



Lease Life
to Man-Made
Structures

SUPERSHIELD

CRYSTALMIX

Cementitious Crystalline Mortar for Repair



PRODUCT DESCRIPTION

SUPERSHIELD CRYSTALMIX is a high-strength, thick repair mortar designed for the patching, resurfacing, and repair of deteriorated concrete. It is reinforced with fibers to enhance its durability. The formulation of Supershield CRYSTALMIX provides exceptional bonding, minimal shrinkage, resistance to chemicals, and high strength.

The mortar is a single-component material that offers the flexibility of being applied either through spraying or troweling. SUPERSHIELD CRYSTALMIX's high-performance features are further enhanced by Supershield Crystalline Technology.

RECOMMENDED USES

- Water Tanks and Reservoir
- Sewage Treatment Plants
- Concrete Water and Sewer Pipes
- Bridge Structures
- Tunnels and Parking Garages
- Foundations
- Hydropower Plants
- Manholes and Vaults
- Marine Structures

FEATURES AND BENEFITS

- Excellent adhesion and bond to concrete substrates
- Low shrinkage, fiber reinforced
- Low chloride penetration
- Ready to use – just add water
- Vertical and overhead concrete repair; sprayable
- Non-toxic and VOC compliant
- High early Strength



TECHNICAL DATA

General Characteristics

| PROPERTY | VALUE |
|----------------------|--------------------------|
| Color and Appearance | Grey Powder |
| Bulk Density | ~ 1.25 g/cm ³ |
| Chloride Ion Content | < 0.1% by weight |

Performance Characteristics

| TEST NAME | TEST METHOD | PERFORMANCE |
|--|----------------|--|
| Compressive Strength | EN 12190 | ≥ 25 MPa |
| Chloride ion Content | EN 1015-17 | ≤ 0.05% |
| Adhesive Bond | EN 1542 | ≥ 2.0 MPa |
| Modulus of Elasticity | EN 13412 | ≥ 20 GPa |
| Thermal Compatibility Part 4: Dry Thermal Cycling | EN 13687- 4 | ≥ 2.0 MPa |
| Carbonation resistance | EN 13295 | dk ≤ control concrete |
| Skid Resistance | EN 13036-4 | NPD |
| Capillary Absorption | EN 13057 | ≤ 0.5 Kg/m ² h ^{0.5} |
| Potable Water Test | D.Lgs. 31/2001 | Complies with the parameters |



APPLICATION GUIDELINES

Consumption

The calculated quantity of dry mortar per square meter is 1600 kg, or approximately 16 kg/m² per centimeter of thickness.

Surface Preparation

Remove loose, delaminated, or unsound concrete using high-pressure water blasting, chipping, or other suitable methods. Complete any necessary structural repairs or corrosion repairs to reinforcing steel. Saw cut the perimeter of the repair area to a depth of 3/8 inches (10 mm). Clean the repair area thoroughly by removing dust, microfractured particles, and any foreign material using pressure washing or other appropriate methods to ensure a clean surface and optimal bond.

Mxing

For concrete repairs and creating waterstop profiles, mix SUPERSHIELD CRYSTALMIX by adding water at a ratio of 1 part water to 4 parts powder by volume. To prepare a stiff, putty-like consistency for patching compounds, begin by mixing 3 parts powder with 1 part water by volume until the mixture is smooth, mixing for at least 2 minutes. Then, add an additional 1 part of powder, making a total of 4 parts powder to 1 part water, and continue mixing until you achieve a workable mortar consistency. Once mixed, trowel the mortar onto the surface as required.

Applying Supershield Crystalmix

Saturate the repair area with clean water and allow the surface to reach a "saturated, surface dry" (SSD) condition. Apply CRYSTALMIX using low-pressure spray equipment with enough velocity to compact and build the mortar's thickness. Ensure the spray nozzle has a minimum orifice size of 0.5 inches (12.5 mm) to prevent clogging. Spray CRYSTALMIX at a right angle to the surface from a distance of 18 to 24 inches (450 mm to 600 mm). Complete the finishing operations as quickly as possible. CRYSTALMIX can

be finished with various surface textures, including a rough finish directly from the spray nozzle, a semi-smooth finish using a wood or rubber float, or a smooth finish with a steel trowel.

Note: 1. In extremely harsh conditions, an engineer or design authority may specify an application of Supershield Crystalspray or Supershield Crystalguard Ultima to enhance waterproofing and chemical protection.

