TECHNICAL DATA SHEET

Surface Applied Concrete Waterproofing

Krystol T1® Concrete Waterproofing

Product Code: K-210

DESCRIPTION

Krystol T1 is a surface applied crystalline slurry treatment that transforms new or existing concrete into a permanent waterproof barrier.

Krystol T1 lowers the permeability of the concrete to protect against the ingress of water and waterborne chemicals. Since it becomes integral to the concrete, it can be applied to either the positive (wet) or negative (dry) side of the water pressure which allows reliable hydrostatic waterproofing protection and remediation for even the most difficult applications.

Krystol T1 contains Krystol technology. When applied to concrete, Krystol chemically reacts with water and un-hydrated cement particles to form insoluble needle-shaped crystals that fill capillary pores and micro-cracks in the concrete and block the pathways for water and waterborne contaminants. Any moisture introduced over the lifespan of the concrete will initiate crystallization, ensuring permanent waterproofing protection.

FEATURES & BENEFITS

- Effective against high hydrostatic pressure; tested to 140 m (460 ft) of head pressure
- Reliably self-seals hairline cracks up to 0.5 mm (0.02 in)
- Best waterproofing solution for repair and remediation
    - Repair from the positive or negative side of the water pressure
    - Fixes membrane failures without excavating
- Lasts longer and more reliable than traditional waterproofing membranes, liners and coatings
    - Becomes integral to the concrete; can't be damaged and won't deteriorate
    - Permanent waterproofing; reactivates in the presence of moisture
    - Lower initial and long term waterproofing costs
- Safe for contact with potable water, certified by NSF to NSF/ANSI Standard 61
- Protects against chlorides and corrosion of reinforcing steel
- Protects against bio-acid attack in sewers
- Can be applied to concrete during early stages of strength development (green concrete)
- Easy to apply – cost effective installation
- Available in Grey or White

RECOMMENDED USES

- Concrete basements, walls, slabs, footings
- Marine structures
- Elevator pits and equipment pits
- Parking structures
- Swimming pools and water features
- Water towers, reservoirs and storage tanks
- Tunnels, pipes and underground vaults
- Water treatment reservoirs
- Bridge decks, elevated slabs and ramps
- Rooftops and roof decks

Kryton International Inc. 1645 East Kent Avenue, Vancouver BC, V5P 2S8 | TEL: 1.604.324.8280 | TOLL 1.800.267.8280 | WEB kryton.com

PROPERTIES

Physical Properties	
Appearance	Light grey powder
pH (when mixed with water)	13
Bulk Density	1.25 g/cm^3 (78 lb/ft^3)
VOC's	0%
Plastic Properties	
Working Time (20°C / 68°F, 50% RH)	30 minutes (continued stirring)
Hardening Time (20°C / 68°F, 50% RH)	5 hours
Hardened Properties	
Hydrostatic Head Resistance	140 m (460 ft)
Typical Rate of Crystal Penetration	2-10 mm (0.08-0.4 in) per week
Pull Off Strength (ASTM D4541)	3.1 MPa (450 psi)
Self-Sealing of Cracks	≤ 0.5 mm (0.02 in)
Self-Sealing Ability (under pressure)	Krystol T1 treated samples were subject to increasing water pressure to induce leakage. Krystol T1 sealed the leaks and remained dry at 46.7 m (150 ft) of head pressure, the maximum pressure the equipment was capable of. It was the only crystalline product to seal and remain dry. *- Port Authority of New York and New Jersey, 1980*
Permeability	75-90% reduction in permeability over equivalent untreated concrete. When tested to DIN 1048: Part 5 (0.5 MPa/72.5 psi hydrostatic pressure for 72 hours): • Krystol T1 treated samples showed an 85.6% reduction in permeability over the same untreated (control) concrete; 5.3 mm (0.21 in) of water penetration compared to 36.7 mm (1.45 in). *- Kuwait University, 2004* • Krystol T1 treated samples showed 25 mm (0.98 in) of water penetration while the equivalent untreated concrete showed 100 mm (3.94 in), or a 75% reduction in permeability. *- Metro Testing, 2009* When tested to USACE CRD-C48 (1.38 MPa / 200 psi of hydrostatic pressure for 14 days), Krystol T1 treated samples were split in half and water penetration depths measured. Controls had an average penetration depth of 50mm while Krystol T1 treated samples averaged 5mm, demonstrating a 90% reduction in water permeability. *– Kryton International Inc., 2015*
Potable Water Containment	Certified for use by NSF/ANSI Standard 61: Drinking Water System Components
Sulfate Resistance	After 21 wet/dry cycles in high sulfate solution, Krystol T1 treated concrete showed no strength loss whereas untreated concrete showed significant strength loss. *- HBT Agra Ltd., 1976*

Kryton International Inc. 1645 East Kent Avenue, Vancouver BC, V5P 2S8 | TEL: 1.604.324.8280 | TOLL 1.800.267.8280 | WEB kryton.com

