

## SILCOSEAL ADVANTAGE

Chemically active cure and bondbreaker for tilt-up, lift slab and precast construction.



**VOLATILE ORGANIC COMPOUND (VOC) REGULATORY COMPLIANCE**

USEPA CARB-SCM SCAQMID LADCO, OTC UT-FR307, CO MCAQMID CT, MD, DE, D.C. CANADA

**SILCOSEAL ADVANTAGE** ■ ■ ■ ■ ■ ■ ■ ■

### HOW IT WORKS

In contrast to most conventional cure and bondbreakers, SILCOSEAL ADVANTAGE does not contain any wax or hydrocarbon resins and, as a result, does not depend on a physical barrier deposited on top of the casting slab to prevent bonding. Instead, SILCOSEAL ADVANTAGE consists of a special formulation of chemically reactive organic compounds in a predominantly water-based solvent system that chemically reacts with calcium hydroxide, a byproduct of the cement hydration reaction, present in the concrete surface pores. The reaction products are amorphous gels which, in conjunction with other combined special organic compounds in SILCOSEAL ADVANTAGE, effectively seal concrete surface pores. Moisture entry or exit is restricted, allowing good retention of concrete mixing water to assist in providing proper cement hydration and concrete curing, minimizing concrete surface cracking and crazing. Properly applied, SILCOSEAL ADVANTAGE positively prevents the bonding of tilt wall panels to casting slab floor surfaces.

### APPLICATIONS

- ◆ Use as a cure and bondbreaker in tilt-up, lift slab and precast concrete construction.
- ◆ Use to cure the top side of tilt wall panels to prevent the formation of shrinkage cracks.
- ◆ Use as a cure only on all types of interior, smooth troweled concrete flatwork where the use of conventional resin-based curing compounds is impractical.

### ADVANTAGES

- ◆ SILCOSEAL ADVANTAGE is an excellent, value-engineered alternative when protection from the “osmotic effect” is not required and/or when cost considerations dictate a lower priced product.
- ◆ Achieves exceptional wall panel surface appearance.
- ◆ Leaves no residue or resulting staining on wall panel or casting slab floor surfaces when properly applied.
- ◆ Achieves a crisp, positive release that minimizes panel surface defects and reduces panel resurfacing/patching costs.
- ◆ Does not contain any wax or hydrocarbon resins like many conventional bondbreakers, which often leave a difficult-to-remove residue on wall panel and casting slab surfaces. When this residue is not properly removed, it often causes floor and exterior wall panel paint and coating adhesion problems.

- ◆ Meets the modified moisture retention properties of ASTM C309 when applied to a steel-troweled surface.
- ◆ Improved emulsion stability means SILCOSEAL ADVANTAGE stays mixed longer than most other water-based cure and bondbreakers.
- ◆ Excellent resistance to washoff from normal rain showers and dew when applied directly to previously uncoated concrete surfaces.
- ◆ Dust, dirt and mud can be easily removed from casting slab floor surfaces by washing with low-pressure water when SILCOSEAL ADVANTAGE is used as both the cure and bondbreaker.
- ◆ Resistant to sunlight-induced oxidation damage that can necessitate the reapplication of competitive bondbreakers even when panel concrete placement is delayed a few days.
- ◆ Green Engineered™ – better for health and the environment.
- ◆ Meets all current federal VOC requirements for tilt-up bondbreakers and curing compounds.

### ⚠ PRECAUTIONS ⚠

- ◆ Not recommended for use as a bondbreaker on broom-finished or rough-finished concrete surfaces.
- ◆ Not recommended for application over any other manufacturer’s inorganic silicate-based floor sealer, hardener or organic resin-based curing, sealing or combination cure and seal product. Failure to follow this recommendation can result in panel surface defects or panel sticking.
- ◆ If a delay of more than 2 weeks occurs between the final bondbreaker application coat and panel concrete placement, it will be necessary to check for a sufficient bondbreaker film on the casting slab. If the bondbreaker film is insufficient, the bondbreaker must be reapplied as necessary before concrete placement.
- ◆ Protect from freezing. If allowed to freeze, product packaging may rupture and the emulsion stability of this product may be affected, making it difficult to keep product mixed during application. Product that is suspected of freezing should not be used.
- ◆ Verify that product is within the “USE BY” date stated on product packaging. Do not use expired product. The use of expired product may result in poor product performance or failure.
- ◆ In some instances, Nox-Crete may approve the application of CURE & SEAL 1200 E or DURO-NOX prior to the application of SilcoSeal Advantage. If so, the resistance

