

## Product Installation Instructions: CST & ComposiCoat Systems

### PoreBlocker™, Penetrating Surface Treatment

Initial Consult: Prior to application, it is best practice to discuss the age and condition of the concrete as well as the environmental conditions expected during the application period, in order to best understand the ideal dilution rate, and strategy around cleaning.

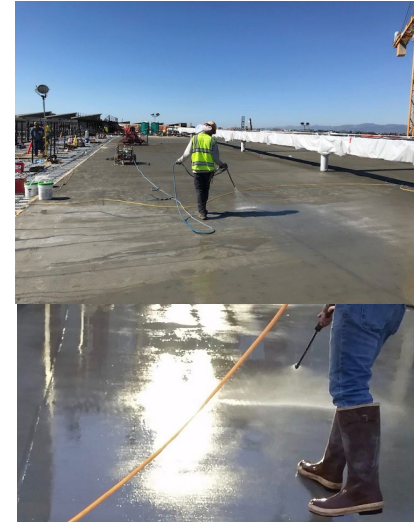


#### Application Instructions:

1. **Step 1, Clean:** Concrete must be clean prior to any colloidal silica or other coating application. Remove all debris or fillers, including non-cementitious materials imbedded in cracks, divots and expansion seams.
2. Clean surface of loose debris, including loosely attached aggregate and environmental debris. Best practice is to use a **Surface Cleaner** spinning pressure washing head during pressure washing to ensure all debris and chemicals are removed (top right image).
3. Clean surface to the degree possible of any oils or embedded contaminants which may block surface pores of concrete substrate (e.g., any and all bond breaking contaminants). This includes cleaning after the colloidal has reacted to fill the pores and capillaries, which often pushes out contaminants that will need removal. \*
4. **Step 2, Wet Out Concrete:** Using clean, potable water, soak concrete to obtain a saturated surface dry (SSD) condition, meaning concrete is wetted out, but no standing or pooled water remains on surface of substrate.
5. **Step 3, Apply Colloidal:** Using a garden pump sprayer or equivalent, with a fanning spray nozzle: Evenly apply colloidal silica treatment to the concrete surface.
6. **Note, Horizontal surfaces:** Apply light flood coat over entire surface. A 20% - 30% crossover pattern is generally preferred by applicators.
7. **Note, Vertical surfaces:** Apply such that entire surface is saturated with colloidal silica treatment, reapplying as necessary so that surface stays saturated for 10 mins. A 30% - 50% crossover pattern is generally preferred by applicators.
8. **Step 4, Remove Excess material:** Once application over intended area is complete, using squeegee, towels, rags, or other similar method, remove all excess standing material. Application area should be left with a Saturated Surface Dry condition, with no standing or pooled material remaining.

**CAUTION:** Any material left standing or pooled on the surface will cure as a gel, which affects surface characteristics and will inhibit bonding of subsequent product applications.

9. **Step 5: Allow at least 24 hours for colloidal silica to penetrate and react with concrete.** However, the recommended time will vary based on substrate condition, environmental factors, and other variables. Be sure to discuss time requirements with a technical or sales representative prior to application.



**\* Cleaning Interstitial Contaminants:** The colloidal application often forces out contaminants from the pores and capillaries of the concrete. These contaminants will need to be cleaned prior to the applications of the CeramycGuard coating. Auto scrubbers or surface cleaners can be used for cleaning this contamination after it becomes visible. If there is known contamination in the slab it is sometimes best to give the slab an extra day (or two) to allow the CSH (calcium silicate hydrate, aka cement) to form in the pores and capillaries, which will push out contaminants. This will allow contaminants to become visible, and proper cleaning to take place.

## **CeramycGuard™ Ceramic Surface Treatment**

### **Concrete Preparation**

Concrete should be lightly ground to a CSP 1-2, to enhance bonding and remove any remaining contamination added to the surface from construction activity. (This step may not be necessary if the concrete was prepared prior to the colloidal application). If you have questions, please see Technical Data Sheet, or consult with a Zirconia staff member.

### **Concrete Cleaning**

**\*Goal: Concrete surface must be clean, with no dust, debris, or contamination of any kind prior to coating application.\***

1. Clean substrate of all previous coatings, sealants, oil residues or other contaminants. Any organics used for crack repair must be excavated.
2. Remove all loose debris or loosely attached aggregate. Best practice is to use a **Surface Cleaner** spinning pressure washing head during pressure washing to ensure all debris and chemicals are removed (top right image).

