



CRYSTALS

# CRISTAL ST1-ST2

## TECHNICAL SHEET

### CEMENT-BASED PRODUCT FOR WATERPROOFING OF CONCRETE THROUGH INTERNAL

The ECOLOGICAL CRISTAL ST1-ST2 products, designed for the repair of concrete, are cement-based products with the addition of nonpolluting chemical and organic products. These products are intended for interior or exterior use on concrete and guarantee a durable waterproofing.

They can also be used for repairing leaks due to microcracks in concrete or concrete casting. They work in a specific way to increase the durability of concrete, hindering or preventing corrosion of the reinforcement.



#### Use

CRISTAL ST1-ST2 are recommended for waterproofing concrete in the following

- Pools
- Tunnels and subways
- Covered car parks
- Pipes and pipelines
- All structures below water level
- Roofs
- Dry docks
- Water tanks and overhead water
- Tanks
- Port structures
- Bridge decks
- Concrete walls and floors
- Water purification system
- Sewers



#### Advantages and Benefits

- Eliminates the water permeability of concrete
- Easy to use: simply mix with the right amount of water and apply with a brush or spray dispenser.
- The self-cleaning and reactive operation will make any new cracks waterproof:
- CRISTAL ST1 acts as a self-regenerating restorative to close cracks.
- A treatment with CRISTAL products can prevent sulphur oxide damage for 8 to 15 years in addition to improving the general condition of the concrete.
- As long as moisture is present, the crystallization process is continuous.
- The degree of waterproofing of the concrete increases progressively.
- Although the concrete structure becomes impermeable to water and other fluids it remains permeable to air and gas.
- Increases the strength of the concrete.
- Combats the penetration of harmful and corrosive particles.
- Combats reinforcement corrosion and blocks the penetration of polluting particles transported by water. This entails a greater durability of the structure and a reduction in routine maintenance and repair costs.
- Can be used to stop the water permeability of concrete in extreme cases.
- No additional waterproofing treatments are required, as CRISTAL works deep inside the material. Even in the event of an eroded top layer, the structure remains perfectly waterproof.
- CRISTAL products offer protection against: -Reinforcement corrosion -Formation of cracks -Frost damage -Damage by Sulphur oxides -Formation of moisture spots



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- (mould) – Chloride penetration – Carbonation and chemical products -Hydrostatic load – High humidity in the air
- CRISTAL ST1 comes in the form of a dry powder that is mixed with water (5 parts of
- CRISTAL ST1 and 2 parts water) to obtain a thick substance.
- This dense mass should be applied with a brush that is sturdy but has thin bristles.

## Application Methods

### APPLICATION BY BRUSH

- Double layer: use 0.8 kg/m<sup>2</sup>

### PROCEDURE

The surface to be treated must be clean. Old layers or flaking layers of paint, layers of plaster, oils and greases and other polluting substances or particles must be carefully removed.

2. Mix the substances as indicated in the instructions. Use clean water for this purpose. Soak the surface to be treated well and remove any puddles of water.

3. Apply a 1 to 2 mm thick layer with a sturdy, thin-bristled brush. Spread the product evenly with the brush.

4. In a dry climate, use the spray on the surface to be treated.

5. Prepare the CRISTAL ST2 mix like that of CRISTAL ST1, according to instructions. Apply the ST2 mix and spread it well with the brush.

### IMPORTANT !

- Spraying with clean water is required at each step.
- Do not attempt to dilute or mix a hardened mixture with water.
- Protect the applied layer from drying and erosion for 48 hours.
- The layer can be completed after 3 hours.
- Avoid excessive loads for 7 days after the end of treatment
- After 28 days, it may be finished with paint or plaster.
- The CRISTAL ST1 layer may be removed 4 months after its application. However, this is not required.
- Do not apply in case of room temperatures below 5°C.
- Protective clothing (overalls, gloves, glasses) is strongly recommended.

### SPRAY APPLICATION:

CRISTAL ST1 can also be applied as a spray.

Follow the mixing instructions, continuing treatment with a brush if necessary to ensure an effective penetration of CRISTAL ST1 into the material's pores and capillaries.

- Single layer: use 1.5 kg/m<sup>2</sup>

### TREATMENT – POWDER USE “BUTTERFLY METHOD”

CRISTAL ST1 is also available ready to use in powder form. Spread the powder on the surface to be treated in a ratio of 1.5 kg/m<sup>2</sup> to be distributed with a trowel.

Powder use is only recommended if you have a power polisher.





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# CRISTAL ST1-ST2

**How CRISTAL ST1 works**

Concrete is comparable to a network of pores, capillaries and cracks. This pore system is vulnerable to the penetration and transportation of moisture by osmosis (the osmotic action of concrete), through the diffusion of formation of gas and under the effect of water vapor pressure and hydrostatic load. This moisture can cause a series of problems in the concrete.

Fully hydrated cement is composed of particles of calcium hydroxide or calcium silicate hydrate. These crystalline products give the cement its characteristic hardness and porosity. This porous structure is therefore easily permeable to water or moisture. As a result of osmosis and diffusion, the active substances of CRISTAL penetrate in form the applied layer to plug this network of pores. In doing so, they allow the moisture present to interact with the unhydrated concrete particles.

Therefore, millions of very fine crystals are formed that plug the porous structure. CRISTAL ST1 is not a coating: after a few months, the active ingredients will be so well integrated into the concrete that he layer can eventually be removed; In this the product stands out clearly from traditional coatings. CRISTAL products are almost unaffected by surface wear. The reaction continues while particles of non-hydrated cement and moisture are present. This is a durable thickening of the concrete in stagnant air and with vapor transpiration.

**Dosage** 1,6 Kg/mq (0,8 kg/mq ST1 + 0,8 kg/mq ST2)

<b>Technical Data</b>	<b>Colour :</b>	Grey
	<b>Texture :</b>	Cement based powder
	<b>Solid Matter :</b>	100%
	<b>Specific weight :</b>	1,45
	<b>Ph :</b>	13
	<b>Penetration :</b>	2.1 mm per week (depending on the porosity)
	<b>Granulometry :</b>	50 - 150 mu
	<b>Hydrostatic load:</b>	170 m (in case of treatment in 2 layers)
	<b>Shelf life :</b>	min. 2 years ( in a dry place )
	<b>Environment:</b>	Not poisonous, ecological, no olfactory pollution, no synthetic materials, silanes, metals or chlorides.

**Conservation** Store in a dry place. Open tubs are subject to deterioration when exposed to moisture.

**Health warnings** CRISTAL ST1 and ST2 are cement-based compounds and therefore alkaline. They can cause irritation to the skin and eyes. Wear appropriate clothing and protect the eyes during mixing and treatment with CRISTAL ST1-ST2.

**Package** 25 Kg TUBS

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