SILCOSEAL ADVANTAGE

Cure & Bondbreaker



chemical solutions to concrete problems

to rain washoff is greatly reduced. Carefully inspect all casting slab surfaces prior to panel concrete placement to ensure an adequate film of bondbreaker is uniformly present. The use of CURE & SEAL 1200 E will result in the formation of an acrylic membrane on the casting slab surface that may require removal prior to the application of some surface coatings or adhesives.

- ◆ Not recommended for application over or in conjunction with any other manufacturer's tilt-up bondbreaker.
- ◆ Not recommended for application in the rain or if rain is anticipated within 12 hours of application. Surfaces exposed to rain or running water within this time period will require reapplication.
- ◆ It is not recommended to use a pressure washer to clean the casting/floor slab surface after the application of SilcoSeal and prior to the wall panel concrete being placed. If necessary, a low-pressure garden hose with a non-aggressive spray nozzle may be used to remove contamination and debris prior to placing wall panel concrete.
- ◆ Not recommended for bondbreaker application to casting slab surfaces previously cured with polyethylene or curing blankets without first removing all salt deposits. Failure to remove all salt deposits can result in panel surface blemishes or defects.
- ◆ Not recommended for application to casting slab surfaces that are frozen or when ambient temperatures are below 40° F (4° C) or expected to drop below 40° F (4° C) within 12 hours following application.
- ◆ Not recommended for application without the proper sprayer and correct spray tip. See USE INSTRUCTIONS for specific sprayer and tip size recommendations.
- ◆ Not recommended for cure coat application prior to saw cutting crack control joints. Best results are obtained when SILCOSEAL ADVANTAGE cure coat is applied immediately after final finishing and joint saw cutting has been completed.
- ◆ Not recommended for use in tilt-up applications where casting slab or panel concrete mix design incorporates pozzolans such as fly ash without first contacting Nox-Crete for specific recommendations regarding application procedures and rates. Failure to do so may result in panel surface blemishes and/or panel sticking.
- ◆ For improved protection from the "osmotic effect" or during extremely hot or dry climatic conditions, use SILCOSEAL SELECT or SILCOSEAL 2000F.

## **USE INSTRUCTIONS**

---

- ◆ Request current product literature, labels and safety data sheets from manufacturer and read thoroughly before product use.
- ◆ Site environmental conditions, substrate conditions and construction have a major effect on product selection, application methods, procedures and rates, appearance and performance. Product literature provides general information applicable to some conditions. However, an adequate site test application by the purchaser or installer in advance of field scale use is mandatory (irrespective of any other verbal or written representations) to verify that product and quantities purchased can be satisfactorily applied and will achieve desired appearance and performance under intended use conditions.
- ◆ Use the NOX-CRETE DRUM AGITATOR or other suitable mechanical agitator to adequately mix product before withdrawing from container and before each use.

- ◆ Apply using Nox-Crete's PERFECT FORM & CONCRETE SPRAYER or IDEAL FORM & CONCRETE SPRAYER. Recommended spray tip sizes are 8003-LP, 8004-LP and 8005-LP. The coarser (8005-LP) spray tip should be used on porous casting slab surfaces where additional bondbreaker is necessary to ensure sufficient film holdout. Use the less coarse (8003-LP) spray tip for application on less porous casting slab surfaces. The use of an improper sprayer and/or incorrect spray tip generally results in either over or under application.
- ◆ SILCOSEAL ADVANTAGE should be applied in accordance with recommended procedures to achieve even and uniform coverage. Equipment should be clean and dry prior to use.
- ◆ Typical drying time is 30 minutes to 3 hours, but varies with the presence or absence of a moisture barrier beneath the casting slab, climatic conditions and application rate. Extended drying times in excess of 24 hours are possible when product is applied heavily during cool weather and a moisture barrier is present. Reducing the application rate and applying in multiple thin coats in lieu of one heavy coat will greatly reduce drying time.
- ◆ Avoid scouring the casting slab surface during panel concrete placement by using a deflection board.
- ◆ To minimize wall panel surface defects resulting from the "osmotic effect," use SILCOSEAL SELECT or SILCOSEAL 2000F (see PRECAUTIONS). Alternately, saturate the floor/casting slab with water and remove excess water immediately prior to placement of wall panel concrete.