2. If an overcoat of Crystalguard Ultima is specified over CRYSTALMIX, Supershield Crystalguard Ultima can be applied to the CRYSTALMIX surface immediately following moist curing (after 3 days). Ensure the CRYSTALMIX surface is rough or scored and saturated to provide adequate "tooth and suction" for the Supershield coating.

3. Supershield Crystalspray can also be applied before CRYSTALMIX, with CRYSTALMIX being applied 10 minutes after Supershield Crystalspray. When Crystalspray is specified as a top coat over CRYSTALMIX, it can be applied after 12 hours.

Application Thickness

The thickness of the CRYSTALMIX application will depend on specific job site conditions and requirements. As a general guide, application thickness should be between 50mm. Single layer thickness for spray application will depend on equipment and applicator skill, but may be up to 50 mm vertical and 40 mm overhead. Roughen or score the surface before applying successive layers, and apply immediately following the initial set.

Curing

Curing is essential to achieve the optimum quality and durability of the repair mortar. CRYSTALMIX should be cured using moist curing methods. To do this, apply a continuous source of moisture by spraying, using wet burlap, polyethylene sheets, or other suitable means for a minimum of 3 days. For containment structures such as reservoirs and tanks, these can be filled with water after 3 days of

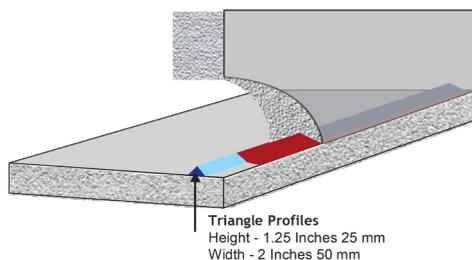


moist curing of the CRYSTALMIX coating.

Note: 1) In hot, dry, or windy weather, special curing procedures may be necessary before the final set. This may include the use of fog spray or suitable curing compounds immediately after finishing.

2) CRYSTALMIX should not be mixed or placed when temperatures are below 38°F (3°C) or above 86°F (30°C). Protect the mortar from rapid evaporation, particularly in extreme weather conditions.

Triangular Crystalline Waterstops



1) Surface Preparation : Remove all loose materials from the area and thoroughly saturate the surface with clean water. Allow the water to be fully absorbed into the concrete, then remove any excess water.

2) Mixing : To create triangular-shaped waterstops, mix SUPERSHIELD CRYSTALMIX by adding water at a ratio of 1 part water to 4 parts powder by volume. To prepare a stiff, putty-like mortar, begin by mixing 3 parts powder with 1 part water by volume until the mixture is smooth, mixing for at least 2 minutes. Then, add an additional 1 part of powder, making a total of 4 parts powder to 1 part water, and continue mixing until a workable mortar consistency is achieved. Once mixed, trowel the mortar onto the surface as required

3) Installing : Apply a line of CRYSTALMIX down the center of the joint using a margin trowel, then mold it into a triangular shape. The grout should form a continuous triangular strip measuring 50 mm (2 inches) wide and at least 30 mm (1.25 inches) high. If reinforcing bars are present, apply CRYSTALMIX as close to the center of the joint as possible, ensuring

that there is a minimum of 20 mm (1 inch) of cover between the grout and the edge of the pour.

HEALTH AND SAFETY

SUPERSHIELD CRYSTALMIX ULTRA contains chemicals that may cause skin irritation. It is recommended to wear protective gloves and goggles when handling this product. In case of contact with eyes, flush immediately with clean water. Seek medical assistance if symptoms persist.

STORAGE

When stored in a dry place in unopened, undamaged original packaging, the shelf life is 12 months.

PACKAGING

Available in 25 kg (55.1 lb) pails and 25 kg (55.1lb) PE-lined paper bags.

WARRANTY

Supershield warrants that its products will be free from material defects and will comply with the specifications provided in their respective technical data sheets. If any product is proven to be defective, Supershield's liability will be limited to the replacement of the product. Supershield will not be liable for any incidental or consequential damages. No other warranties, express or implied, shall apply, including warranties of merchantability or fitness for a particular purpose. It is the user's responsibility to determine the suitability of the product for their intended use and to assume all risks and liabilities associated with its application. Supershield reserves the right to alter the properties of its products without prior notice.