

Shieldrep FS

Rapid Setting, Cement-based Micro Concrete
(Formerly Known as Replow FS)



Description

Shieldrep FS is a single-component, polymer-modified, cement-based repair mortar, supplied as a ready-to-use blend of dry powders that requires the addition of clean water on site. **Shieldrep FS** is designed to provide a rapid setting micro-concrete.

Uses

- Internal and external applications.
- Emergency concrete repairs.
- Areas that require a fast return to service such as concrete highways and airport runways.

Characteristics / Advantages

- Factory-controlled, pre-blended dry mix that only requires the addition of water.
- Excellent workability and ease of application.
- Fast setting properties.
- High early and final strengths.
- Low permeability.
- Dual expansion system compensates for shrinkage in the plastic and hardened states.

Standard Compliance

EN 1504-3: Class R3, Principles 3.2, 7.1 and 7.2

Packaging

Shieldrep FS is supplied in 25 kg bags.

Safety Instructions

Shieldrep FS 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.

Shelf Life and Storage

Shieldrep FS has a shelf life of 12 months when stored in its original unopened packaging 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.

Typical Properties

Color / Appearance	Grey powder
Application Thickness	20 – 100 mm
Fresh Wet Density (@ 23°C)	2.10 ± 0.10 g/ml
Maximum Aggregate Size	2 mm
Yield / 25 kg bag	~ 14 Liters
Working Time (@ 23°C)	20 minutes
Setting Time (@ 23°C) (EN 196-3)	Initial: 25 minutes Final: 40 minutes
Compressive Strength (EN 12190)	≥ 15.0 MPa @ 2 hours ≥ 20.0 MPa @ 24 hours ≥ 30.0 MPa @ 3 days ≥ 40.0 MPa @ 28 days
Bond Strength (EN 1542) @ 28 days	≥ 2.0 MPa (Substrate Failure)
Chloride Ion Content (EN 1015-17)	≤ 0.03%
Contrasted Expansion / Shrinkage (EN 12617-4)	Bond strength ≥ 2.0 MPa (Substrate Failure)

Application Instructions

1. Surface Preparation

The substrate must be free from dust, loose materials, 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 shall 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 which reduces bond or contributes to corrosion.

Metal surfaces (iron and steel) should be free from scale, rust, oil, and grease.

2. Formwork

Design a formwork (Shutter) according to the dimensions of the repair area. Ensure the inner surface is clean and apply a solvent-based release agent (**Shield Easymold S**) for easy de-molding.

3. Mixing

Shieldrep FS requires 5.0 liters of potable water per 25 kg bag for manual hand application. 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 **Shieldrep FS** powder slowly to water whilst mixing and continue mixing for 3 – 5 minutes until a homogenous, lump-free consistency is achieved.

4. Application

Pour the mixed material of **Shieldrep FS** into the repair area within 10 minutes in one continuous operation. **Shieldrep FS** can be applied in vertical sections from 20 to 100 mm in a single application, higher thicknesses can reach up to 250 mm.

5. Cleaning

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

6. Curing

After setting of **Shieldrep FS** (24 – 48 hours), remove molds carefully and treat the 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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Version 250717 SP-FB –FS-005