



Technical Data Sheet

AS-CRYSTAL

Cementitious Crystalline Concrete Waterproofing Coating

Description

AquaShark™ AS-CRYSTAL is a specially developed crystalline waterproofing compound consisting of high-grade Portland cement, very fine treated silica sand, and proprietary reactive chemical additives. These active chemicals react with the moisture in fresh concrete and the by-products of cement hydration to trigger a catalytic reaction, generating an insoluble crystalline formation throughout the pores and capillary tracts of the concrete. The crystalline growth follows moisture deep into the structure to permanently block the passage of water. AquaShark™ AS-CRYSTAL is versatile and engineered for use as a surface-applied slurry coating, a dry shake broadcast on fresh slabs, or an integral concrete admix to achieve extreme impermeability.

Specification

AquaShark™ AS-CRYSTAL conforms to the Overall Migration Standards laid down in US-FDA 21 CFR 175-300 for direct contact with potable water. Impermeability and water penetration resistance are verified in accordance with DIN 1048 Part 5 testing protocols.

Areas of Application

AquaShark™ AS-CRYSTAL is suitable for positive and negative side waterproofing across high-demand civil and industrial structures:

- **Water Retaining & Potable Structures:** Water treatment plants, drinking water reservoirs, clean water tanks, and swimming pools.
- **Wastewater & Sewerage Networks:** Sewage treatment plants (STPs), concrete pipes, inspection chambers, and manholes.
- **Substructures & Basements:** Raft foundations, retaining walls, elevator shafts, underground storage, and tunnel linings.
- **Cast-in-Situ & Precast Concrete:** Direct admixture addition for structural waterproofing in marine, industrial, and high-water-table concrete construction.
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Features and Benefits

- **Deep Substrate Penetration:** Penetrates deeply (< 22 mm) into capillary pores and reacts continuously to form permanent non-soluble crystals.
- **Self-Healing Hairline Cracks:** Autogenously seals and bridges non-structural hairline cracks and fissures up to 0.5 mm in width.
- **Integral Structural Monolith:** Becomes an integral and homogeneous part of the concrete matrix rather than a temporary surface membrane.



- **Continuous Reactivation:** Remains dormant within the concrete and reactivates anytime moisture or water is reintroduced.
- **Triple Versatility:** Can be utilized flexibly as a brushable slurry, a dry shake broadcast, or an integral concrete admixture.
- **Dual Face Waterproofing:** Equally effective on internal and external surfaces against positive and negative hydrostatic pressure heads.
- **Potable Water Safe & Non-Toxic:** US-FDA compliant; free from toxic chemicals, completely safe for contact with drinking water.
- **Ultra-Low VOC:** Eco-friendly formulation with minimal VOC emissions (4.29 g/L), ensuring safe indoor and underground application.

Method of Application

A. Surface Preparation (For Slurry Application):

- Surfaces must be sound, clean, and free from oil, grease, wax, curing compounds, laitance, dust, and barrier materials.
- Expose an open capillary system using high-pressure water jetting, wet sand blasting, or mechanical wire brushing.
- Treat all cracks, construction joints, pipe penetrations, and corners prior to full application.
- Thoroughly pre-wet the concrete surface prior to application; ensure substrate is saturated but free of standing surface water.

B. Mixing & Application:

- **Slurry Mixing:** Mix 20 kg of AS-CRYSTAL with 6.70 kg of clean water using a slow-speed spiral drill to achieve a brushable consistency. Alternatively, site volume mixing can be conducted at a 1 : 3 ratio (water : powder).
- **Slurry Application:** Apply slurry onto the prepared wet surface using a stiff masonry brush or roller in two coats at approx. 13–16.50 m² per 20 kg pail. Protect from foot traffic for 48 hours.
- **Curing Slurry:** Keep the treated surface moist for a minimum of 48 hours. After initial set, continuous fine water mist spraying is required.
- **Dry Shake (Horizontal Slabs):** When freshly placed concrete reaches initial set, evenly broadcast AS-CRYSTAL at approx. 1.8 kg/m² and power-trowel into the surface.
- **Concrete Admixture:** Dose at 0.8% to 1.5% by weight of cement. Prepare dilution right before adding to the concrete batch. Do NOT add dry powder directly to wet concrete to prevent clumping.

Technical Data

Property / Parameter	Standard / Condition	Typical Specification
Appearance / Form	Visual	Uniform fine powder
Testing Temperature	Standard Conditions	27 ± 1°C
Mixed Density	Standard	1.80 g/cc
Depth of Penetration	DIN 1048 Part 5	< 22 mm
Pot Life	Standard	30 minutes @ 27°C
Crack Sealing Capability	Micro-crack bridging	Seals hairline cracks up to 0.5 mm
VOC Content	EPA Method 24	4.29 g/L



Compliance Standard	Potable Water Safety	US-FDA 21 CFR 175-300 compliant
Coverage – Slurry Coat	2-coat brush application	Approx. 13.0 – 16.5 m ² per 20 kg pail
Coverage – Dry Shake	Power trowel broadcast	Approx. 1.8 kg/m ²
Dosage – Concrete Admix	By weight of cement	0.8% – 1.5%
Water Mixing Ratio (Slurry)	By weight / By volume	6.70 kg water per 20 kg powder / 1:3 by volume
Curing Requirement	Moist water curing	Minimum 48 hours continuous misting
Packaging	Original containers	20 kg moisture-resistant pail / pack

Storage, Shelf Life & Cleaning

AquaShark™ AS-CRYSTAL has a shelf life of 12 months from the date of manufacture when stored in original, unopened containers in a dry, clean environment between +5°C and +30°C. Protect containers from frost, direct sunlight, and heat sources. Clean all tools and application equipment with clean water immediately after use.

Precautions & Safety Directions

- **Handling & Ventilation:** Ensure adequate ventilation during mixing and application. Avoid contact with eyes, nasal passages, mouth, and skin.
- **Personal Protective Equipment (PPE):** Wear protective gloves, barrier cream, eye protection goggles, and particulate dust masks.
- **First Aid Measures:** In case of eye contact, rinse immediately with generous clean water and seek medical advice. Wash skin contact areas immediately with plenty of soap and water.
- **Spillage & Disposal:** Absorb dry spills onto inert material or transfer to a sealed disposal vessel. Dispose of waste in compliance with local environmental regulations.

Disclaimer

Information provided in this technical data sheet serves as a general guide for product usage. Users are advised to conduct site trials for specific substrate compatibility prior to full-scale application. As field conditions and application workmanship are beyond our control, the company accepts no liability for consequential damages arising from improper storage, misuse, or failure to follow instructions.