

# AquaProof Crystal

Cementitious capillary waterproofing render for concrete



## Description

AquaProof Crystal is a specially formulated single component cementitious crystalline capillary waterproofing system consisting of a blend of cement, fillers, and multiple activating chemicals. When mixed AquaProof Crystal produces a brush applied cementitious render.

AquaProof Crystal prevents the penetration of water by causing a catalytic reaction that produces a non-soluble crystalline formation within the pores and capillary tracts of the concrete. This crystalline growth reduces substrate porosity and can fill hairline cracks.

## Applications

Waterproofing protection of:

- ▲ Potable water tanks.
- ▲ Basements.
- ▲ Bridge decks.
- ▲ Tunnels.
- ▲ Swimming pools.
- ▲ Sewage tanks
- ▲ Retaining walls and foundations.
- ▲ Underground parking.

## Advantages

- ▲ Works by combining with free calcium in the cement to form insoluble crystals.
- ▲ Non-toxic system.
- ▲ Can be applied to moist and green concrete.
- ▲ Helps the substrate to resist chemical attack over a wide (pH) range, and freeze/thaw cycles.
- ▲ Excellent adhesion to the substrates.
- ▲ Durable system and resistant to alkalis.
- ▲ Becomes an integral part of the structure to which it is applied.
- ▲ Allows the structure to breathe.
- ▲ Gives waterproofing effect for positive and negative hydrostatic water pressure.
- ▲ Ease for application.
- ▲ Labor cost effective.

## Technical Properties:

Colour:	Cement grey free from lumps
Mixing ratio:	8 - 9 ltr/25 kg bag
Mixed density:	2 ± 0.05 kg/ltr
Working time:	25 - 35 min @ 25°C 15 - 20 min @ 35°C
Initial setting time:	60 - 80 min @ 25°C 30 - 40 min @ 35°C
Compressive strength: (mortar consistency) ASTM C109/109M-02	≥ 25 MPa @ 7 days ≥ 35 MPa @ 28 days ≥ 43 MPa @ 56 days
Compressive strength effect on treated samples: ASTM C109/109M-02	
Non treated concrete sample	25 MPa @ 7 days 40 MPa @ 28 days 43 MPa @ 56 days
Treated concrete sample (same sample mix)	≥ 27 MPa @ 7 days ≥ 45 MPa @ 28 days ≥ 48 MPa @ 56 days
Chemical resistance:	Compressive strength will not be affected by more than 5% under Acid exposed and salt exposed
Waterproofing: (Positive and negative pressure) DIN 1048	At 8 bars: Impermeable system after reaching the full activation period  <i>Positive pressure:</i> Impermeable @ 8 bars (80 m water head). After 280 hr, 13.8 bars (138 m water head), water flow measure is 0.065 cc/hr  <i>Negative pressure:</i> Impermeability with negligible damping at 13.8 bars (138 m water head and 420 hr)
Waterproofing permeability: (CRD-C48) @ full activation period	

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## Standards

AquaProof Crystal complies with BS 6920-2.5:2000 as a suitable product in contact with water intended for human consumption with no effect on the public health of the quality of water.

## Method of Use

### Surface Preparation

Substrates should be mechanically prepared by bush hammering, grit blasting, etc., to produce a clean finish, free from dust, oil, grease, paint, laitance, etc. in order to provide a 'key' for the AquaProof Crystal.

AquaProof Crystal may be applied to fresh concrete as soon as the shuttering is struck. Ensure that all mold release oil has been removed first.

For leaks and water jets must be stopped using Setplug, which is an effective plugging compound.

### Priming

Water damping is needed continuously for at least 24 hours if the substrate is dry. The prepared substrate surface should be thoroughly dampened with clean water to minimize suction.

Ensure that there is not surface water present prior to application of AquaProof Crystal.

### Mixing

Always add water to AquaProof Crystal. Between 8 – 9 litre of clean water, depending on the consistency required, should be added to the 25 kg bag.

Care must be taken when using slow speed drills which can introduce too much air into the mix, they must be used for a minimum mixing time commensurate with obtaining a homogenous mix, lump free and creamy brushable mix.

### Application

AquaProof Crystal should always be applied to the dampened substrate in minimum two coats. Application is done by a brush, with a coverage rate of 17 m<sup>2</sup> per the mixed bag.

More than 1 mm thickness in the first coat is not recommended. The second coat should be applied when the first coat is still "green" within 24 - 48 hours.

Before applying the second coat, the first coat should be washed by water so as to take off any salt formation on the surface. Again the second coat is to be applied with 1 mm thickness to the washed dampened surface.

### Curing

AquaProof Crystal should be kept wet and moist for at least the first 3 days from application. Soft water jet is needed for curing after the initial set of the last coat. Keep wetting the applied system for the initial few days is important for the reaction.

AquaProof Crystal needs to be protected from damage for the first 7 days. And after this period, the applied area will be ready to handle the needed service.

Based on the waterproofing principle of AquaProof Crystal, full activation may take 2 - 3 weeks from the application time.

### Working Time

AquaProof Crystal has a working time of approximately 25 minutes at 25°C. Mixed material should not be left standing for any length of time prior to application as this will considerably shorten its working life, and may lead to flash setting.

#### Notes:

- ▲ Always add water to the AquaProof Crystal then start mixing.
- ▲ AquaProof Crystal should not be placed when the substrate or ambient temperature is 5°C and falling.
- ▲ AquaProof Crystal system works more efficient with substrates containing at least 15% OPC.
- ▲ Good surface preparation, damping the substrate before application and the recommended curing procedure are important factors for getting the best performance.

### Cleaning

All tools should be cleaned with water immediately after use.



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## Packaging

AquaProof Crystal is available in 25 kg polythene-lined paper sacks.

## Coverage

The coverage obtained will vary depending on the porosity and texture of the surface to which the materials is applied.

As a guide, the coverage should be around 1 - 1.5 kg dry powder/m<sup>2</sup> per coat. A 25 kg bag should be sufficient to cover 17 - 20 m<sup>2</sup> per coat.

## Storage

Protect from frost and store under a dry warehouse conditions at temperatures between 10°C and 30°C.

## Shelf Life

AquaProof Crystal has a shelf life of 12 months from date of manufacture if stored in proper conditions and unopened packs.

If these conditions are exceeded, DCP Technical Department should be contacted for advise.

## Cautions

### Health and Safety

As AquaProof Crystal contains Portland cement and sand, AquaProof Crystal may cause irritation to skin or eyes. In case of accidental contact with eyes, immediately flush with plenty of water for at least 10 minutes and seek medical advise.

For further information refer to the Material Safety Data Sheet.

# AquaProof Crystal

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- ▲ Concrete admixtures.
- ▲ Surface treatments
- ▲ Grouts and anchors.
- ▲ Concrete repair.
- ▲ Flooring systems.
- ▲ Protective coatings.
- ▲ Sealants.
- ▲ Waterproofing.
- ▲ Adhesives.
- ▲ Tile adhesives and grouts.
- ▲ Building products.
- ▲ Structural strengthening.

**Note:**

We endeavour to ensure that any information, advice or recommendation we may give in product literature is accurate and correct. However, because we have no control over where and how products are applied, we cannot accept any liability arising from the use of the products.

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