

ECMACRYSTAL ADMIX 204

Permeability Reducing Crystalline Admix for Concrete

Description

ECMACRYSTAL ADMIX 204 (hydrophilic integral crystalline waterproofing powder admix) is specially formulated concrete additive to produce water-tight concrete by significantly reducing water permeability. It is added to the concrete mix at the time of batching. ECMACRYSTAL ADMIX 204 consists of Portland cement, very fine treated silica sand and various active, proprietary chemicals. These active chemicals react with the moisture in fresh concrete with the by-products of cement hydration to cause a catalytic reaction, which generates non-soluble crystals throughout the pores/ voids and capillary tracts of the concrete. Thus, the concrete becomes permanently sealed against the penetration of water or liquids from any direction. The concrete is also protected from deterioration due to aggressive chemicals & harsh environmental conditions.

Uses

ECMACRYSTAL ADMIX 204 can be used for the following construction applications.

- Sewage and Water Treatment Plants
- Secondary Containment Structures
- Tunnels and Subway Systems
- Foundations, Basement Rafts & Retaining Walls
- UG Parking Structures
- UG Tanks, Reservoirs
- Pre-Cast, Cast-in-Place and Shotcrete applications.

Advantages

- Resists extreme hydrostatic pressure from either positive or negative surface of the concrete slab
- Becomes an integral part of the concrete
- Highly resistant to aggressive chemicals – long term protection to concrete
- Can resist very high hydrostatic water pressure
- Self-sealing of hairline cracks up to 0.5 mm in the treated concrete
- Allows concrete to breathe
- Non-toxic and VOC Free
- Reduces construction scheduling time

Technical Specifications

Appearance & Physical State	Grey Powder
Bulk Density g/cm ³	1.100±0.10
Chloride Content	<0.1 %
Coefficient of Water Permeability DIN 1048 Part V @16bar Pressure	Reduce >90% as per control
Drying Shrinkage	Reduce 25 % as per control
Compressive Strength 28 Days	Increased up to 8% as per control
Flexural Strength 28 Days	Increased up to 8% as per control



Application Instructions

ECMACRYSTAL ADMIX 204 is added to the concrete at the time of batching. It is critical to homogeneously mix ADMIX 204 with the concrete. Do not add dry Admix 204 directly to wet mixed concrete as this may cause lumps formation and thorough dispersion may not occur. The mixing procedures will vary according to the type of batch plant operation and equipments.

Ready Mix Plant - Dry Batch Operation: Add ECMACRYSTAL ADMIX 204 in powder form to the drum of the ready-mix truck. Drive the truck under the batch plant and add 60% - 70% of the required water. Mix for 2-3 minutes to ensure the ECMACRYSTAL ADMIX 204 is distributed evenly throughout the mix water. Add the balance of materials to the ready-mix truck in accordance with standard batching practices and mix for at least 5 minutes.

Ready Mix Plant - Central Mix Operation: Mix require quantity of ECMACRYSTAL ADMIX 204 and water to form very thin slurry. Pour the required amount of material into the drum of the ready-mix truck. The aggregate, cement and water should be batched and mixed in the plant in accordance with standard practices (taking into account the quantity of water that has already been placed in the ready-mix truck). Pour the concrete into the truck and mix for at least 5 minutes to ensure even distribution of ECMACRYSTAL ADMIX 204 throughout the concrete.

Precast Batch Plant: Add ECMACRYSTAL ADMIX 204 to the aggregates and sand on conveyor belt, then mix thoroughly for 2-3 minutes before adding the cement and water. The total concrete mass should be blended using standard practices.

Setting Time and Strength: Addition of ECMACRYSTAL ADMIX 204 will not alter fresh concrete properties such slump and setting time. Under normal conditions, it will provide a normal set concrete. Concrete containing ECMACRYSTAL ADMIX 204 may develop slightly higher ultimate strengths than control concrete. However, site trials should be carried out under actual project conditions & materials prior to usage so as to adjust slump, setting time and strength of the concrete. Concrete treated with ECMACRYSTAL ADMIX 204 should be placed, finished & cured in accordance with good concrete practices.

Doses

General dosage @ 0.8-1.0% by weight of cementitious contents. Consult with ECMAS technical service team for assistance in determining the appropriate dosage rates for the given usage.

Construction Joints/ Cracks Treatment:

To achieve water-tight construction, all honeycombs, construction joints and cracks in the ADMIX 204 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.

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Packaging

ECMACRYSTAL 204 is supplied in 25Kg HDPE moisture resistance bag.

Shelf Life

12 Months in original unopened sealed condition.

Storage & Handling

Material should be stored in moisture free, cool and dry shade. Please do not use hook and handle carefully during transport.

Safety Precautions

Wear all PPE's at the of application like Safety boot, Safety Goggle, Hand Gloves, Mask and avoided with contact with Skin and Eyes. Avoid breathing dust at the time of mixing.

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