

Shieldrep S

High-performance, Single-component, Thixotropic, Cement-based Repair Mortar (Formerly Known as Rep S)



MICSHIELD®

Description

Shieldrep S is a high-performance, polymer-modified, cement-based repair mortar, designed to provide high strength and excellent bond with concrete substrates. **Shieldrep S** is supplied as a ready-to-use blend of dry powders that requires the addition of clean water on site. It is suitable for use vertically at thicknesses up to 75 mm, overhead at 20 mm, and horizontal applications at thicknesses up to 100 mm.

Uses

- General repair mortar, for all types of structural concrete where low permeability and high compressive strength characteristics are required.
- Vertical, horizontal, and overhead repair applications.
- Large repair areas.
- 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 water.
- High compressive strength and abrasion resistance.
- Shrinkage compensated.
- Low permeability.
- Chloride-free, and dry spray applied.

Packaging

Shieldrep S is supplied in 25 kg packs.

Standard Compliance

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

Shelf Life and Storage

Shieldrep S 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	10-75 mm, vertically 10-20 mm overhead 10-100 mm, horizontally
Fresh Wet Density (@ 23°C)	2.10 ± 0.10 g/ml
Maximum Aggregate Size	2.00 mm
Working Time (@ 23°C)	Approx. 20 minutes
Setting Time (@ 23°C)	Initial: 3.5 hours Final: 5.0 hours
Yield / 25 kg bag	13.5 Liters
Compressive Strength (EN 12190) @ 28 days	≥ 60.0 MPa
Flexural Strength (ASTM C348) @ 28 days	≥ 10 MPa
Tensile Strength (ASTM C307)	5 MPa at 28 day
Adhesive Bond (EN 1542)	≥ 2.0 MPa (substrate F.)
Chloride Ion Content (EN 1015-17)	≤ 0.04%
Restrained Shrinkage / Expansion (EN 12617-4)	Bond ≥ 2.0 MPa (substrate failure)
Carbonation Resistance (EN 13295)	75%
VOC (ASTM D2369)	Nil
Water Penetration (DIN 1048)	Nil at 5 bars

Safety Instructions

Shieldrep S 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 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 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.

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

For manual hand application, **Shieldrep S** requires 3.5 - 4.0 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 the **Shieldrep S** powder slowly to the water while mixing and continue mixing for 3 – 5 minutes until a smooth, homogenous, lump-free consistency is achieved.

Note: When the application is dry spray, the water is added and adjusted at the spray nozzle.

3. Application

• Manual Application

Shieldrep S is applied on the prepared substrate manually using traditional trowel techniques 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.

• Dry Spray Application

Application by dry spray process must be carried out by specialist applicators. **Shieldrep S** 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. The application thickness can reach up to 100 mm vertically when applied by a dry sprayer or for confined areas, using formworks.

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 (**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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