

SIL-ACT® Product Data

DECK-SIL® System

1700 Series



ADVANCED
CHEMICAL
TECHNOLOGIES, Inc.

"Protecting the World's Infrastructure"

Dual Layer Concrete Deck Sealing & Refurbishment

For Use under U. S. Patent No. 9,242,269

DESCRIPTION & BENEFITS

DECK-SIL® 1700 series is a unique concrete infrastructure sealing system comprised of two well-proven product technologies. These two technologies are applied as a system to provide a dual layer of protection.

The DECK-SIL® 1700 series combines the proven concrete protection of DECK-SIL® PS 1700 silane with the low viscosity crack and surface sealing benefits of DECK-SIL® EP 1700.

DECK-SIL® 1700 series shows a significant increase in penetration of DECK-SIL® PS 1700 silane. This deeper penetration of the silane promotes improved performance of the silane. The combined effect of the DECK-SIL® 1700 series promotes longer bridge life due to deeper silane penetration and the flood coat filling performance of the DECK-SIL® EP 1700.

COMPONENTS

DECK-SIL® PS 1700 – is a clear penetrating treatment, that causes concrete to become repellent to water, chloride, waterborne contaminants and other weathering elements, preventing the premature deterioration of concrete and masonry structures.

DECK-SIL® EP 1700 – two-component, low viscosity, epoxy polymer specially formulated to provide a protective barrier and extend the life of concrete surfaces. The low viscosity allows deep penetration into the smallest cracks providing a protective barrier against the ingress of water, salts, ions and other waterborne contaminants, thus greatly extending the service life of concrete structures.

BENEFITS

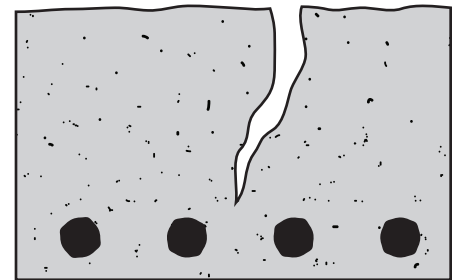
- Alternative to full overlay system
- Quick Turnaround
- One time surface preparation – saves time and money
- Extra protection with no extended lane closure time
- Dual layer protection – extends life of structure

Only DECK-SIL® 1700 series offers these unique benefits.

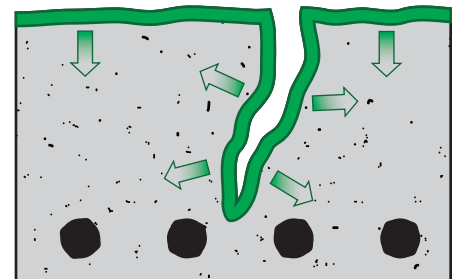
DECK-SIL® 1700 SYSTEM PROPERTIES

PS 1700	
Active Ingredient	Alkyltrialkoxysilane
Density	7.68 lb/gal
Active Content	100% active
VOC Content	< 350 g/L
Appearance	Clear
Surface Appearance after Application	Unchanged
Drying time at 70°F	1 hour
EP 1700	
Mixing Ratio	1:1 By Volume
% Volatile	< 30%
VOC	178 g/L (1.49lb./gal)
Bond Strength	2789 psi

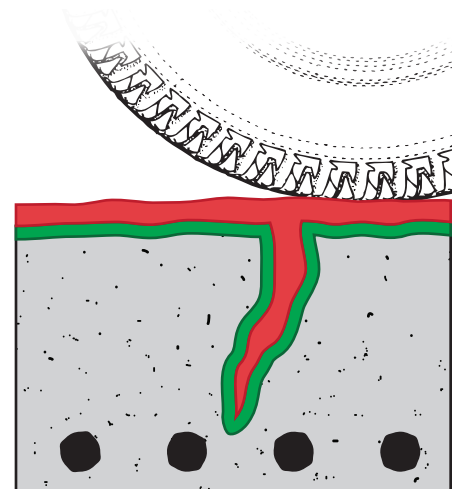
Concrete surface with cracking needing repair.



Step 1. Apply DECK-SIL® PS 1700 treatment which penetrates into the concrete.



Step 2. Apply DECK-SIL® EP 1700 treatment to heal and seal surface.



Even after extensive traffic wear, the surface remains sealed against water ingress.

