

Shieldrep HSF

Single-component, Fiber-reinforced, Thixotropic, Cement-based Repair Mortar



MICSHIELD®

Description

Shieldrep HSF is a high-strength and fiber-reinforced, cement-based repair mortar, supplied as a ready-to-use blend of dry powders that requires the addition of clean water at site. **Shieldrep HSF** is suitable for use in vertical and overhead applications by hand troweling, with thicknesses up to 50 mm, while greater thicknesses can be achieved by dry spray application.

Uses

- General repairing for all types of structural concrete where low shrinkage and high strength characteristics are required.
- Suitable for vertical, horizontal, and overhead structural repairs with thicknesses higher than 10 mm.
- As a repair mortar for all structural elements subjected to high and frequent loading.
- Suitable in marine environments, such as dams, sea walls, docks, etc.
- Can be used for filling tie rods openings.

Characteristics / Advantages

- Factory-controlled, pre-blended dry mix that requires the addition of water.
- Durable and long-lasting.
- Low shrinkage and low permeability.
- Excellent adhesion.
- High sulfate resistance.
- High freeze/ thaw resistance.

Standard Compliance

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

Shelf Life and Storage

Shieldrep HSF 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	
Overhead and vertical sections	10-50 mm
Horizontal section	10-100 mm
Mixed Density (@ 23°C)	2.00 ± 0.20 g/ml
Maximum Aggregate Size	2 mm
Working Time (@ 23°C)	30 – 45 minutes
Setting Time (@ 23°C)	Initial: 1.5 - 2.5 hours Final: 2.5 - 5.0 hours
Yield / 25 kg bag	~14.5 Liters
Compressive Strength (EN 12190)	≥ 65 MPa @28 days
Flexural Strength (ASTM C348)	≥ 9 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

Packaging

Shieldrep HSF is supplied in 25 kg packs.

Safety Instructions

Shieldrep HSF 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.



Application Instructions

1. Surface Preparation

The substrate must be free from dust, loose materials, surface contamination, and 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.

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.

2. Mixing

Pour into a suitable container 4.50 – 5.00 liters of clean water. Add 25 kg of **Shieldrep HSF** to the water gradually and mix using a low-speed mixing drill fitted with the suitable mixing paddle. Continue mixing for 3 – 5 minutes until achieving a homogenous mix.

Note: water levels may be adjusted to allow good dry spray techniques between 3.25 to 3.75 liters per 25 kg bag depending upon the ambient temperature.

3. Application

• Manual Application

Shieldrep HSF is applied on the prepared substrate or manually using a suitable hand trowel or by using a suitable dry spraying machine. The repair mortar shall be pressed firmly onto the repair area ensuring that all substrate pores and pits are filled, for proper adhesion. **Shieldrep HSF** can be applied in a single application for sections up to 50 mm thickness for vertical and overhead application, and up to 100 mm thickness horizontally. The minimum application thickness should not be less than 10 mm.

• Dry Spray Application

Application by dry spray process must be carried out by specialist applicators. **Shieldrep HSF** has been designed to be poured directly into the mixer. The specialist nozzleman will adjust the amount of water appropriately to obtain a compact lining, with uniform thickness and minimum rebound.

As soon as the mortar has started to set it can be smoothed by suitable means such as by wooden or synthetic float. No additional water must be used in the finishing process as it may lead to surface discoloration.

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 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.
- Protect freshly applied material from direct rain until at least final set to prevent surface scouring.

Technical Support

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

Address: Manaseer Group, 8th Circle, King Abdullah II St. 302
P.O. Box 925988 Amman, 11110, Jordan

Phone +962 6 5800600
Fax: +962 6 5833890

Email: info.shield@manaseer-ic.com
Website: www.manaseergroup.com

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