Shieldrep RF

Single-component, Fiber-reinforced, Thixotropic, Cement-based Repair Mortar (Rep RF)

TECHNICAL DATA SHEET

Description

Shieldrep RF is a single-component, fiber-reinforced cement-based repair mortar, supplied as a ready-to-use blend of dry powders that requires the addition of clean water. It is designed for repair depths (10 – 50) mm, while higher thicknesses can be achieved when applied by wet spraying methods.

Uses

- General repair mortar, for all types of structural concrete where low permeability and high compressive strength characteristics are required.
- Vertical and horizontal repair applications.
- Repair mortar for all structural elements subjected to high and frequent loading.
- Overlays and repairs on concrete structures such as dams, bridges, beams, balconies, facades etc.

Characteristics / Advantages

- Factory-controlled, pre-blended dry mix that requires the addition of clean water on site.
- Easy application with thicknesses up to 30 mm in one layer by troweled application.
- Excellent protection to reinforcement steel.
- Shrinkage compensated.
- Low permeability.
- Chloride free.
- Can be wet spray applied.

Standard Compliance

EN 1504-3: Class R4, Principles 3.1, 3.3, 4.4, 7.1, 7.2

Typical Properties

Color / Appearance	Grey powder
Application Thickness	10 – 50 mm ,vertically 10 – 50 mm ,horizontally
Mixed Density (@ 23°C)	2.10 ± 0.20 g/ml
Maximum Aggregate Size	2 mm
Yield / 25 kg bag	~ 13.5 Liters
Compressive Strength (EN 12190)	≥ 40.0 MPa @ 7 days ≥ 55.0 MPa @ 28 days
Flexural Strength (ASTM C348)	≥ 5.0 MPa @ 7 days ≥ 10.0 MPa @ 28 days
Adhesive Bond (EN 1542)	≥ 2.0 MPa
Chloride Ion Content (EN 1015-17)	≤ 0.05%
Restrained Shrinkage/ Expansion (EN 12617-4)	Bond ≥ 2.0 MPa
Modulus of Elasticity (EN 13412)	≥ 20 GPa

Packaging

Shieldrep RF is supplied in 25 kg packs.

Shelf Life and Storage

Shieldrep RF has a shelf life of 12 months when stored in its original unopened packing in cool and dry conditions, protected from direct sunlight, heat, and moisture. Shelf life may be reduced if the recommended storage conditions are not followed.

Safety Instructions

Shieldrep RF contains hydraulic cement and may cause irritation to skin or eyes. Refer to the most recent Material Safety Data Sheet for information and advice on the safe handling, storage, and disposal of the product.

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Application Instructions

1. Surface Preparation

The substrate must be free from dust, loose material, surface contamination, and any materials that may reduce bond or prevent adhesion of the repair mortar. Remove damaged concrete by suitable means. All substrate surfaces in the repair area should be roughened by suitable means e.g., light scabbling or grit blasting to provide a key for the repair material.

Remove by suitable means from any exposed steel reinforcement; rust, scale, mortar, concrete, dust, and any other loose or deleterious material that reduces bond or contributes to corrosion. Metal surfaces (iron and steel) should be free from scale, rust oil, and grease.

Prior to application, thoroughly saturate the concrete surface to provide a saturated surface dry condition (SSD). Poor quality concrete may require soaking for a significant time. Any surface water should be removed using an oil-free compressed air jet. The minimum application temperature is 5℃.

2. Mixing

Shieldrep RF requires 4.00 – 4.25 liters of potable water per 25 kg bag. For optimum results, mixing should be performed using a forced action mixing paddle powered by a heavy-duty electric mixing drill.

Add the pre-measured amount of water to a clean mixing bucket. Add the **Shieldrep RF** powder slowly to the water whilst mixing and mix continuously for 3 - 5 minutes until a smooth, homogenous, lump-free consistency is achieved.

3. Application

• Manual Application

Shieldrep RF is applied on the prepared substrate manually using traditional trowel techniques or by using a suitable wet spraying machine . The repair mortar shall be pressed firmly onto the repair area ensuring that all substrate pores and pits are filled.

• Wet Spray Application

Application by the wet spray process must be carried out by specialist applicators. **Shieldrep RF** should be pre-mixed with the required amount of water before being introduced into the wet spraying equipment. The specialist nozzleman will ensure a consistent spray pattern and proper compaction to achieve a dense, uniform lining with minimal rebound.

As soon as the mortar has started to set, it can be smoothed by suitable means such as by wooden or synthetic float.

4. Cleaning

All mixing and application equipment should be cleaned immediately with clean water. Hardened material should be mechanically removed.

5. Curing

Treat exposed surfaces with a curing compound **(Shieldcure AB)** or use other approved curing methods such as polyethylene sheeting or wet hessian.

Limitations

- Do not apply the product if the ambient temperature is less than 5°C.
- Hot weather practices should be adopted during application and curing if the temperature is above 35°C. In hot conditions, store the material in a cool environment prior to mixing.

Technical Support

Refer to technical information, method statement, or contact technical support team for any inquiry.

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