



# Krystol T1® & T2® Waterproofing System

(Surface-Applied Cementitious Concrete Waterproofing)

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

## DESCRIPTION

Krystol T1 & T2 system is a surface-applied crystalline waterproofing treatment for concrete structures that is used to protect against the ingress of water. It is a dry powder, that when mixed with water becomes a coating that is applied to the inner or outer sides of a concrete structure.

Krystol T1 and T2 contain Kryton's unique and proven Krystol® technology which reacts with un-hydrated cement particles to grow millions of needle-like crystals deep into the concrete mass. Over a period of weeks and months, these crystals grow, filling the naturally occurring pores and voids in concrete, and permanently blocking the pathways for water and waterborne contaminants. Later, if cracks form due to settling or shrinkage, incoming water triggers the crystallization process and additional crystals begin to grow, filling cracks and ensuring that the structure's waterproofing barrier is maintained and protected. The concrete itself becomes the waterproof layer and the surface treatment is not required to remain intact for the system to be effective.

## FEATURES

- 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 Drinking Water System Components – Health Effects

## KEY BENEFITS

- 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



### 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

### PHYSICAL PROPERTIES OF KRYSTOL T1

Appearance	Gray powder
Bulk density g/cm <sup>3</sup> (lb. /cu. ft.)	1.25 (78)
pH (when mixed with water)	13

### PHYSICAL PROPERTIES OF KRYSTOL T2

Appearance	Gray powder
Bulk density g/cm <sup>3</sup> (lb. /cu. ft.)	1.35 (84)
pH (when mixed with water)	13

### PLASTIC PROPERTIES OF KRYSTOL T1

Working Time (20°C/ 68°F, 50% RH)	60 minutes with continued stirring (slurry) 30 minutes (dry-pack)
Hardening Time (20°C/ 68°F, 50% RH)	5 hours (slurry) 3 hours (dry-pack)

### PLASTIC PROPERTIES OF KRYSTOL T2

Working Time (20°C/ 68°F, 50% RH)	60 minutes with continued stirring (slurry)
Hardening Time (20°C/ 68°F, 50% RH)	4 hours (slurry)



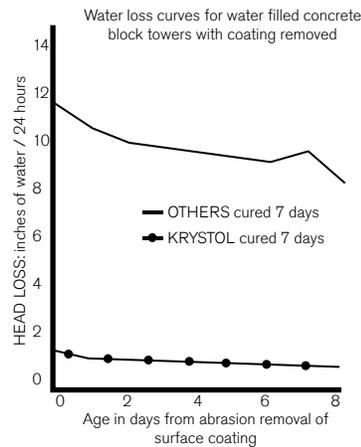
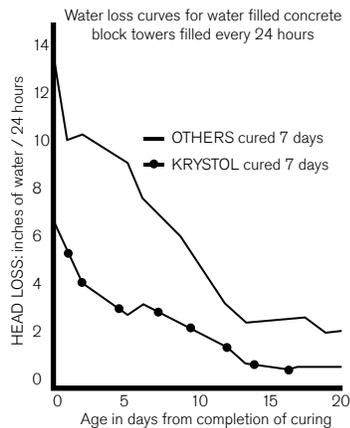
BE SURE. BE KRYTON.

### HARDENED PROPERTIES

Hydrostatic head resistance	140 m (460 ft.)
Typical rate of crystal penetration	2 mm (0.08 in.) per week

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.

### 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.** 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.

**As part of the Krystol Crack Repair System, refer to Application Instruction 5.11 — Waterproofing Cracks, Holes and Joints.**

### **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 Material Safety Data Sheet (MSDS) 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**

- 5 kg (11 lb.) resealable pails
- 25 kg (55 lb.) resealable pails

### **SHELF LIFE**

Krystol T1 & T2 have a minimum shelf life of 24 months for unopened pails, and 4 months for properly resealed pails.

### **WARRANTY**

Kryton International Inc. warrants that its products are free from manufacturer's defects and, when applied in accordance with the current specification and application instructions will perform as so stated in its product literature. Because methods and conditions of use are beyond the control of Kryton, no guarantee, expressed or implied can be given as to the results of application. Liability of Kryton shall be limited to replacement of materials proved defective or, at its option, refund of the purchase price of the product.

#### **Kryton International Inc.**

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