

PC® CRISTAL CONCENTRATE

Product for concrete crystallization



0749 / EN 1504-3

TECHNICAL DATASHEET

1. Description

PC® Cristal Concentrate is a product applied as a slurry coat on concrete in order to make the concrete watertight by means of a unique chemical treatment. **PC® Cristal Concentrate** works through internal crystallization based on special chemicals, cement and sand. **PC® Cristal Concentrate** penetrates deep in the pores, the capillaries and shrinkage cracks and, independent of a negative or positive water pressure, forms crystals that block the penetration of water.

In absence of water there will be no reaction and the active chemicals remain in a sleeping state. In contact with water, the reaction will start again until all active components have participated in the crystallization process.

2. Applications

PC® Cristal Concentrate is applied to concrete and cement structures where liquid water needs to be kept in or kept out.

Examples: potable water reservoirs, aquariums, tunnels, foundations elevator shafts, underground structures, industrial processing plants, parking decks, road decks, cellars, concrete roofs, and all concrete or cement based structures which have to be waterproofed.

3. Properties of PC® Cristal Concentrate

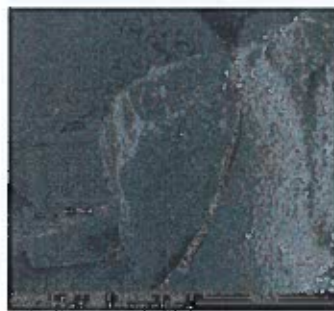
- **PC® Cristal Concentrate** ensures permanent water sealing of the concrete.
- **PC® Cristal Concentrate** can be applied on a humid surface.
- The active components present in the watertight concrete will reactivate upon water impact.
- **PC® Cristal Concentrate** does not contain any momentary organic components and is not toxic.
- Tests at BECETEL (Belgian Research Centre for Pipes and Fittings) and laboratory MAGNEL for concrete research show that concrete treated with **PC® Cristal Concentrate** is completely watertight after 5 days (report BECETEL with reference PV010093, report labo MAGNEL with reference 2007/452-EG/SDB).
- **PC® Cristal Concentrate** is resistant to frost - thaw cycles (report labo Magnel with reference 2000/630-KA/CM).
- **PC® Cristal Concentrate** is resistant during at least 35 days to de-icing salts, sulphuric acid and hydrochloric acid (pH > 2) (report labo Magnel with reference 2000/630-KA/CM).
- **PC® Cristal Concentrate** bridges cracks upto 0,3 mm (report BECETEL with reference PV010093).
- **PC® Cristal Concentrate** has a Belgaqua potable water approval so can be applied in contact with drinking water (report BELGAQUA with reference VMW/Hydrocheck/2002/2).

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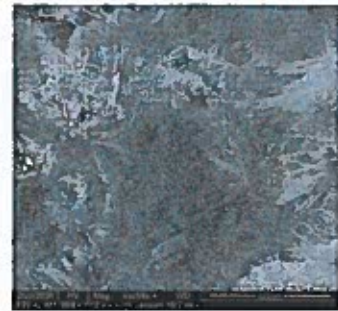
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- The active components of **PC® Cristal Concentrate** react with the free lime and the water present in the concrete and form insoluble crystal complexes. This way the waterproofing becomes an integral part of the concrete structure. Superficial damage will not influence the water sealing capacity of the structure. This implies that the crystals must have penetrated deep enough into the structure. Therefore, In cooperation with labo Magnel for concrete research, concrete samples, treated with **PC® Cristal Concentrate**, were submitted to a SEM study (report ECC NV nr. TD 07/05/2008/Cristal Concentrate/A35).



Picture 1: SEM photo of the initial situation: the dendritic crystal growth did not start yet.



Picture 2: After 10 days the crystal growth is at full speed and capillaries and pores in concrete are sealed with these crystals. A dense crystal structure in the capillary network makes the concrete completely watertight.



4. Application instructions

4.1 Preparation of the surface

- The surfaces which has to be treated (concrete, concrete blocks, cement plaster) must be in good condition and free of dirt, soil, concrete milk and other products which could adversely affect the **PC® Cristal Concentrate** adhesion, penetration or effect.
- Roughen very slippery concrete surfaces with sand or water jets. The surface must be porous.
- Grind cracks, bigger than 0,3 mm and a apply a suited repair mortar. **PC® Cristal Concentrate** can bridge cracks smaller than 0,3 mm.
- Remove poor concrete and grind nests until sound concrete is reached. Apply where necessary a suitable repair mortar.

4.2 Mixing **PC® Cristal Concentrate**

PC® Cristal Concentrate has to be mixed to the consistency of a cementious paste. During application mix the slurry regularly in order to keep a homogenous paste. Only prepare as much material as can be processed in 35 minutes.

Application with a brush: mix 7 to 8 litres of water with 25 kg of **PC® Cristal Concentrate**

Application with a spray-gun: mix 8-9 litres of water with 25 kg of **PC® Cristal Concentrate**

4.3 Application of PC[®] Cristal Concentrate

PC[®] Cristal Concentrate can be applied with a brush or with a spray gun (Mixjet). Before application the concrete surface must be prepared as described in §4.1 and must be made slightly wet. Then, apply PC[®] Cristal Concentrate in 2 layers with a total consumption of ca 1,6 kg/m². A consumption of 1,6 kg/m² PC[®] Cristal Concentrate powder corresponds with a layer thickness of cured PC[®] Cristal Concentrate coating of minimum 1mm. A consumption of 1,6 kg/m² PC[®] Cristal Concentrate slurry corresponds with a layer thickness of wet PC[®] Cristal Concentrate coating of minimum 0,8mm. The period between the application of the first and second layer at 20°C is minimum 3 hours and maximum 24 hours. After application of the second layer PC[®] Cristal Concentrate the surface must be kept humid in order to avoid cracking and to activate the active components.

5. Packaging

Paper bags of 25 kg

6. Precautionary measures and safety recommendations

- PC[®] Cristal Concentrate is alkaline.
- Long-term contact can irritate the skin, therefore use rubber gloves, boots and protective clothing when mixing and applying.
- Use safety glasses when spraying and applying above the head.
- In the event of contact with the eyes: rinse thoroughly for at least 10 minutes and consult a doctor.
- For more information: see Material Safety Data Sheet.



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0749 - CPD
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Mortar for non-structural repair, Class R1

Compressive strength	≥ 10 MPa
Chloride ion content	≤ 0.05 %
Adhesive bond	≥ 0,5 MPa (cohesive failure)
Thermal compatibility part 1	pass
Dangerous substances	complies with 5.4
Reaction to fire	Euroclass F