

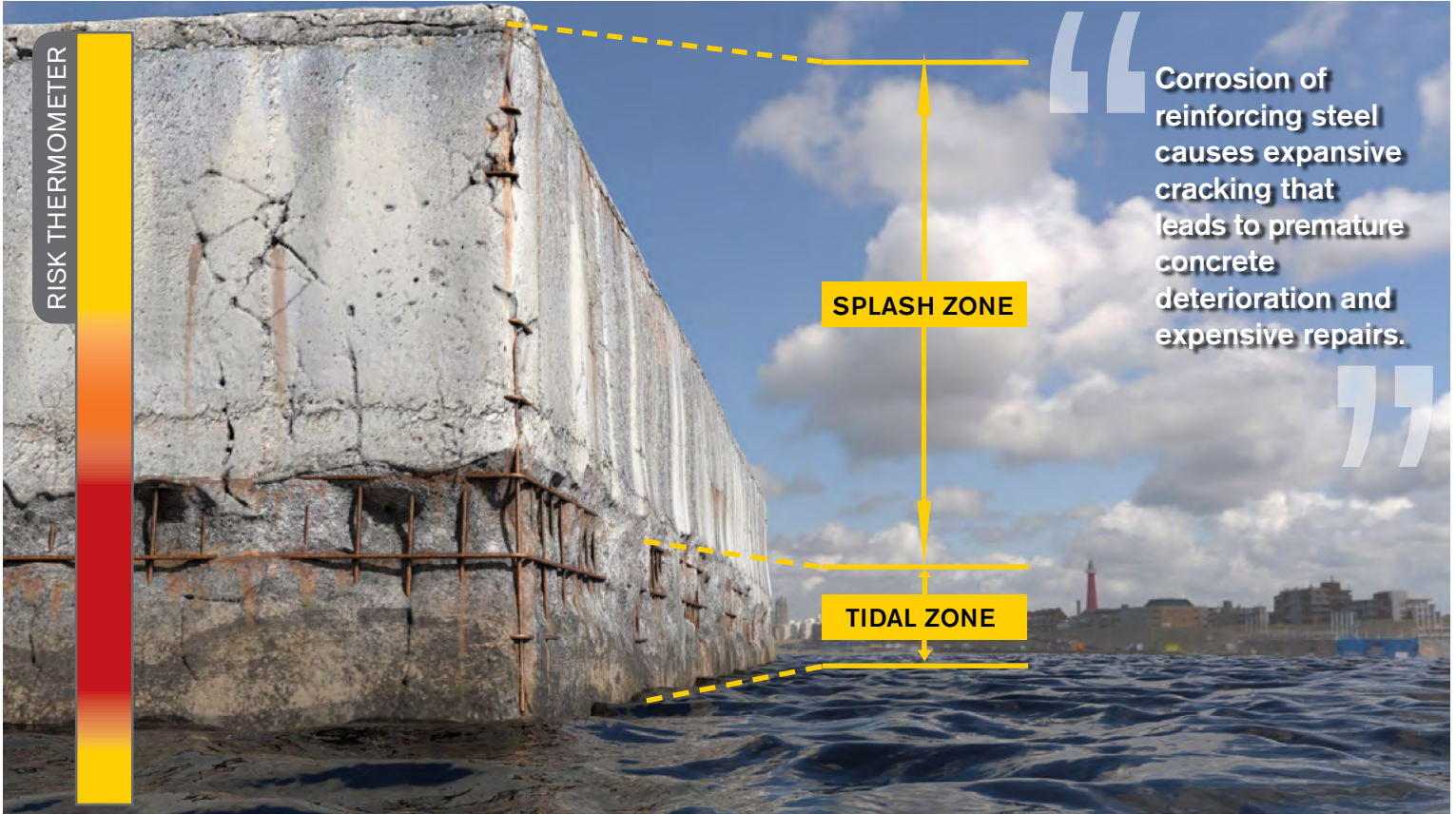
PROTECT MARINE STRUCTURES WITH CRYSTALLINE WATERPROOFING



INCREASE THE LIFESPAN OF MARINE CONCRETE:

- Sea Walls
- Piers
- Waterside Buildings / Infrastructure
- Breakwaters
- Docks
- Concrete Pilings
- Dams
- Bridges
- Jetties
- Groynes
- Bulkheads
- Ports

USE THE RIGHT PRODUCTS TO PROTECT AND INCREASE THE LIFESPAN OF INFRASTRUCTURE IN HARSH MARINE ENVIRONMENTS



THE PROBLEM:

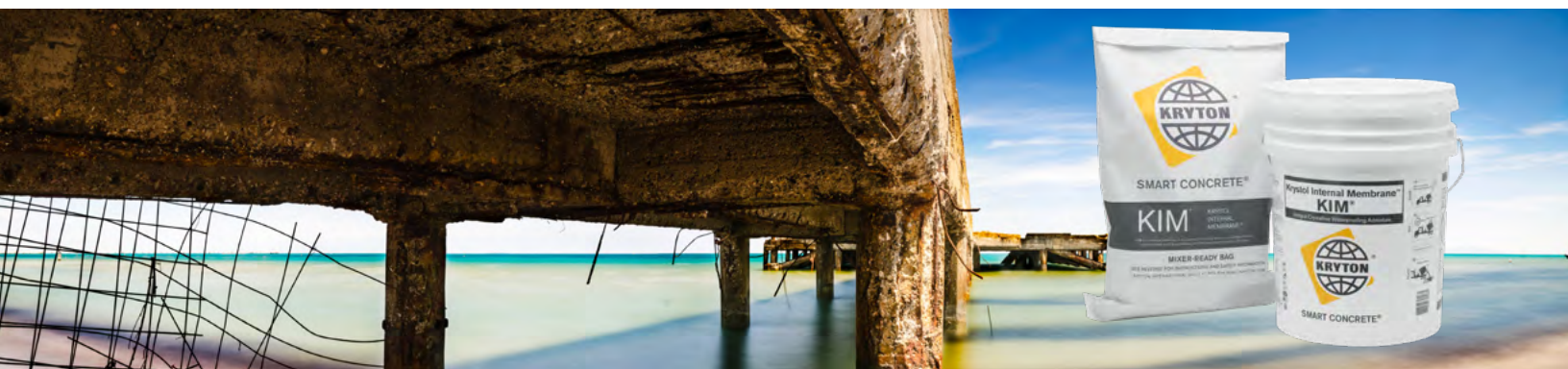
Concrete located in or near marine environments have a higher risk of chloride attack and corrosion due to constant wet-dry cycles that force water through the capillary tracts and micro-pores found in concrete.

Water movement through the concrete allows waterborne chlorides to penetrate to the reinforcing steel and causes corrosion resulting in expansive pressure and cracking. These factors lead to rapid deterioration of concrete and a drastically shortened lifespan.

THE SOLUTION:

Krytol Internal Membrane™ (KIM®) is a hydrophilic crystalline admixture used to create permanently waterproof concrete.

KIM effectively and reliably lowers the permeability of concrete and self-seals micro-cracks for the life of the structure. By preventing the transmission of water through concrete, KIM eliminates the factors that cause early concrete destruction such as chemical attack and corrosion of reinforcing steel. Instead, KIM is a permanent waterproofing solution that ensures durability and longevity for a concrete structure.