If colloidal application was performed, then concrete can be lightly pressure washed, or autoscrubbed to remove dust, soils, and any other contaminants from construction activity.

### **Mixing and Application Instructions:**

#### **Mixing**

1. Gather appropriately sized plastic pails for mixing CeramycGuard.
2. Prepare drill with mixing bit securely attached. Operate drill at MAX RPM ONLY.
3. *Read steps 4-10 before opening or mixing any material.*
4. Take Part A and pour the entire contents into mixing pail. If mixing multiple gallons at once, pour in Part A of every gallon.
5. Cut off corner of Part B bag, and begin slowly pouring contents into mixing pail, taking care to pour no more than 1/2 of bag at once prior to mixing. If mixing multiple gallons, do not mix more than 3 gallons at once. When mixing 2 gallons, pour no more than one bag of Part B at once. When mixing 3 gallons, pour no more than two bags of Part B at once. Always make sure all powder is fully incorporated, with no lumps or clumping, prior to adding any additional powder.
6. Using a drill at max RPM, continuously mix as the Part B powder is added to Part A solution. For every 1/2 bag poured, material must be mixed until fully integrated and no lumps remain.
7. Once all material is mixed with no lumps, continue to mix for at least 60 seconds or until fully integrated.

8. Add entire contents of the Part C solution into mixing pail. If mixing multiple gallons at once, pour in Part C from every gallon into mixing pail.
9. Slowly mix by hand until Part C is incorporated. *Part C will sit/float on top of mixture and can be easily thrown if mixed aggressively, which will result in loss of material.*
10. Once Part C is incorporated, using drill at MAX RPM, mix for an additional 60 seconds, integrating this solution. Some black material may float and congregate at surface while mixing, this is normal.
11. Pot life once mixed: Approximately 1 hour when ambient temperature is 70 °F (21 °C) and humidity is at 50% RH.

## **Application**

1. Verify cleanliness of substrate prior to application of any mixed CeramycGuard.
2. Using drill at max RPM, quickly remix CeramycGuard just prior to application.
3. Using recommended roller cover, flat brush, or bristle brush cut in perimeter areas as necessary, prior to coating of main section.
4. Using recommended roller cover or flat brush, apply CeramycGuard over intended surface until a thickness of 6-8 mil has been built up (10 mil maximum). Coverage rates will vary depending on porosity of substrate. Some areas may quickly build up the necessary thickness while other areas may require more material.  
\*For HORIZONTAL SURFACES, a squeegee and back-roll method may be used to quickly distribute and even out material.
5. Shoe spikes must be worn if coated areas need to be traversed before initial cure (hardening) of material.
6. Protect CeramycGuard from water for a minimum of 24 hours. Keep coated areas free of foot traffic and equipment until fully cured.
7. Monitor temperature and humidity during cure time to be sure of proper curing conditions. We advise the use of a HOBO air temperature and humidity meter or similar for this purpose.

## **ComposiCoat XD™ Topcoat System**

### **CrossLinker™ Instructions:**

**\*NO MIXING is required\***

**\*To be applied ONLY on top of properly applied and fully cured CeramycGuard™\***

1. Use a cut-in brush or 3/8 inch white nap roller cover for small, hard to reach areas and edging.
2. For application over main area, squeegee and back roll using a Magic Trowel and 3/8 nap, soft woven lint-free roller, or simply apply with directly with roller.
3. Apply a single even coat over entire coverage area and allow it to set for 15-30 mins.
4. After 15-30 mins, check that first coat is no longer tacky.
5. Apply another even coat over entire coverage area at 1 mil thickness.
6. Allow second coat to set another 15-30 mins, or until no longer tacky.

\*All solvents must off gas prior to urethane being applied, if any tack is remaining then solvents are still present

7. Applicators should wear shoe covers for a clean flawless finish.

### **ComposiCoat XD™ Instructions:**

#### **Mixing:**

1. Mix Part A and then gradually/slowly add Satin Powder (Part C) and continue mixing until powder is well dispersed.

2. Add Part B and mix for at least a total of 3 minutes or more to ensure proper mixing of solution.
3. For pigmented finish, add 1/2 can of colorant per gallon into mixture, mixing until color is even.

