

# TECHNICAL DATA SHEET

## Surface Applied Waterproofing



# Krystol T1<sup>®</sup> & T2<sup>®</sup> Waterproofing System

Product Code: K-210 (Krystol T1), K-220 (Krystol T2)

## DESCRIPTION

Krystol T1 & T2 Waterproofing System is a surface-applied crystalline slurry treatment that transforms new or existing concrete into a permanent waterproof barrier.

Krystol T1 & T2 Waterproofing System lowers the permeability of concrete and protects against the ingress of water and waterborne chemicals. It replaces the need for surface applied waterproofing membranes, and is often used in the remediation of failed membranes.

Krystol T1 & T2 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

- Replaces unreliable exterior membranes, liners and coatings
- Reaches well below the surface and is not affected by surface wear or abrasion
- Self-seals hairline cracks up to 0.5 mm (0.02 in.)
- Reactivates in the presence of moisture
- Effective against hydrostatic pressure up to 140 m (460 ft.) of head pressure
- Waterproofing increases with time
- Waterproofs from any direction (i.e. positive or negative side)
- Treatment may be applied to old or new concrete
- Safe for contact with potable water, certified by NSF to NSF/ANSI Standard 61
- Permanently waterproofs the concrete
- Increases reliability and quality control
- Lowers the cost of waterproofing
- Increased durability decreases building maintenance and repair costs
- Impervious to physical damage and deterioration
- Protects reinforcing steel against corrosion
- Superior performance enhancing your reputation for high quality work

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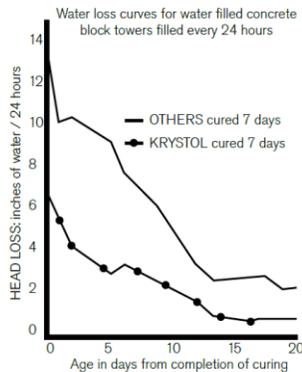
### RECOMMENDED USES

- Concrete foundations, walls, and slabs on grade
- 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

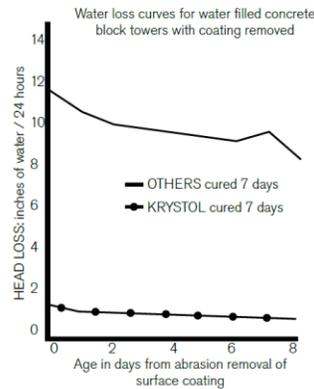
### PROPERTIES

Physical Properties	
Appearance	Gray powder
pH (when mixed with water)	13
Bulk density g/cm <sup>3</sup> (lb. /cu. ft.) - Krystol T1	1.25 (78)
Bulk density g/cm <sup>3</sup> (lb. /cu. ft.) - Krystol T2	1.35 (84)
Plastic Properties	
Working Time (20°C/ 68°F, 50% RH)	60 minutes with continued stirring (slurry)
Hardening Time (20°C/ 68°F, 50% RH) - Krystol T1	5 hours (slurry)
Hardening Time (20°C/ 68°F, 50% RH) - Krystol T2	4 hours (slurry)
Hardened Properties	
Hydrostatic head resistance	140 m (460 ft.)
Typical rate of crystal penetration	2 mm (0.08 in.) per week
Pull off Strength (ASTM C1583)	450 psi

Krystol T1 & T2 coated samples compared with silicate based coating material.



Coating materials then removed from the concrete surface and test results demonstrate in depth penetration of Krystol T1 & T2 treated sample.



Independent testing concludes that Krystol T1 & T2 Waterproofing System is a permanent, in-depth waterproofing treatment.

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### PERMEABILITY

#### DIN 1048: Part 5 - Permeability of Hardened Concrete

Krystol T1 treated specimens were exposed to 0.500 MPa (72.5 psi) of hydrostatic pressure for 72 hours. This is equivalent to 51 m (167 ft.) of head pressure. Treated samples performed 7x better than the control, only allowing 5.3 mm (0.21 in.) of water to penetrate the sample. These results are very low and indicate excellent resistance to water under hydrostatic pressure.

*Kuwait University, Civil Engineering Testing Center, 2004*

Krystol T1 & T2 treated specimens were exposed to 0.500 MPa (72.5 psi) of hydrostatic pressure for 72 hours. This is equivalent to 51 m (167 ft.) of head pressure. Water permeability of concrete treated with Krystol T1 & T2 was reduced 75% compared to the equivalent plain concrete.

*Metro Testing Laboratories Ltd., 2009*

### CHLORIDE PERMEABILITY

A 10% calcium chloride solution was allowed to pond on the surface of the Krystol T1 & T2 treated samples for 90 days. After 90 days, the acid soluble chloride ion content was determined by Mohr's method (modified ASTM D1411) at various depths. The T1 & T2-treated samples performed 3x better than the control at a depth of 5 mm (0.2 in.), 6x better at a depth of 10 mm (0.4 in.), and 19x better at a depth of 15 mm (0.5 in.).

*HBT Agra Ltd., 1993*

SAMPLE	Chloride Content Per Cent by Concrete Mass			
	DEPTH BELOW CONCRETE SURFACE			
	1 mm	5 mm	10 mm	15 mm
Control	0.370	0.272	0.204	0.167
T1 & T2	0.188	0.101	0.033	0.009

### POTABLE WATER CONTAINMENT

#### NSF/ANSI Standard 61: Drinking Water System Components – Health Effects

Krystol T1 & T2 have been tested extensively and certified for concrete drinking water containment by NSF International.

### APPLICATION

Read Application Instruction 2.11 — Waterproofing with Surface-Application (Brush Method) or 2.12 — Waterproofing with Surface-Application (Spray Method) before using this product. As part of the Krystol Leak Repair System, refer to Application Instruction 5.12 — Waterproofing Cracks, Holes and Joints. Application should not be made when the surface temperature is below 5°C (41°F). Mix Krystol T1 to a coating consistency (3 parts powder to 1 part clean water). With a concrete brush, use an aggressive circular motion to coat the concrete with the Krystol T1 mix at a coverage of 0.8 kg/m<sup>2</sup> (1.5 lb./sq. yd.) per coat. To ensure complete coverage with no missed or thin spots, we recommend that you always apply two coats. While it is permissible to use Krystol T1 for both coats, using Krystol T2 for the second coat will give a harder, more durable finish and at a much lower cost. The second coat can be applied as soon as the Krystol T1 has set hard (from 6 to 24 hours depending on conditions). Wet cure for at least 3 days, protecting from frost, rain and traffic for at least 24 hours.

For some applications, a single coating of Krystol T1 is sufficient at a coverage rate of 1.2 kg/m<sup>2</sup> (2.25 lb./sq. yd.)—Contact your Kryton representative for details.

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### LIMITATIONS

Krystol T1 & T2 is an effective waterproofing system for rigid concrete structures only and may not reliably seal cracks and joints that experience constant or repeated movement. Consult a Kryton representative for project specific recommendations before specifying Krystol in elevated structures.

Krystol T1 & T2 is not a decorative coating and will change the color of the surface that it is applied to. Consult your Kryton representative for advice regarding applications with specific aesthetic requirements.

### SAFETY

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

### PACKAGING

Krystol T1 & Krystol T2 are available in 5 kg (11lb.) and 25 kg (55 lb.) resealable pails.

### SHELF LIFE

When stored in a dry enclosed area, Krystol T1 & Krystol T2 each have a shelf life of 3 years for unopened pails and 4 months for properly resealed 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.