Depth of (Krystol) Penetration	Grade 30/20 concrete was treated with 3mm of plaster, followed by Krystol T1. After curing, the Krystol T1 and plaster were removed and the samples tested for permeability following DIN 1048-5 test procedure (0.5 MPa, 72.5 psi for 72 hours). The treated sample was 51% less permeable than the untreated concrete, even after the coating was removed, proving that Krystol penetrated through the plaster layer and into the concrete itself. - *MateriaLab, Hong Kong, 2010* "Crystal growth in capillary porosity was observed in fracture surfaces of the concrete cylinders used in these tests at locations up to 4 inches (100mm) away from the coated surface. This validates the claim of in-depth penetration achieved with the "Krystol."" - *HBT Agra Ltd., 1976*
Water Absorption (BS 1881: Part 2)	Krystol T1 treated concrete and untreated control concrete were tested to BS 1881: Part 2018; Initial surface absorption of concrete. Untreated concrete had a surface absorption of 1.8 ml/m^2·s, while Krystol T1 treated cube had NIL and was reported to be "too impermeable to be sensitive to a longer term test." - *Sirim QAS International, Malaysia, 2012*
Chloride Permeability (ASTM D1411)	After 90 days ponding in 10% Calcium Chloride Solution, acid soluble chloride ion content was determined by Mohr's method at various depths of Krystol T1 treated samples and untreated control samples. Krystol T1 treated concrete showed a reduction over the control of 62.9% at 5 mm (0.2 in), 83.8% at 10 mm (0.4 in) and 94.6% at 15 mm (0.5 in). - *HBT Agra Ltd., 1993*

APPLICATION

Read Application Instruction 2.11 — Waterproofing with Surface Treatment. As part of the Krystol Leak Repair System, refer to Application Instruction 5.12 — Waterproofing Cracks, Holes and Joints.

Mix Krystol T1 to a thick but spreadable consistency (approximately 3.5 parts powder to 1 part clean water by volume). Apply evenly to properly prepared concrete that is in a saturated-surface-dry (SSD) condition using a sprayer, brush or broom evenly over the concrete at a rate of 1.2 – 1.6 kg/m^2 (2.2 – 3 lb/yd^2) which can be applied in one or two coats. For two coat applications, apply the second coat when Krystol T1 has set hard (6 to 24 hours depending on conditions). Protect from frost, rain, traffic and rapid drying for 24 hours. Wet cure for at least 3 days

Drawings and Specifications:

For section drawings, CAD details and specification language related to this product, visit www.kryton.com/technical-info/ or contact your authorized Kryton representative.

Kryton International Inc. 1645 East Kent Avenue, Vancouver BC, V5P 2S8 | TEL: 1.604.324.8280 | TOLL 1.800.267.8280 | WEB kryton.com

TECHNICAL DATA SHEET

Surface Applied Concrete Waterproofing

COVERAGE

APPROXIMATE COVERAGE PER 25 KG (55 LB) PAIL

One coat application				Two coat application (per coat)		
1.2 kg/m^2 (2.2 lb/yd^2)	=	20 m^2 (225 ft^2)	=	0.6 kg/m^2 (1.1 lb/yd^2)	=	N/A
1.3 kg/m^2 (2.4 lb/yd^2)	=	19 m^2 (210 ft^2)	=	0.65 kg/m^2 (1.2 lb/yd^2)	=	N/A
1.5 kg/m^2 (2.8 lb/yd^2)	=	N/A	=	0.75kg/m^2 (1.4 lb/yd^2)	=	34 m^2 (360 ft^2)
1.6 kg/m^2 (3 lb/yd^2)	=	N/A	=	0.8 kg/m^2 (1.5 lb/yd^2)	=	32 m^2 (330 ft^2)

LIMITATIONS

The Krystol T1 Concrete Waterproofing is an effective waterproofing system for rigid concrete structures only and may not be reliable for structures with unstable, moving cracks or joints. Consult your Kryton representative for project specific recommendations. Air and surface temperature at the time of application must be at least 4°C (40°F).

SAFETY

Read the Safety Data Sheet (SDS) for this product. For professional use only. This product becomes caustic when mixed with water or perspiration. Avoid contact with skin or eyes. Wear long sleeves, safety goggles, impervious gloves and appropriate dust mask.

SHELF LIFE

When stored in a dry enclosed area, Krystol T1 has a shelf life of at least 3 years for unopened pails.

WARRANTY

Kryton International Inc. (Kryton) warrants that Kryton products are free from manufacturing defects and comply with the specifications given in their respective technical data sheet. Because conditions of use, such as site conditions, surface preparations, workmanship, concrete ingredients, weather, structural issues and other factors are beyond the control of Kryton, no warranty can be given as to the results of use. Purchaser agrees to seek the advice of qualified professionals and to determine for themselves the suitability of the products for their intended purpose and assumes all risks. Purchaser's sole remedy is limited to replacement of any product proven defective or at Kryton's option refund of the purchase price paid. THIS LIMITED WARRANTY CONTAINS THE ENTIRE OBLIGATION OF KRYTON. NO OTHER WARRANTIES, EXPRESS OR IMPLIED, SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. KRYTON SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. No representative of Kryton has the authority to make any representations or provision except as stated herein. Kryton reserves the right to change the properties of its products without notice.

Kryton International Inc. 1645 East Kent Avenue, Vancouver BC, V5P 2S8 | TEL: 1.604.324.8280 | TOLL 1.800.267.8280 | WEB kryton.com