

ECMACRYSTAL 205

Dry- Shake Crystalline Waterproofing for Concrete

Description and Characteristics

ECMACRYSTAL 205 is a dry-shake crystalline waterproofing system for horizontal concrete surfaces. It is a crystalline capillary waterproofing system containing proprietary blend of Portland cement, quartz aggregates of graded to particle sizes suitable for concrete floors and special proprietary chemicals. When combined with fresh concrete, ECMACRYSTAL 205 reacts with un-hydrated cement particles and moisture to form millions of needle-shaped crystals which grow and seal the pores, voids and capillaries in the concrete, and permanently block the pathways for water. Once applied on fresh concrete, ECMACRYSTAL 205 becomes an integral part of the concrete surface and is a more suitable and cost-effective solution for thicker concrete slabs which are power troweled while finished.

Areas of application

- Sewage treatment and water treatment plants, tanks,
- Below-grade Slabs, Foundation Slabs
- Bridge Decks, Warehouse floors
- Reservoirs, water holding structures, etc.

Advantages

- Resists hydrostatic pressure from either positive or negative surface of the concrete slab.
- Becomes an integral part of the substrate
- Can seal static hairline cracks up to 0.5mm
- Non-toxic / No VOCs
- Resists chemical attack of sewage and industrial wastes
- Does not inhibit concrete from breathing
- Helps to improve abrasion resistance of treated concrete surface
- Cost-effective

Action Mechanism

In the presence of moisture of fresh concrete, the active chemicals in ECMACRYSTAL 205 react causing formation of insoluble crystals within the pores and capillary tracts of the concrete and reduced coefficient of water permeability by >85% as per DIN 1048 against Control. This crystalline growth reduces porosity by blocking capillaries and filling hairline non-structural cracks (up to 0.5mm wide) caused by shrinkage or expansion.

Surface Preparation

Rapid loss of moisture in plastic concrete may impair the ability for concrete to receive the dry-shake without subsequent delamination. Use sun/wind shades or fogging equipment to protect the concrete surface from drying out before and after applying ECMACRYSTAL 205.

Application Instructions

- Wait until fresh concrete can be walked on leaving indentation.
- Concrete should be free of bleed water and should support the weight of a power trowel.
- Float open the surface
- Spread the dry shake material evenly by hand or mechanical spreader. It is recommended to evenly distribute 50% of the powder in one direction with the remaining 50% in cross direction. Release the powder as close to the wet concrete as possible.
- As soon as the dry shake material has absorbed moisture present in the base slab, it must be floated into the concrete surface to achieve good finish.

Curing

After initial set, moist curing, using continuous water spray is recommended. Surfaces shall be fog sprayed 3 to 4 times daily for minimum 3 days. For warmer climates, more frequent spraying may be required.

Coverage

ECMACRYSTAL 205 should be evenly broadcasted over the fresh concrete surface at coverage rate of 0.6-1.0 kg/m². Consult with ECMAS Technical service team for assistance in verifying the appropriate dosage rates and application method.

Construction Joints/ Cracks Treatment

To achieve water-tight construction, all honeycombs, construction joints and cracks in the ECMACRYSTAL 205 treated & cured concrete must to treated as below

1. All construction joints, cold joints/ cracks must be cut in U shape groove (of size 25 mm wide x 35 mm deep).
2. Clean the groove, saturate it with water and apply a thick coat of ECMACRYSTAL 203 and allow it to dry for 15 minutes.
3. Seal the groove with ECMACRYSTAL 206 crystalline waterproofing mortar.
4. All damaged/ honeycomb areas should be repaired with Polymer mortar ECMAREP 502 or Crystalline mortar ECMACRYSTAL 206 and injection grouted.

Packaging

ECMACRYSTAL 205 is supplied in 25Kg HDPE moisture resistance bag.

Shelf Life

ECMACRYSTAL 205 has a shelf life of 12 months

Storage & Handling

Material should be stored in a cool and dry shade away from moisture. Also protect it from direct sunlight. Please do not use hook and handle carefully during transport.

Safety Precautions

ECMACRYSTAL 205 crystalline waterproofing system contains chemicals that may cause irritation to the eyes and skin. Goggles, rubber gloves and long sleeves should be worn when working with these products. Read warnings noted on product package and refer to product material safety datasheet prior to use.

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