



CRYSTAL WP-5000

Crystalline waterproofing admixture

CRYSTALLINE WATERPROOFING ADMIXTURE

Description

CRYSTAL WP-5000 is an integral crystalline admixture powder specifically formulated to interact with concrete capillary pore structures to provide a waterproofing system that is a permanent part of the concrete matrix, it can be used in above and below grade applications. Active chemicals combine with the free lime and moisture present in the capillary tracts and pores, to form insoluble crystalline complexes. These crystals block the capillaries and minor shrinkage cracks in the concrete to prevent any further water ingress (even under pressure). However, the concrete will still allow the passage of water vapor through the structure (i.e. the concrete will still be able to "breathe").

Advantages

- Eliminates water penetration.
- Interior or exterior waterproofing against high hydro-static pressure. No adverse effect on compressive strength or setting time with Portland cement.
- Increases Durability and lifespan of concrete by 70 years
- Self healing properties of treated concrete of up to 0.5 mm static cracks
- Highly improves chemical resistance
- Vapor diffusion in concrete is not blocked

Areas of Use

Waste treatment facilities, foundations and basements, marine structures, precast concrete, tunnels and subways, dams and water reservoirs manholes, underground vaults, parking structures, swimming pools, water containment structures

Application

CRYSTAL WP-5000 can be used in drum mixed and central batched concrete applications. It should be added to the initial batching sequence preferably as the aggregate is being added to the mixing vessel. Concrete should be mixed a minimum of 8–10 minutes, at normal mixing speed, after all concrete constituents have been batched to ensure thorough dispersion of all materials

Dosage

CRYSTAL WP-5000 is typically dosed at 1 to 2% by weight of cementitious material (BWC) depending on application. Please consult a Cormart representative for further dosage recommendations.

Remarks

- CRYSTAL WP-5000 should be added to the aggregate as it is being batched or to the initial batching sequence.
- Do not add CRYSTAL WP-5000 at the end of the batching sequence.
- Concrete containing CRYSTAL WP-5000 may develop higher ultimate strengths than plain concrete. Trial mixes should be carried out under project conditions to confirm concrete performance.

Packaging

20kg,

Storage

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

Health and Safety

Please observe the actual valid material safety data sheet and follow the described safety measures for handling of the product.

Test Data

■ Permeability Testing, CRD C48-92

At the completion of the test, the specimens (15.2 cm ×15.2 cm) did not exhibit any water leakage. All specimens were tested for 14 days under 200 psi (462 feet of head pressure [13.8 bar]). A reduction of more than 70% compared to control samples.





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- Water Penetration, DIN 1048**
 Specimens (15.2 × 15.2 cm) exhibited an average water penetration of 22 mm when tested for 72 hours under 72 psi (166 feet of head pressure [5.0 bar]), 40% reduction compared to control sample.
- Pressurized water penetration, EN 12390-8**
 Concrete cubes with 1% dosage were exposed to 5 bar hydrostatic pressure and exhibit no water penetration.
- Compressive Strength, psi (MPa) ASTM C 39**
 7 days 3,560 (24.5)
 28 days 4,930 (34.0)
 An increase of up to 8% compared to control sample.
- Freeze/Thaw Resistance, ASTM C 666**
 300 cycles 93.8 % Relative Durability Factor
- Flexural Strength, psi (MPa) ASTM C 78**
 7 days 737 (5.1)
 28 days 778 (5.4)
- Rapid Chloride Permeability, ASTM C 1202**
 28 days 3,506 coulombs (moderate)
 An improvement of 10% compared to control sample.
- Chemical Admixtures, ASTM C 494 Type S, Specific Performance**
 Reported are the chemical and/or physical properties of cement and aggregates used and the results obtained in tests of concrete and aggregates used. CRYSTAL WP-5000 meets the requirements for Type S.
- Potable water compliance, NSF 61**
 No harmful effects in potable water contact.

TECHNICAL DATA			
Test type	Method	Test parameters	Performance relative to control
Pressurized water penetration	EN 12390-8	1% dosage	passed
Water penetration	DIN 1048	5 bar (72 psi) head pressure	40% reduction
Water permeability	CRD C48-92	13.8 bar (200 psi) head pressure	>70% reduction
Capillary absorption	ASTM C-1585		>40% reduction
Compressive strength	ASTM C-39		equal to and up to 8% increase
Resistance to chloride penetration	ASTM C1202		10% improvement
Length change	ASTM C-157		up to 20% reduction
Sulphate resistance	ASTM C-1012	6 months	33% improvement
Admixtures for concrete	ASTM C-494	type S, performance	passed
Admixtures for concrete	EN 934-2	water reducing/plasticizing	passed

Testing was performed under laboratory conditions using laboratory materials.

Essential characteristics	Performance	System of assessment and verification of constancy of performance	Harmonised technical specification
Chloride ion content	≤ 0.1 %	System 2+	EN 934-2:2009 +A1:2012
Alkali content	≤ 6.5 M %		
Corrosion behaviour	No corrosion acc. to EN 480-14 observed		
Compressive strength	At 7 and 28 days: Test mix ≥ 110 % of control mix		
Water reduction	In test mix ≥ 5 % compared with control mix		
Air content	Test mix ≤ 2 % by volume above control mix		
Dangerous substances	cf. Safety Data Sheet REACH		



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