Krystol® VS Silicate-based Technology

KRYTON | OCTOBER 2008

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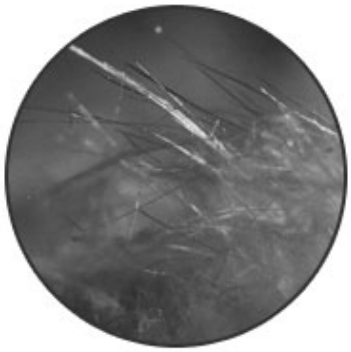

Krystol is a mixture of cement and waterproofing ingredients that work as a catalyst to further react un-hydrated cement particles and promote the hydration process - growing more and longer crystals that penetrate deeply into the pores and capillaries of the concrete, rendering it waterproof - permanently.

By contrast, silicates react with free lime in concrete to produce an insoluble Calcium Silicate Hydrate gel within the pores near surface. As the surface wears or is otherwise removed/damaged, the concrete will be unable to withstand even low hydrostatic pressure.

Self-Sealing

In the absence of water, Krystol chemicals remain dormant within the concrete matrix. Subsequent water intrusion, typically from cracks, will trigger the chemical reaction to cause additional crystals to grow and seal the crack and surrounding capillaries.

Silicate-based materials will not reactivate to produce additional gel and protect against future water intrusion.

	Silicate	Krystol
Self-sealing	No	Yes
Set time of green concrete	Accelerates	Retards
Hydrophilic vs. Hydrophobic	Hydrophobic	Hydrophilic
Strength	Decreases	Increases
Cracking	Increase	Decrease
Penetration	1/8—1/4”	inches
Reacts with free-lime	Yes	No
Improves with age	No	Yes
Helps reduce corrosion	No	Yes

Set Time of Green Concrete (Newly Poured Concrete)

Krystol retards the set time of the concrete to allow more time for un-hydrated cement particles to react with water and produce a stronger bond. This leads to higher compressive strength. Also, since the hydration process is extended, the hydration heat and peak heat are both decreased, which reduces the potential for shrinkage cracking.

Silicate-based material accelerates the set time. This leads to weaker strength and more potential for cracking during curing.

Hydrophilic vs. Hydrophobic

Krystol chemicals absorb water to create the unique crystals that serve to block the pores and capillaries of concrete - more water equals more crystals, until no additional water can penetrate. The hydrophilic nature of the Krystol system gives it the ability to resist unmatched levels of hydrostatic pressure, to grow deep into (and even throughout) the concrete matrix and to reactivate in the presence of moisture.

Silicate-based materials form a type of viscous, colloidal gel that repels water. They are unable to penetrate past the surface and are prone to wear and eventual deterioration. Negative-side water pressure will cause the surface treatment to “delaminate” while positive side pressure will wear the coating away.

Penetration

Krystol reacts with moisture and travels as far as water will carry it into the concrete matrix. Depending on porosity of concrete, humidity and water pressure, Krystol will penetrate many inches into concrete over time.

Silicate-based materials only produce a kind of viscous colloidal gel near the concrete surface during the initial hydration process. After that, it will not react to create additional gel and therefore won’t penetrate any further.

BE SURE. BE KRYTON.

Waterproof

By penetrating deeply into the concrete and becoming a permanent part of the concrete matrix, Krystol is effective against hydrostatic pressure from both the positive and negative side. In fact, once the Krystol chemicals are drawn into the concrete the initial surface treatment can be removed without affecting permeability of the concrete.

Because silicate-based materials form a high viscosity colloidal gel near the concrete surface, such systems rely on the surface layer to maintain effectiveness. Once the surface is compromised, the concrete will be unable to withstand hydrostatic pressure. In addition, since it doesn't penetrate deeply into the concrete, it cannot waterproof on the negative side.

Reacts with Free-Lime

Silicate-based materials require free-lime to form the surface gel that blocks water intrusion. Because Krystol does not require free-lime to grow millions of needle-like crystals throughout the concrete it is unaffected by the availability of this material.

Additives such as silica fume and fly-ash reduce the amount of free-lime that is available in the concrete. In addition, aged concrete that has undergone weathering and carbonation may not have enough free-lime left at the surface for silicate-based materials to be effective.

Improves with Age

In moist environments, when it matters most, Krystol will continue to grow into the concrete, even and especially under high water presence. The concrete will increase in compressive strength and reduce potential cracking. This is a permanent solution.

Reduces Corrosion

Krystol blocks the water from entering the concrete, reducing the potential for corrosion of steel reinforcements. As Krystol is a permanent treatment it offers protection against corrosion over the long-term.

Silicate-based materials are not permanent. They are subject to wear and deterioration and are unable to withstand hydrostatic pressure. Over time, water will penetrate the concrete and cause the corrosion of the steel.