

CRISTALPROOF ADMIX crystalline system is added to the fresh concrete easily at the batch plant or directly into ready mix trucks. It creates a chemical reaction within the pores and capillaries to enhance the hydration process of the cement component within the concrete. It is designed to enhance by effectively waterproofing the concrete and reducing the shrinkage cracks. CRISTALPROOF Admix is a CE certified system and is subject to: NBN EN 934-2 - Water resisting concrete admixture.



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0965-CPR-AH 026

EN 934-2

Water resisting admixture for concrete

DESCRIPTION

CRISTALPROOF ADMIX is designed to enhance by effectively waterproofing the concrete and reducing the shrinkage cracks. This provides a cost effective solution to membrane systems while increasing concrete's durability. CRISTALPROOF ADMIX is added to fresh concrete easily at the batch plant or directly into ready mix trucks. It works to continuously prevent moisture from penetrating through the concrete by creating a chemical reaction within the pores and capillaries to enhance the hydration process of the cement component within the concrete. As an additive for concrete, the CRISTALPROOF ADMIX will promote additional CSH crystals to grow within the concrete utilizing the concrete's own natural hydration process to reduce the permeability of the concrete. The increased hydration process also allows for an increased ability for the concrete to self-heal micro cracking upon the presence of moisture.

AREAS OF APPLICATION

Added to the fresh concrete for swimming pools, tunnels and subway systems, parking garages, all below grade concrete foundations, rooftops, dry vaults, sewage and water treatment plants, water towers and water reservoirs, marine structures, pipes, bridge decks, concrete walls and floors.

TECHNICAL DATA

Colour	Grey
Appearance	Granular powder
Max particle size	US mesh 30
Solids	100%
Bulk density	1.4
pH	13
Water resistance	150 m head pressure
Chloride content	< 0,01%
Alkali content	< 8%
Higher compressive strength of concrete	+ 5% (EN 12390-3)
Reduction of water absorption	40% - 60% (EN 480-5)

FEATURES, BENEFITS AND ADVANTAGES

Features

- Replaces all membranes.
- Virtually eliminates water penetration through concrete.
- User Friendly – simply added to the concrete mix.
- Will stop water under high hydrostatic pressure.
- Reduces cracking by up to 60%.
- Will self-heal new hairline cracks.

Benefits

- Increases productivity, lowers costs and increases durability.
- Lowers overall costs through increased life span.
- Very low application cost, No problems due to worker error.
- Completely eliminates the need for alternative waterproofing systems.
- Lower maintenance costs and increases effective life.
- Lower repair costs.

Advantages

- Eliminates waterproofing sub-trade and related problems.
- Stops corrosion of reinforcing steel, stops penetration of waterborne contaminants resulting in increased durability and reduction of opportunity costs.
- Less chance of error, and no impediment to productivity.
- Can be used to stop water penetration through concrete under dramatic conditions.
- Requires less repairs, provides a better quality finish.
- Increasing the life of concrete.

OPERATIONAL DATA

CRISTALPROOF ADMIX is a dry powder that is added directly to the wet mix concrete during batching. It may be added directly to the ready mix truck prior to site arrival or even at site. The dosage rate is 0,8 to 2 kg per 100kg of cement (depending on the type of cement and formulation of the liquid concrete; see dosage and our test report with 2% addition). Reduce the water component by 7 to 10% (even though the concrete will look less wet than it would normally look, it will provide an increased slump and workability to offset the reduction in water, making it easy for pouring and placing). CRISTALPROOF ADMIX will actually increase productivity. Reduce or eliminate air-entraining admixtures as required. CRISTALPROOF ADMIX will normally increase air entrainment by 1 to 3%. Mix for 10 minutes at high speed before placing to insure a thorough mix. Should a superplasticizer be required, add it after the addition of the CRISTALPROOF ADMIX. Do not add water to the mix to increase slump. Place the concrete within 45 minutes to utilize the maximum benefits of flow and placement values. Avoid early finishing and over trowelling.

Notes: CRISTALPROOF ADMIX may delay initial and final set times under most conditions.

CRISTALPROOF ADMIX is free of oils, stearates, chlorides, sodium and silicate based materials.

PERMEABILITY TEST

The permeability measurement was performed on concrete samples with and without CRISTALPROOF ADMIX after 28 days of maturation in a humid atmosphere at 20°C and 95% relative humidity. Permeability tests were performed for 14 days at 5 atm (500 kPa) of water pressure perpendicular to the surface. Samples with CRISTALPROOF ADMIX show a water penetration of 70% less than the reference. (Report EXOVA / Italy No 39587.2 (2010))

MECHANICAL PROPERTIES

The data mentioned in this section come from a study carried out on a concrete designed with 2% and without CRISTALPROOF ADMIX (UNI EN 480-1). The characteristics of the concrete used are as follows (according to DM 14/01/2008):

Type of concrete	Value
Resistance to compression (MPa)	30
Consistency	S4
Exposure class	XC2
Water cement ratio	0,6

*Report EXOVA/ Italy No 39587.2 (2010)

Mix Design	Unit	Quantity
Cantidad de cemento		
Cement II/A-LL 42,5 R (Superbeton CE 0925-CPD-Ce an. 45/2006)	kg/m ³	300
Aggregates		
Sand (Superbeton CE 1305-CPD-0108)	kg/m ³	1.060
Gravel (Superbeton CE 1305-CPD-0108)	kg/m ³	870
Water		
Theoretical density of fresh cement	kg/m ³	2396,8
Theoretical water / cement ratio		0,55
Additive		
CRISTALPROOF ADMIX (2%)	kg/m ³	6

*Report EXOVA/ Italy No 39587.2 (2010)

Properties of fresh concrete	Standard used	Reference sample	CRISTALPROOF ADMIX (2%)
Slump (mm) - 30 min	UNI EN 12350/2	21,0	20,7
Density (kg/m ³)	UNI EN 12350/6	2.415,4	2.415,9
Air content (%)	UNI EN 12350/7	2,9	3,0

*Report EXOVA/ Italy No 39587.2 (2010)

Properties of hard concrete	Standard used	Reference sample	CRISTALPROOF ADMIX (2%)
Resistance to compression (MPa) at 28 days*	UNI EN 12390/3	34,6	38,2

*Report TPA Building test center/ Bulgaria No C11-113 (2011)

DOSAGE

Dosage is 0,8 to 2% of the cement content. Concrete's with higher cement contents will require proportionally more CRISTALPROOF ADMIX.

Note: CRISTALPROOF ADMIX is measured to the cement and cementitious components such as fly ash and silica fume only and is not measured to the full concrete design. Be sure not to include water, sand or aggregates in the dosage component.

STORAGE

Store in dry location, opened pails will deteriorate if subjected to moisture. Shelf life is 2 years in the original packaging.

PACKAGING

20/25 kg in plastic pails.

Alternative packing may be made available upon request.

SAFETY AND HEALTH PRECAUTIONS

When mixed with water, moisture or perspiration, CRISTALPROOF ADMIX becomes corrosive. Avoid all contact with skin and eyes. In case of skin contact, wash with soap and water. Immediately flush eyes with warm water for several minutes. Do not induce vomiting if swallowed. Give two glasses of water when conscious. Do not breathe dust. Wear clothing with long sleeves, eye protection and a dust mask. For additional information, read the MSDS.