DECK-SIL® 1700 SYSTEM PERFORMANCE RESULTS			
(U.S. Patent No. 9,242,269)			
Test Method	Test Value	Units	Notes
AASHTO T259			
1.6-13 mm	95.4	% Chloride Reduction vs. Control	Not Sand Blasted
13-25 mm	97.5	% Chloride Reduction vs. Control	Not Sand Blasted
1.6-13 mm	92.7	% Chloride Reduction vs. Control	Sand Blasted
13-25 mm	100	% Chloride Reduction vs. Control	Sand Blasted
Hydrophobic Depth Modified OHD-L40			
	3.1	mm*	Not Sand Blasted
	2.1	mm*	Sand Blasted
* Control had 0 mm			
ASTM D6489			
24-hours	96.2	% Reduction of Water Absorption vs. Control	Not Sand Blasted
48-hours	94.7	% Reduction of Water Absorption vs. Control	Not Sand Blasted
24-hours	95.6	% Reduction of Water Absorption vs. Control	Sand Blasted
48-hours	93.6	% Reduction of Water Absorption vs. Control	Sand Blasted
NCHRP 244 SERIES II			
	99	% Chloride Reduction vs. Control	Sand Blasted
NCHRP 244 SERIES IV SOUTHERN EXPOSURE			
	97	% Chloride Reduction vs. Control	Sand Blasted
Cracked Beam Testing 24 cycles 48 weeks			
	100	% Reduction in Rust vs. Control**	Sand Blasted
	92.4	% Reduction in Chloride at Crack at Rebar Level vs. Control	Sand Blasted
** Control top bars were 43% corroded and bottom bars were 4% corroded			
ASTM C642			
48-hours	0.3%	Water Absorption	Not Sand Blasted
50-days	0.7%	Water Absorption	Not Sand Blasted
48-hours	1.1%	Water Absorption	Sand Blasted
50-days	1.7%	Water Absorption	Sand Blasted
ASTM C 672 Salt Scaling			
		0 Rating @ 100 cycles	Not Sand Blasted
		1 Rating @ 100 cycles	Sand Blasted

PART 1. SURFACE PREPARATION

- All concrete shall have cured to design strength prior to the application of the Deck-Sil® 1700 System.
- Surfaces must be clean, dry, and free of all dirt, grease, curing compounds etc. The surface shall be prepared using sand or shot blasting to remove surface contaminants and other foreign matter. For best results shot blast to ICRI 3.
- All surfaces shall be dry prior to commencing the application.

PART 2. DECK-SIL® PS 1700 APPLICATION

- The DECK-SIL® PS 1700 solution is ready to use and shall be applied as supplied. It cannot be diluted or altered in any way. Do NOT allow any water to get into the solution. Application equipment should contain no water, and should be flushed with small amounts of SIL-ACT® Equipment Cleaner prior to commencing the application.
- The DECK-SIL® PS 1700 must be applied using spray bar type equipment. The most effective method for applying the treatment is to apply it on the surface using low pressure (15psi / 1.05kg/cm) positive displacement equipment. All spray equipment should be fitted with a fan spray nozzle and adjusted to a "wet spray" condition. Two thin applications may be preferable to prevent excessive run-off of the DECK-SIL® PS 1700.
- The application rate of the DECK-SIL® PS 1700 will vary according to the porosity of the concrete substrate but will generally be at 100 sq. ft. per gallon.
- The DECK-SIL® PS 1700 is visually dry, typically 30 minutes to 3 hours depending on temperature and humidity before applying the DECK-SIL® EP 1700.
- Apply DECK-SIL® PS 1700 three feet past pre-determined "end of day" termination point, this allows for next day starting point.

PART 3. DECK-SIL® EP 1700 APPLICATION

3.01 MIXING INSTRUCTIONS

- At time of mixing DECK-SIL® EP 1700 the ambient air temperature must be 40 °F (5 °C) or above. Each component should be thoroughly stirred before blending. Mix hardener Part B into the resin Part A for a minimum of three minutes with a low speed electric drill motor equipped with a mixing paddle until completely blended. Refer to the Product Data Sheet for specific mixing instructions and mix ratio. DO NOT mix more EP 1700 than what can be used during the pot life. Immediately after mixing, spread the epoxy onto the surface to optimize working time.

3.02 APPLICATION

- DECK-SIL® EP 1700 can be applied with a brush, roller, squeegee or sprayed with a low pressure sprayer. Spread and allow to pond over hairline cracks. Let material penetrate and remove excess. Continue to pond material over cracks for a minimum of 5 minutes to ensure the cracks are filled. **Important:** Before DECK-SIL® EP 1700 begins to solidify, broadcast aggregate approved by engineer to refusal on treated area to improve skid resistance.
- The application rate of the DECK-SIL® EP 1700 will vary according to the porosity of the concrete substrate but will generally be at 80 sq. ft. to 100 sq. ft. per gallon.
- For maximum penetration and results apply DECK-SIL® EP 1700 as soon as DECK-SIL® PS 1700 is visually dry, typically 30 minutes to 3 hours depending on temperature and humidity.
- Application of DECK-SIL® EP 1700 must be done within 8 hours after the DECK-SIL® PS 1700 treatment.
- Stop DECK-SIL® EP 1700 three feet short of DECK-SIL® PS 1700 to provide for next days starting point. This allows for consistent application of DECK-SIL® 1700 System.

3.03 LIMITATIONS

- DECK-SIL® EP 1700 must NOT be diluted with solvent or any other liquid. This will adversely affect cure time and strength properties.
- Do not apply the DECK-SIL® EP 1700 if rain is imminent. If rain does occur, allow sufficient time for the surface to dry before commencing the EP 1700 application.

3.04 STORAGE

- DECK-SIL® EP 1700 should be stored in a dry environment between 40-95°F (5-35 °C). Under these conditions, the shelf life is one year in unopened, damage-free containers.

WARRANTY

Limited warranty available.

DECK-SIL® 1700 System is protected by U. S. Patent No. 9,242,269.

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure: That ACT's products are safe, effective, and fully satisfactory for the intended end use. ACT's sole warranty is that the product will meet the ACT's sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. ACT's specifically disclaims any other express or implied warranty of fitness for a particular purpose or merchantability, unless ACT provides you with a specific, duly signed endorsement of fitness for use. ACT disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

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