**Application:**

1. Apply only one coat at 400 sq. ft. per gallon with 3/8" nap lint-free soft woven roller out of a roller pan. It is best to apply in a W then M pattern to make sure the product is evenly worked into the surface. After about 10 minutes an installer wearing spikes should cross roll the surface with an application roller at a perpendicular (90 degree) angle to the original application with as long as strokes as reasonable. (Do not rewet or add material to the roller at this time.)
2. Take great care not to apply this coating above or below the rate of 400 sq. ft. per gallon. Excess material may form blisters on the surface and applying too dry can result in an uneven appearance.
3. For additional slip resistance, Shark Grip® or Zirconia Non-Slip Additive may be added at a rate of 100 grams/gallon of CompositCoat XD. Rate may be increased for more aggressive non-slip, please consult your Zirconia technical representative.
4. Use a paint stick to stir the product every 10 minutes to ensure proper suspension of mixture. If allowed to sit in a bucket for more than 15 minutes, remix for 30 – 60 seconds to reactivate the solution and disperse the ingredients back into suspension.
5. Be prepared! Use expert applicators to cover the surface completely and at the proper ratio of coverage (400 sq. ft. per gallon) the first coat!
6. Allow CompositCoatXD to cure 24 hours, while keeping free of water and debris.

**CompositCoat BP, Crosslinking Topcoat**

**Mixing and Application Instructions:**

**Mixing**

1. Thoroughly clean intended application surface, removing all contaminants and loose debris.
2. Allow intended application surface to fully dry.
3. Ensure that intended application surface does not exceed 80 °F (27 °C)
4. Using clean pail or appropriate mixing container, empty entire contents of Part A. If mixing multiple gallons at once, pour in Part A of every gallon.
5. Pour entire contents of Part B into Part A. If mixing multiple gallons at once, pour in Part B of every gallon.
6. Using wooden stir stick, or other stirring tool, slowly and gently mix combined CompositCoat BP for 120 seconds, and let stand for pre-polymerization (the mixed components will begin chemically interacting with each other).
7. Let mixed material stand for at least 45 mins prior to application.

**Application**

1. CompositCoat BP must only be applied over fully cured and clean CeramycGuard.
2. Verify that intended application area is still clean and free of loose debris and contaminants.
3. Using recommended roller, apply CompositCoat BP evenly to surface such that surface is completely saturated.
4. Evenly saturate entire surface area, lightly re-wetting areas as needed where early matting occurs. Spikes must be worn if coated areas need to be traversed prior to initial cure (hardening).

*\*Matting will occur in more highly porous areas, causing material to absorb more heavily and rapidly\**

5. Protect ComposiCoat BP from water for a minimum of 24 hours. Keep coated areas free of foot traffic and equipment until fully cured.
6. Monitor temperature and humidity during cure time to be sure of proper curing conditions.

### **Using Colloidal Silica and CeramycGuard Under Repair Mortar**

#### **Application Instructions:**

1. Treat intended surface with colloidal silica first.
2. See “Application” instructions for colloidal silica, above.
3. Allow 24-48 hours for colloidal silica to penetrate and react.
4. Remove any contaminants that are pushed to the surface from the colloidal reaction.
5. See “Mixing” and “Application” instructions for CeramycGuard.
6. Apply CeramycGuard over surface treated with colloidal silica.
7. Allow CeramycGuard to cure, per “Application Instructions.”

### **Crack/Cold Joint Repair**

#### **Application Instructions:**

1. Excavate cracks and patching materials thoroughly, removing any previous organic fillers (e.g., urethane joint fillers), sealants, repair slurries, or other organic material.
2. Remove all loose debris, dislodged and loosely embedded aggregate.
3. See table below for evaluating which product is best suited to fill intended crack or cold joint:

**Table 1. Product Decision Table**

<u>Product Choice</u>	<u>Crack/Cold Joint Width</u>
CeramycGuard	0 – 0.25”
Geopolymer/cementitious mortar	0.25” Or Larger

4. ***If using geopolymer or cementitious mortar (>0.25 inch)***, mix according to manufacturer’s instructions.
5. Using spouted container or other appropriate device, pour mortar into intended cracks, allowing mortar to build up and bead above substrate surface. Geopolymer mortar will settle and infill as it cures.
6. Allow mortar to cure per manufacturer’s instructions, then grind flush with substrate for an even floor.
7. ***If using CeramycGuard*** for small crack repair (up to 0.25 inch), mix according to “Mixing” instructions.
8. Using squeeze bottle, spouted pale, or other appropriate device, carefully pour CeramycGuard into intended cracks, allowing CeramycGuard to build up and bead above substrate surface. CeramycGuard will settle and infill as it cures.
9. Allow CeramycGuard to cure per “Application” instructions (generally 24 hours), then grind flush with substrate for an even floor.