Crystal 2K

Polymer-modified, two-component crystalline waterproofing coating

25 kg POWDER + 2 kg LIQUID

PRODUCT DESCRIPTION

DRYVATEC N102 Crystal 2K is a polymer emulsion modified, two-component cement-based coating that makes concrete watertight from within by forming water-insoluble crystals in its capillary pores.

Applied membranes and similar coatings form a film on the surface; this film can be punctured, torn and will age. Crystalline waterproofing does not remain on the surface — it penetrates the concrete and grows within it. The waterproofing layer becomes the concrete itself: it cannot peel, abrade or be punctured.

It withstands both negative and positive water pressure. It is therefore one of the few solutions available where the water-bearing face cannot be reached — lift pits, basement retaining walls, the inner face of water tanks.

MODE OF ACTION

The product contains active chemicals that are carried into the capillary pores of the concrete. There they react with free lime and moisture to form needle-shaped crystals:

- The crystals fill capillary pores and hairline cracks, interrupting the passage of water.
- Whenever water is present the reaction restarts — the coating is self-healing and hairline cracks that form later close over time.
- The crystals are insoluble in water and permanent within the concrete; they cannot be washed out.
- The concrete retains its vapour permeability — the structure continues to breathe.

Penetration depth advances into the cross-section depending on concrete quality and water pressure; the result is not a surface layer but a treated zone within the cross-section.

TECHNICAL DATA

AT +23 °C / 50 % RELATIVE HUMIDITY	
Product type	Polymer modified, 2-component crystalline
Appearance / colour	Grey powder + liquid
Density	1.69 ± 0.1 g/cm³
Watertightness	W1
Water pressure	Negative and positive
Potable water suitability	Suitable
Mixing	Liquid component + 5 L water + powder component
Number of coats	Minimum 2
Interval between coats	Maximum 6 hours
Application temperature	+5 °C / +25 °C
Service temperature	-20 °C / +80 °C
Full cure	7 days
Consumption	2 – 4 kg/m²
Packaging	25 kg powder + 2 kg liquid

Values are typical figures obtained at +23 °C / 50 % relative humidity.

IN POTABLE WATER TANKS

The product is suitable for contact with drinking water. Disinfection with a hypochlorite solution must be carried out at least 7 days after application and repeated annually.

SUBSTRATE SUITABILITY

SUBSTRATE / WALL TYPE	STATUS	NOTES
Fair-faced concrete, retaining walls, foundations	Suitable	Most effective substrate; continuous capillary network
Cement render and screed	Suitable	Provided it is sound, load-bearing and dust-free
Precast concrete element	Conditional	Where absorbency is low, pre-wetting is critical
Brick or pumice masonry	Conditional	A cement render surface must be created first
Gypsum plaster, plasterboard	Not suitable	Incompatible with alkaline cement mortar
Painted, coated or oily surfaces	Not suitable	Cannot penetrate; surface must be opened
Timber, metal, plastic	Not suitable	Designed for mineral substrates

PREPARING THE MIX



The diagram shows the contents of one batch. The mixing sequence is different: the liquid component and the water are combined first, and the powder is added last, slowly, to avoid lumping. Mix to a homogeneous consistency with a low-speed (400 rpm) mixer, allow to mature for 5 minutes and stir briefly again before use. Mortar that has begun to set must not be re-tempered with water.

SURFACE PREPARATION

- The surface is freed of form oil, laitance and loose particles; it must be sound, load-bearing and with open pores.
- External corners are mechanically rounded and concrete protrusions removed.
- A 40 × 40 mm cove fillet is formed at internal corners with cement-based repair mortar.
- Defects deeper than 5 mm are made good with repair mortar; 5–20 % polymer additive by cement weight improves adhesion.
- The surface is saturated with water one day before application and re-wetted immediately beforehand. No standing water may remain.

APPLICATION

01 The mortar is applied with a stiff brush to the pre-saturated surface. A trowel is not used.

02 At least two coats are applied; each coat is drawn perpendicular to the previous one.

03 The interval between coats must not exceed 6 hours.

04 The second coat is applied once the first has gained sufficient strength without losing its moisture.

05 If more than 12 hours have elapsed, the surface is re-wetted.

06 The surface is protected from frost, direct sun and wind for 24 hours and kept moist for the first 3 days.

CONSUMPTION

APPLICATION CONDITION	COATS	CONSUMPTION	COVERAGE PER 25 KG SET
Even concrete, low water pressure	2	2.0 kg/m²	approx. 12.5 m²
Standard application	2	3.0 kg/m²	approx. 8.3 m²
Absorbent surface, negative pressure	3	4.0 kg/m²	approx. 6.2 m²

Consumption varies with surface roughness, absorbency and the direction of water pressure. On surfaces subject to negative pressure the upper value should be used; an allowance of 10 % is recommended when estimating.

COMMON MISTAKES

- **Applying to a dry surface**
  Crystal formation requires water. In unsaturated concrete the reaction does not begin and the coating dusts.
- **Mixing powder and liquid in the wrong order**
  Liquid component and water first, powder last. The reverse order causes lumping.
- **Stopping at a single coat**
  The system is designed for a minimum of two coats; one coat does not form a continuous treated zone.
- **Applying with a trowel**
  A brush drives the material into the pores. A trowel leaves a film on the surface and reduces penetration.
- **Omitting the cove fillet at internal corners**
  A sharp corner is the weakest point of the coating; this is where water finds its way through.
- **Failing to cure**
  Crystal formation is interrupted where the surface dries too early. The surface must be kept moist for the first 3 days.

POST-APPLICATION CHECKS

- Surface integrity: the coating must show no voids, thin spots from brush marks or dusting.
- Curing: the surface must be kept moist for the first 3 days; early drying interrupts crystal formation.
- Water retention test: tanks are filled in stages after 7 days and the level is monitored for at least 24 hours.
- Potable water: disinfection with hypochlorite is carried out before filling.
- Coatings: where tiling is to follow, a mineral-based adhesive is used.

STORAGE

12 months in unopened packaging, stored dry and cool. Packaging must be protected from frost. Pallet size 100 × 100 cm, 64 units per pallet.

SAFETY

Wet mortar is alkaline. Wear gloves, eye protection and a dust mask; rinse thoroughly with water on skin or eye contact. Refer to the Safety Data Sheet.

LIMITATIONS

Not sufficient on its own at movement joints. Where cracks are continuously active, the system must be designed together with a flexible solution.

POSITION WITHIN THE THREE-STAGE SYSTEM

N102 Crystal 2K provides lasting waterproofing on reinforced concrete surfaces.

01 DampStop	02 HydroFix	03 Nem Kutusu
Horizontal chemical barrier inside the wall	Water-repellent surface renovation layer	Electromagnetic drying in reinforced concrete

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