700 (Concrete Repairs) and CS 462 (Repair & Management of Deteriorated Concrete Structures).

Application Instructions

Preparation

Mechanically remove all damaged concrete back to a sound core. Wherever possible, expose the full circumference of the steel reinforcement 25mm behind the bars and 50mm beyond visible corrosion.

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

The areas to be repaired must be free from all unsound material including laitance 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 compressive strength of the parent concrete should be minimum 20 MPa.

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

Treatment of Steel Reinforcement

Treat exposed steel reinforcement with 2 x 1mm coats of **STEEL REINFORCEMENT PROTECTOR 841** applied by brush.

Priming of Concrete

MARINE MORTAR S does not generally require a primer. Highly porous substrates may be primed with a **POLYMER ADMIXTURE 850** slurry coat.

Mixing

MARINE MORTAR S should be mechanically mixed using a forced action pan mixer or in a clean drum using a slow speed drill and paddle. A normal concrete mixer is **NOT** suitable.

Shake Part A (liquid) and pour into the mixing vessel. While mixing, slowly add Part B (powder). Mix for 2-3 minutes entraining as little air as possible. Use without delay.

Bottles of liquid and bags of powder must not be split. Do not add water or any other material to the mix.

- Note - These instructions must be adhered to as Flexcrete will not be responsible for failure due to incorrect mixing.

Placing

MARINE MORTAR S should be compacted in layers using a placement technique to remove entrapped air. Where necessary, support with shuttering to allow for compaction.

For repairs which require multi-layer applications, it is important to ensure that previous layers are well keyed and stable but not fully set (typically 2-6 hours) 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.

Allow to cure for a minimum of 1 hour before immersion. If necessary, provide protection from aggressive water flows or wave action.

Curing

Normal concreting procedures must be adhered to. Protect from strong sunlight and drying winds with **CURE-SEAL WB**, polythene sheeting, damp hessian or similar.

Limitations

Do not use **MARINE MORTAR S** when the temperature is below 5°C and falling.

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

- **MARINE MORTAR S** is supplied in 30kg composite packs.

Yield and Coverage

- 14 litres per 30kg.
- 30kg covers 0.7m² at 20mm thickness.

Health and Safety

- Safety Data Sheets are available on request.

Application Top Tips

1. **DO NOT WET OUT OR PRIME** between layers.
2. If the mortar thickens, remix but **DO NOT ADD WATER**.
3. **DO NOT OVER TROWEL**. If the mortar begins to slump, allow to stabilise and refinish.
4. When finishing, trowel from centre out towards the perimeter working into the edges of the repair.
5. Consider using a hand-held pointing gun for reinstatement of mortar joints.
6. 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.
7. 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 **CURE-SEAL 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.

Technical Data

Property	Standard	EN 1504 R4 Requirement	Typical Result
Compressive Strength Development @20°C	EN 12190	≥ 45 MPa @28 Days	<div> <div>5°C</div> <div>20°C</div> </div> <div> <div>1 day 5-10 MPa</div> <div>28 days 40-50 MPa</div> </div> <div> <div>15 MPa</div> <div>50 MPa</div> </div>
Adhesive Bond	EN 1542	≥ 2 MPa	2.2 MPa
Chloride Ion Content	EN 1015-17	≤ 0.05%	≤ 0.016%
Carbonation Resistance	EN 13295	≤ ref concrete	Passes
Elastic Modulus	EN 13412	≥ 20 GPa	26 GPa
Capillary Absorption	EN 13057	≤ 0.5 kg/(m ² .h ^{0.5})	0.056 kg/(m ² .h ^{0.5})
Freeze/Thaw Cycling	EN 13687-1	≥ 2 MPa	2.3 MPa
Water Permeability Coefficient Equivalent concrete thickness	DIN 1048-1	-	<div>6.21 x 10⁻¹⁶ m/sec</div> <div>10mm = 3000mm of typical concrete</div>
Flexural Strength	EN196-1	-	11 MPa
Tensile Strength	BS 6319-7	-	4 MPa
Mixed Density		-	2150kg/m ³
Mixed Colour		-	Concrete grey
Min Application Thickness		-	5mm
Max Application Thickness		-	50mm per layer
Min Application Temperature		-	5°C
Max Application Temperature		-	35°C
Working Life (approx.)		-	60 minutes at 20°C
Reaction to Fire	EN 13501-1	-	Euroclass F

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



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