

Protecting Late Season Concrete Pours



Freeze/thaw cycling and deicing chemicals can cause surface paste to scale or delaminate.



Penetrating silane and siloxane chemistries make concrete water repellent.

Insight Into What Works & Why

In northern climates, concrete that's poured late in the season does not have much time to mature prior to exposure to damaging freeze/thaw cycles. That's why surviving the first winter undamaged is often the most critical in the lifespan of newly placed concrete.

Compressive Strength is Important ...

Although we like to think of concrete properties as fixed the moment it cures, it does undergo a maturation process, during which it develops its full design strength and durability. Most concrete has very high compressive strength, anywhere from 3,000 psi and beyond. Compressive strength is a measurement of how well it can withstand an external force that wants to compact it, like the weight of a car rolling over a concrete driveway.

... But Tensile Strength is the One to Pay Attention To

But concrete also encounters another force that is much more damaging, and which it is far less capable of enduring. Tensile strength is a measurement of an internal force that wants to tear it apart from the inside. Inflate a balloon and then paint it. Now inflate that balloon some more, and the tensile forces imparted on the paint will cause it to crack.

Concrete cracks in much the same way during freeze/thaw cycles. Water is absorbed into the concrete where it freezes when the temperature drops. And as anyone who has left a can or bottle of pop in the freezer a bit too long knows, when water freezes it expands. Because concrete has relatively low tensile strength (about 1/10th of its compressive strength), this expansion can cause it to crack. When that crack occurs near the surface, it may become a "pop out" over an absorptive aggregate or cause the top paste to begin scaling or delaminate off the surface.

This damage can be aggravated by the use of deicing chemicals, which cause concrete to undergo additional freeze/thaw cycles as ice is melted

and refrozen. Deicing chemicals can also allow concrete to become "super saturated," and hold more water than it would naturally. And of course, more water means more expansion as it freezes.

Use Penetrating Repellants to Protect Young Concrete

Concrete that has not reached full maturity is particularly prone to this kind of freeze/thaw damage. As a result, it's crucial to provide maximum protection to late season pours. Freeze/thaw damage is best avoided by not allowing water into the concrete in the first place. Penetrating water repellants like silanes and siloxanes do a great job of reacting within the concrete to form a hydrophobic (water repellent) barrier throughout the concrete pores and capillaries. Since they work below the concrete surface, they have the added benefit of not changing its appearance or slip resistance, and last longer because they're not subject to surface wear and abrasion.

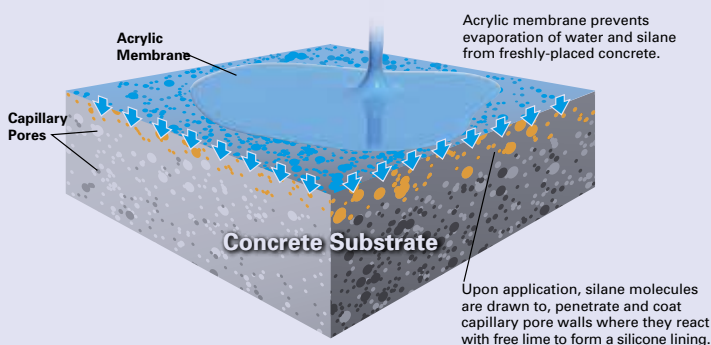
ChemMasters makes a full line of penetrating silane and siloxane water repellants, including Aquanil™ Plus 40, Aquanil™ Plus 40-A, Aquanil™ Plus 100 and Spall Guard™ WB 10.



Silencure™ Technology: Your Best Bet for End-of-Season Protection

Typical penetrating water repellants can only be applied to fully cured concrete, so late season concreting has the added challenge of curing concrete in addition to offering a high performance penetrating silane or siloxane. That's where ChemMasters patented Silencure technology is unbeatable!

The Silencure family of products are applied to newly placed concrete within two hours of final finish, providing both the necessary curing function along with a long-term silane/siloxane water repellant, providing lasting protection from freeze/thaw cycling and deicing chemicals.



Silencure

Pure acrylic, non-yellowing cure & seal containing penetrating silane for long-term protection from freeze/thaw cycles and de-icing chemicals. For use on broom finished concrete.



Silencure-A

Chemically reacts with dull, weathered sealer to restore high gloss, luster and shine. More breathable than traditional sealers. Reduces buildup that may cause coatings to blush, whiten, blister or peel.



Silencure SRT

Pure acrylic, non-yellowing cure & seal containing penetrating silane for long-term protection from freeze/thaw cycles and de-icing chemicals. Suitable for use on broom finished or hard steel troweled concrete.



Aquanil Plus 40

Penetrating, chemically reactive silane treatment to waterproof concrete and masonry. 100% solids version is low-VOC (<400 g/L) formulation.



Aquanil Plus 40-A

Penetrating, chemically reactive silane treatment to waterproof concrete and masonry. 100% solids version is low-VOC (<400 g/L) formulation.



Aquanil Plus 100

Penetrating, chemically reactive silane treatment to waterproof concrete and masonry. 100% solids version is low-VOC (<400 g/L) formulation.



Spall Guard WB 10

Penetrating, chemically reactive oligomeric siloxane to waterproof concrete and masonry.



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