

Technical Data Sheet

LAST UPDATE: (January 2016)

PROTEC III LSF CHEM RX

The Original Chemical Cure, Hardener, and Densifier

Protec III LSF Chem RX is a waterbased highly reactive penetrating concrete treatment, which produce a permanent density change within the micro-structure of the concrete.

As a cure, Protec III penetrates and reacts with the poor bonds in the concrete called calcium hydroxide which make up approximately 25% of the cement paste. When Protec III Chem RX chemically reacts with these weak bonds the result is strong bonds called calcium silicate hydrate (CSH). This chemical cure process also fills the pours of the concrete holding moisture in the concrete.

The benefit of Protec III Chemical Cure over water curing and membrane cures is that the 25% weak bonds that were historically present in these methods of curing are not present with Protec III Chemical Curing. Overall hardening, tensile strength, low porosity and high chemical resistance is achieved. Protec III Chem RX is a non-membrane forming cure, which is a major benefit where flooring is to be installed.

Protec III LSF Chem RX has no harmful vapors, and it is Agriculture Food Approved for Registered Establishments. Protec III LSF Chem RX easily penetrates the concrete and is used to reduce vapor transmission in concrete. It is very effective in reducing radon gas by blocking the internal pores of the concrete.

Protec III Chem RX does not leave a membrane on the surface of the concrete, if additional stain resistance is required use Dual-Tech.

BENEFITS

Meets LEED Requirements

Compatible with flooring adhesives or sealants

ASTM C418 – 67% increase in hardness of the concrete wear surface

Curing Aid: 92 % greater moisture retention during critical 24 hour cure period.

Decreases permeability of the concrete

Restricts water migration through concrete

VOC's - Zero

Eliminates dusting of concrete

Reduces Tire Squeel

Compatible with dry shake hardeners

Increases chemical resistance

Environmentally Safe and Permanent

Produces a permanent shine with use

FOOD SAFE: APPROVED

Reduces Vapor Transmission

Reduces Radon Gas Emissions

More Effective Than Water Curing

Stops Concrete Popping and Shaling That is Associated with Membrane Cure and Seals

USES

All new and existing interior power trowel surfaces, pre-cast concrete, and poured in place walls

Exterior Broom Finish Concrete

Anywhere a non-toxic low odor cure is needed to meet LEED Requirements.

Compatible with flooring adhesives.

PHYSICAL CHARACTERISTICS

Dilution: None, use as supplied

Odor: Mild

VOC's: 0

Clean-up: Water

Freezing Point: -6C

SHELF LIFE: 3 yrs in original unopened container

PACKAGING

5 gallon (18.9 Litre) Pails

55 gallon (205 Litre Drums)

Totes (1000 Litres)

COVERAGE:

EXISTING BROOM FINISH – Approx. 200
ft²/gal (4.9 m²/litre)

CURE-BROOM FINISH - Approx. 300 ft²/gal
(7.4 m²/litre)

EXISTING POWER TROWEL - Approx. 300
ft²/gal (7.4 m²/litre)

CURE-POWER TROWEL - Approx. 400 ft²/
gal (9.8 m²/litre)

CAUTIONS

Protect surrounding area from over-spray. In case of accidental contact, rinse thoroughly with water immediately.

Do not apply to frozen surfaces.

Do not apply to colored concrete for a minimum of 3 days after finishing operations.

For surfaces not specified, or where concrete may have been previously sealed, we recommend testing a small area to observe for possible adverse reactions.

Freeze Harm: 5 Cycles No Damage

For cool temperatures applications on power trowel surfaces, apply at 400 ft²/gal (9.8 m²/litre) minimum, specifically take caution to roll out any puddles that form. Dry time is slower in cool temperatures, which may cause more puddling. If heavy puddles dry, they can leave a white residue on the surface of the concrete, which is very difficult to remove.

FOR HEAVY ABRASION FLOORS (ie. Tracked in gravel and dirt that is being ground into the floor by vehicles) FOLLOW THESE INSTRUCTIONS: Use 2 coats of Protec III LSF Chem RX making sure the 1st coat dries before applying the 2nd coat. Normal wear and tear does not include heavy abrasion from gravel and dirt, therefore it is highly recommended to keep your floors clean to avoid unnecessary excessive wear.

SURFACE PREPARATION

New and old dirty concrete should be cleaned and then rinsed with clean water if necessary. After washing allow the surface to dry before application of product.

APPLICATION

Apply one coat of Protec III Chem RX. Because concrete absorbs differently across the entire pad, we recommend a second coat for best results in order to properly coat more porous areas.

Apply product with a low pressure sprayer or roller.

Apply at recommended square foot coverage. Saw cuts need to be coated thoroughly.

Apply 2-3 coats to high traffic floors or floors exposed to high corrosion. Apply the 2nd coat one hour after the 1st coat has dried.

Roll out any puddles that form.

For proper chemical resistance apply 3 to 4 coats depending on the porosity of the concrete.

CLEAN-UP: Water

FOR CURING CONCRETE: *see Protec III Chem RX Used as a Curing Aid*

FOR EXTERIOR BROOM FINISH CONCRETE

Apply once the bleed water has dissipated. For added chemical/freeze thaw resistance, apply a 2nd coat once the first coat is dry to touch.

