

TECHNICAL SHEET

ADDITIVE FOR THE WATERPROOFING AND SELF-SEALING OF THE CONCRETE BY INTERNAL CRYSTALLIZATION

CRISTAL MIX is a powder product for concrete with the unique property of forming crystals that permanently waterproof the mass.

CRISTAL MIX improves concrete by creating a waterproofing and self-sealing mixture and reducing the shrinkage cracks.

This solution is economically advantageous if compared to the membrane system and increases concrete's durability.

CRISTAL MIX is easily added to fresh concrete at the batch plant or directly in the ready mix trucks. It works to continuously prevent moisture from penetrating through the concrete creating a chemical reaction within the component within the concrete.

Combined with concrete, **CRISTAL MIX** promotes the growth of additional crystals within the concrete itself, utilizing the concrete's own natural hydration process, and reduces its permeability.

The enhanced hydration process intensifies the ability for the concrete to self-seal the micro cracking in the presence of the moisture.



CE

N°0965-CPD-AH 215

EN 934-2

The tests made confirm that the addition of **CRISTAL MIX** to the concrete doesn't substantially alter the chemical and physical properties of the concrete itself. Variations occur only in the cement micro-structural properties as shown in the images produced by the scanning electron microscope.



Use

- **All below grade concrete foundation**
- Water towers and waters reservoirs
- Pipe
- Sewage and water treatment plants
- Prefabricate manufactured products
- Parking structure
- Swimming pools
- **Tunnels and subway system**
- Concrete walls and floors
- Bridge decks
- **Marine structure**

Advantages and benefits

- **Replaces all waterproofing systems**
- Eliminates the need of waterproofing and the related problems.
- Stops corrosion of reinforcing steel.
- **Reduces cracking from concrete's drying shrinkage up to 60%**
- Stops penetration of waterborne contaminants.
- Lowers costs through an increased durability.
- Easy to use (to be added directly to the concrete mixture).
- Less chance of error and no impediment to productivity.
- **Increases productivity and durability by lowering costs**
- Very low application costs.
- Stops water under high hydrostatic pressure.
- Stops water penetration into the concrete under dramatic conditions.
- **Self-seals crack up to 0,7 mm width.**
- Reduces the costs of maintenance.
- Increases concrete's durability.
- No other protection system required.

Application Instructions

See Application Instructions AP CL3.

Dosage

Dose at 2% by weight of cement content = 2 kg of **CRISTAL MIX** per 100 kg of cement; 6 kg of **CRISTAL MIX** per 300 kg of mortar.
Concrete with higher cement content requires proportionally a higher quantity of CRISTAL MIX.

Note: **CRISTAL MIX** dosage is in relation to the cement and cementitious component such as fly ash and silica only and note in relation to the full concrete design.
Be sure not to include water, sand or aggregates in the components.

**Technical
Data**

Mix Design	Unit	Quantity
Quantity of cement		
Cement II/A-LL 42,5 (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		
CRISTAL MIX (2%)	Kg/m ³	6

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

Colour:	Grey
Appereance:	30 granular powder
Max particle size:	30 mesh US
Solids:	100%
Bulk density:	1,4
PH:	12
Water resistance:	head pressure 150 m
Chloride content:	< 0,01
Alkali content:	< 8 %
Higher compressive strenght of concrete	+ 5 % (EN 12390-3)
Reduction of water absorption	40 % tot 60 % (EN 480-5)

Properties of fresh concrete	Standard used	Reference sample	CRISTAL MIX (2%)
Slump (mm) – 40 min	UNI EN 12390/3	34,6	18
Density (kg/m ³)	UNI EN 12350/6	2.447,8	2.427,9
Air content (%)	UNI EN 12350/7	2,0	3,3

Properties of hard concrete	Standard used	Reference sample	CRISTAL MIX (2%)
Pressure resistance (Mpa) at 28 days	UNI EN 12390/3	34,6	38,2

Conservation Store in dry location. Opened pails will deteriorate if subject to moisture. I secchi aperti sono soggetti a deterioramento se esposti a umidità.

Health Precautions See the product's Safety Data Sheets.

Packaging 25 Kg pails.

All information is given in good faith and without any warranty. The application, use and processing of these products are beyond our control and therefore your responsibility. Any eventual established liability, through bad application or any other reason, for any damages, is always limited to the values of the goods supplied by System Technology. The products and systems are manufactured under total quality management.