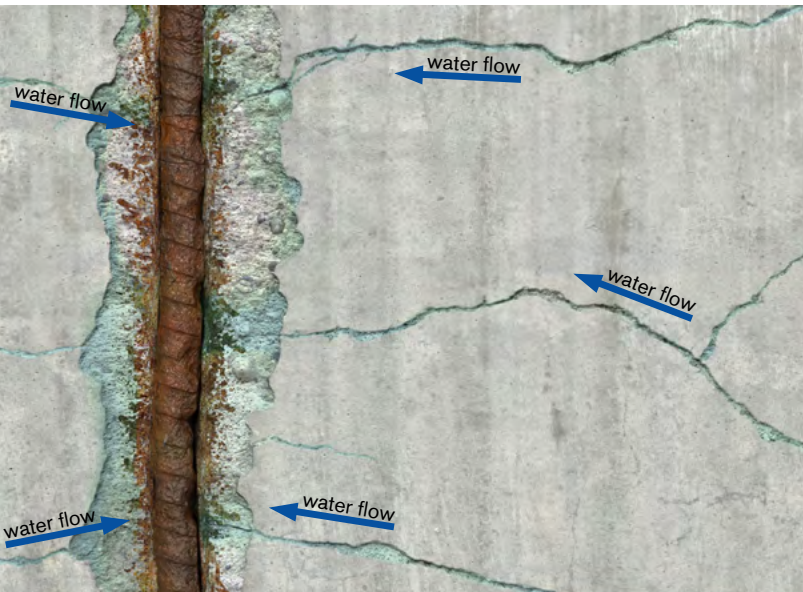


KRYSTOL® TECHNOLOGY TURNS THE CONCRETE INTO A PERMANENT WATERPROOF BARRIER BY LOWERING PERMEABILITY AND INCREASING DURABILITY

HOW IT WORKS:

KIM is a crystalline waterproofing admixture that uses Krystol® technology to waterproof concrete. When added to concrete, Krystol chemical 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.



A cross section of unprotected concrete



A cross section of KIM protected concrete

Krystol Internal Membrane™ (KIM®):

- ✓ **Permanently waterproofs concrete to protect against:**
 - Corrosion of steel reinforcement
 - Chloride attack
 - Sulfate attack
 - Carbonation
 - Alkali Aggregate reaction (AAR)
 - Freeze/thaw damage
- ✓ **Reduces plastic and drying shrinkage of concrete, preventing:**
 - Cracks in concrete
 - Direct exposure of reinforcement to water and chlorides
 - Early onset of corrosion
- ✓ **Provides life-long 'self-sealing' of static cracks**
 - Certified up to 0.5 mm – tested to 0.77 mm
 - Permanent solution, no need to reapply



KIM is added to the concrete before placement



UNIVERSITY
of HAWAII®
MĀNOA

10-year Corrosion Study by University of Hawaii Recommends KIM

A long-term corrosion study was conducted to evaluate the durability of 22 reinforced concrete specimens, all containing various pozzolans and chemical admixtures. Test panels were exposed to a marine environment, in the tidal zone in Honolulu Harbor from 2002-2012. Panels were monitored for half-cell potential, chloride concentrations, cracking and visible signs of corrosion.

KEY FINDINGS

- The panel using Krystol Internal Membrane (KIM) at a dosage of 2% had low half-cell readings and no visible signs of corrosion
- KIM significantly outperformed other permeability reducing admixtures & corrosion inhibitors



After 10 years marine exposure; Control concrete / KIM treated concrete.

Independent testing by the British Board of Agrément (BBA) confirms that Krystol Internal Membrane (KIM) has superior waterproofing properties. KIM's ability to stop water increases concrete durability as freeze thaw expansion and corrosion expansion cracking are virtually eliminated.

Water Permeability
Drying Shrinkage
Wetting Expansion

Freeze Thaw Expansion

Compressive Strength (28 Day)
Flexural Strength
Water Vapor Permeability

Reduced 70%
Reduced 25%
Reduced 33%
Reduced 86%
Improved 11%
Improved 7%
Reduced 17%



Control concrete vs KIM treated concrete after 100 cycles of freezing and thawing.

No other company has more experience at keeping water out of concrete than Kryton International Inc.

Kryton has been an innovator of crystalline waterproofing technology throughout the world for more than 40 years and is the inventor of the crystalline waterproofing admixture. Kryton offers a full line of waterproofing products for new and existing construction, including admixtures, surface-applied coatings, construction joints and details, as well as repair systems.

Kryton's Krystol Technology has been used to successfully waterproof high-risk projects throughout the world and has been proven to extend the life of a structure by creating durable, long-lasting concrete.

Kryton's global network includes staff in Canada, USA, UK, UAE, India, China, Singapore, as well as Distributors in over 50 countries. To find a Kryton office near you please visit: www.kryton.com



Certified to
NSF/ANSI 61



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SMART CONCRETE®