FOR BADLY DUSTING/CARBONATED CONCRETE: *see Protec III Restore Strengthens and Hardens Concrete - Section 4 (8-9)*

VAPOR TRANSMISSION/RADON GAS

Moisten the surface with Protec III Chem RX by sprayer or microfiber pad. When spraying use a spray nozzle that produces a flow of .25 gpm under 40 psi is recommended. Spray in a fine fog pattern. Make sure concrete stays wet for 30 minutes by re-applying more Protec III Chem RX or by re-distributing the existing product using a micro-fiber pad. Do not allow the product to form puddles. After 30 minutes let the surface dry, no water flushing is needed. After 1st coat has dried for 4 hours apply the 2nd coat of Protec III Chem RX. Follow the same procedure as the 1st coat.

Typically 2 coats is all that is needed.

CURING CONCRETE

Apply one coat once the final trowel is done and before the pad sweats.

MAINTENANCE

For Exterior Broom Finish Concrete exposed to freeze thaw cycles, we recommend applying one coat at approximately 200 ft²/gal (4.9 m²/litre) every two years as part of your regular maintenance program. For Interior Concrete, we recommend applying one coat in high traffic, high abrasion areas. For example, in front of overhead doors, apply at a rate of 300 ft²/gal (7.4 m²/litre) every 2 years as part of your regular maintenance program.

WARRANTY

We warrant our products to be of good quality and will replace any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. The user shall determine the suitability of the product for the intended use and assume all risks and liability in connection therewith. Therefore, except for such replacement of product, Cornerstone Coatings makes no warranty or guarantee express or implied including warranties of fitness for a particular purpose or merchantability, respecting its products, and Cornerstone Coatings shall have no other liability with respect thereto. This warranty supersedes all other warranties express or implied.

Three Options for Curing Broom Finish Concrete

Option 1:

Apply 2 coats of Protec III Chem RX to chemically cure concrete after bleed water has evaporated (dry to touch) or next day.

Protec III Chem Rx hardens the surface, reduces water transmission and dust proofs the concrete. The great thing about this product is that you can apply it as a Curing Aid as it chemically hardens the surface of the concrete while still allowing the concrete to "breathe".

Note: Make sure that the bleed water has evaporated as the chemical reaction that is supposed to happen "inside" the concrete can also happen "outside" the concrete, leaving a stain that will fade as the concrete lightens up.

Option 2:

Apply 2 coats of Protec III Chem RX making sure the bleed water has evaporated (dry to touch) or next day.

Then coming back 28 days later, apply Dual-Tech.

Dual-Tech is a great product as it gives water repellence to the concrete surface, increases stain resistance, and has added freeze/thaw protection.

Option 3:

Apply Dual-Tech 28 days later after the concrete is placed and finished.

This option is great for people on a budget as it hardens and densifies the concrete surface while giving increased stain resistance and freeze/thaw protection.

The one draw back with this option is that the concrete is not considered "Chemically Cured" and in late fall, it is important to make sure that the concrete has something on it before winter.

MAINTENANCE OF PRODUCTS

Maintenance of Dual-Tech is to wet the concrete surface down with water, and spot treat where Dual-Tech has worn away.

Maintenance of Protec III Chem RX is to re-apply every few years, although Protec III Chem RX is permanently in the concrete, road salts etc. can still wear away at the top layer. To give the best possible protection of the concrete we recommend doing more coats every few years.

SHALING AND POPPING

BROOM FINISH CONCRETE

Pressures on the Concrete Industry

With the concrete industry being under siege from government regulations over the last 10 years and especially over the last 5 years from the green house and global warming lobby, concrete mix designs have been going through some big changes. The days of pouring and placing concrete and putting a curing aid or cure and seal on and thinking that was all you had to do, if you even had to do that for your concrete, are over. There may have been the odd concrete pop after a year or two, which was pretty acceptable and normal. Can we still say that today? The problem is not the pouring and placing practices, the problem is the government regulation pressures that have been put on the Portland cement industry.

Where is the Problem Showing Up?

Overall concrete compression strengths are just fine. Where the problem is showing up is in the finished concrete surface in the form of concrete shaling on broom finish concrete. This is more specifically showing up in climates that are exposed to cold weather in winter and freeze thaw cycles. In the worst case scenarios, even with the use of curing aids and acrylic cure and seals, the benefits of using these products is starting to be minimal and sometimes no benefit at all. These government regulations are resulting in a weak concrete surface resulting in concrete popping and surface shaling and delaminations. Even with cure and seals, these problems are showing up in the spring.

Protec III Replacing Cure and Seals

Using Protec III Chem-Rx or Protec III Restore will greatly strengthen the surface of the concrete. Protec III works as a curing agent, but where it excels is in the ability to penetrate the concrete surface easily and chemically react with the weak bonds in the concrete paste. Once this reaction has completed the concrete surface is now highly resistant to concrete popping and surface shaling. Applications typically for broom finish concrete is to pour and place the concrete, if this occurs in the morning, come back in the afternoon and apply two coats of Protec III.

If you pour and place the concrete in the afternoon, return the next morning and apply two coats of Protec III. Making the concrete surface strong using Protec III gives peace of mind from call-backs.

Conclusion

Protec III is an inexpensive solution to a huge problem for the concrete industry. When pouring and placing concrete with a water curing method, concrete will still leave up to 25% weak bonds in the concrete, called calcium hydroxide. Today's concrete has considerably more weak bonds because of the changing regulations put on the concrete industry, fortunately this is where Protec III can help. Protec III is an inexpensive solution. In areas where climate does not include freezing and thawing, this is not much of an issue, but if you are in Canada and the Northern US states this is a problem. The freeze thaw cycles place all kinds of pressure on the concrete surface and if the concrete is not treated correctly with Protec III, the results will show up after only one winter.