



Lease Life
to Man-Made
Structures

SUPERSHIELD

CRYSTALGUARD ULTIMA

Self-healing Cementitious crystalline waterproofing coating



PRODUCT DESCRIPTION

SUPERSHIELD CRYSTALGUARD ULTIMA is a highly concentrated and specially formulated crystalline waterproofing coating for concrete. It provides a hard top finish and blocks moisture transmission in concrete very quickly by crystallizing. It is mixed with water and applied as a slurry coat to the positive or negative side of the concrete, either by itself as a single-coat application or as the top coat of a two-coat application with Crystalguard. When Crystalguard and CRYSTALGUARD ULTIMA are combined in a single system, both products complement each other by providing a high degree of protection and durability.

CRYSTALGUARD ULTIMA waterproofs concrete by penetrating deep into the concrete and chemically reacting with the by-products of cement hydration creating non-soluble, highly resistant, needle-like crystalline structures. This makes the concrete highly durable and impermeable to water and other liquids from any direction, even under extreme hydrostatic pressure. It also protects the concrete from the various harsh environmental conditions that it is exposed to. This crystalline structure occurs where moisture is present, so at any later stage, if cracks form due to settling or shrinkage, the incoming water triggers the crystallization process and additional crystals begin to grow, and it has the ability to self-heal cracks. However, the CRYSTALGUARD ULTIMA layer will still allow the passage of water vapor through the structure, allowing the concrete to breathe. CRYSTALGUARD ULTIMA is approved for use in contact with potable water.

RECOMMENDED USES

- Basements
- Concrete Water Tanks
- Tunnels and Subway Systems
- Roof Slab
- Sewage and Water Treatment Plants
- Reservoirs
- Sunken Portion
- Foundations



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FEATURES AND BENEFITS

- Unique ability to become a truly integral part of the concrete substrate
- Provides permanent internal waterproofing and moisture blocking from both positive and negative sources
- Unique crystallization process reactivates at any later stage in the presence of moisture and water
- Permanent and eco-friendly with self-healing capabilities
- Can heal hairline cracks up to 0.5 mm
- Enhances concrete durability and reduces concrete permeability
- Can be applied to either the pressure or non-pressure concrete face
- High chemical resistance
- Non toxic and approved for potable water
- Allows concrete to breathe
- Does not puncture, tear, or become damaged
- Does not require sealing, lapping and finishing of seams
- Cost-effective and time-saving than most other methods



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
Depth of Water penetration	EN 12390-8	> 50% decrease in permeability compared to untreated concrete
Resistance to Chloride Ion	ASTM C1202	70% increase in resistance than untreated concrete
Self-healing Concrete	CRD C48 - 92	Showed high reduction in permeability with self-healing capability
Compressive Strength	EN 12190	Class R3 ≥ 25 MPa
Capillary Absorption	EN 13057	≤ 0.5 kg/m ² h ^{0.5}
Adhesive Bond	EN 1542	≥ 0.8 MPa
Modulus of Elasticity	EN 13412	≥ 20GPa
Reaction to Fire		Class A1
Potable Water Test	D.Lgs. 31/2001	Complies with the parameters



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APPLICATION GUIDELINES

Surface Preparation

Before applying SUPERSHIELD CRYSTALGUARD ULTIMA, ensure the substrate is clean and free of laitance, loose particles, curing agents, dirt, oil, grease, asphalt, and paint. The substrate should be thoroughly saturated with water and then allowed to dry to a damp surface. Important: Avoid leaving any standing or excessive water on the surface before application.

Structural Repair

Crack and Joint Preparation: Rout out cracks, faulty construction joints, and other structural defects to a depth of 1.5 inches (37mm) and a width of 1 inch (25mm).

Initial Coating: Apply a brush coat of Supershield Crystalguard and allow it to dry for 10 minutes.

Filling the Cavity: Prepare Supershield Crystalmix Ultra or Crystalmix by mixing four parts powder with one part water to achieve a thick, putty-like consistency. Tightly compress the mix into the groove using a pneumatic packing tool or a hammer and woodblock.

Note: For direct water flow (leakage) or areas with excessive moisture due to seepage, first apply Supershield Crystalpatch, then use Supershield Crystalmix Ultra or Crystalmix, followed by a brush coat of Supershield Crystalguard Ultima. (Refer to the Supershield Specifications and Applications Manual for complete details.) For expansion joints or cracks that experience chronic movement, use flexible materials such as expansion joint sealants.

Wetting Concrete

SUPERSHIELD CRYSTALGUARD ULTIMA requires a saturated substrate with a damp surface. Ensure concrete surfaces are thoroughly saturated with clean water before application to support proper curing and promote crystalline formation deep within the concrete pores. Remove any excess surface water before application. If the surface dries

out before the application, it must be rewetted.

Mixing For Slurry Coat

Mix SUPERSHIELD CRYSTALGUARD ULTIMA powder with clean water to a slurry consistency in the following proportions:

Brush Application

Consumption	No of Coats	Water	Powder
1.25–1.5 lb./sq. yd.(0.65–0.8 kg/m ²)	One Coat	2 Parts	5 Parts
2.0 lb./sq. yd.(1.0 kg/m ²)	One Coat	1 Part	3 Parts

Spray Application

Consumption	Water	Powder
1.25–1.5 lb./sq. yd.(0.65–0.8 kg/m ²)	3 Parts	5 Parts

Note: Prepare only the amount of SUPERSHIELD CRYSTALGUARD ULTIMA material that can be applied within 20 minutes. Do not add water to the mix once it begins to harden. Protect your hands by wearing rubber gloves during application.

Applying Supershield Crystalguard Ultima

Apply SUPERSHIELD CRYSTALGUARD ULTIMA using a semi-stiff nylon bristle brush, a push broom for large horizontal surfaces, or specialized spray equipment. Ensure the coating is applied uniformly at a thickness just under 1/16 inch (1.25 mm). If a second coat of SUPERSHIELD CRYSTALGUARD ULTIMA is required, it should be applied after the first coat has reached its initial set, but while it is still "green" (within 48 hours). Light pre-watering between coats may be necessary if drying occurs. SUPERSHIELD CRYSTALGUARD ULTIMA should not be applied in rainy conditions or when the ambient temperature is below 40°F (4°C). For recommended equipment, please contact SUPERSHIELD or your nearest SUPERSHIELD distributor.



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Curing

Once the SUPERSHIELD CRYSTALGUARD ULTIMA treatment has set to the point where it won't be damaged by water, a fine mist of clean water should be used for curing. Under normal conditions, curing can begin 24 hours after application. The treated surface should be cured twice daily for three days, and the structure should be allowed to set for a minimum of 18 days before being filled with liquid. In hot climates, more frequent curing may be necessary. Additionally, the freshly applied SUPERSHIELD CRYSTALGUARD ULTIMA must be protected from direct rain for at least 48 hours after application.

HEALTH AND SAFETY

SUPERSHIELD CRYSTALGUARD ULTIMA 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 the eyes, flush immediately with clean water. If irritation persists, seek medical assistance promptly.

STORAGE

When stored in a dry place with unopened and undamaged original packaging, SUPERSHIELD CRYSTALGUARD ULTIMA has a shelf life of 12 months.

PACKAGING

SUPERSHIELD CRYSTALGUARD ULTIMA is available in 25 kg (55.1 lb) pails and 25 kg (55.1 lb) 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.