## **CURE COAT APPLICATION**

---

- ◆ Apply to the point of rejection and uniform surface film accumulation immediately after final finishing and joint saw cutting.
- ◆ The typical application range is 200-400 sf/gal (5-10 sm/l), but can vary widely depending on the specific conditions, such as concrete mix design, type of finish and ambient weather conditions. For example, concrete floors that are cast during cool and humid conditions typically require less SilcoSeal Advantage to achieve optimum curing than do concrete floors cast during hot, dry and windy conditions.
- ◆ Over application can result in delays due to slow drying. Under application can result in shrinkage cracking or crazing and excessively porous and weakened slab surfaces.
- ◆ IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE THE VARIOUS CONDITIONS ON EACH PROJECT AND TO DETERMINE THE CORRECT APPLICATION RATE OF THE SILCOSEAL ADVANTAGE CURE COAT. IF UNSURE, CONTACT NOX-CRETE FOR SPECIFIC RECOMMENDATIONS.
- ◆ WHEN CLIMATIC CONDITIONS ARE EXCESSIVELY HOT, DRY AND/OR WINDY DURING CONCRETE PLACEMENT OR CURING AS DEFINED BY THE AMERICAN CONCRETE INSTITUTE'S REPORT ACI 305, THE USE OF NOX-CRETE'S CURE & SEAL 1200 E AS A CURING MATERIAL OR A WET CURE CONSISTING OF A SYNTHETIC FIBER MAT WITH A PLASTIC SHEET BACKING IS RECOMMENDED IN LIEU OF SILCOSEAL ADVANTAGE TO PROVIDE ADDITIONAL PROTECTION FROM SLAB OR PANEL MOISTURE LOSS.

## **BONDBREAKER APPLICATION**

- ◆ Casting slab areas should be well cured, smooth and dense.
- ◆ Remove all dust, dirt, saw cut residue, standing water and other contaminants prior to applying bondbreaker coats with a broom, leaf/air blower or low pressure garden hose. **Do not pressure wash the surface.**
- ◆ The number of bondbreaker coats and related application rate required to achieve complete, uniform coverage of casting slab varies with concrete mix design, placing and finishing procedures, weather conditions, etc. Because of this, it is not possible to prescribe application rates or procedures inclusive of all site variables.
- ◆ Best results are obtained when successive coats of SILCOSEAL ADVANTAGE are applied at right angles (perpendicular) to each other.
- ◆ An adequate application is indicated by the presence of a dry, soap-like feel uniformly apparent to touch over the entire treated area with no indication of greater accumulations in low spots or depressions. Following bondbreaker application and immediately prior to panel concrete placement, be certain casting slab surfaces evidence the dry soap-like feel, but do not evidence over application of SILCOSEAL ADVANTAGE as indicated by a slippery or grease-like feel to the touch. Over application may result in retardation of panel skin or dusting, surface irregularities and/or discoloration, as well as unreacted bondbreaker residue on panel and floor surfaces.
- ◆ Typically, casting slab surfaces that are more porous resulting from such conditions as improper curing, the addition of pozzolans such as fly ash or that received a more open or less tight finish will require more SILCOSEAL ADVANTAGE than slab surfaces that are less porous.
- ◆ IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE THE VARIOUS CONDITIONS ON EACH PROJECT AND TO DETERMINE THE CORRECT APPLICATION RATE OF THE SILCOSEAL ADVANTAGE BONDBREAKER COATS. IF UNSURE, CONTACT NOX-CRETE FOR SPECIFIC RECOMMENDATIONS.
- ◆ CAUTION: THE PRIMARY REASON FOR PANELS STICKING TO CASTING SLABS IS AN INADEQUATE FILM OF BONDBREAKER ON THE CASTING SLAB SURFACE AT THE TIME OF PANEL CONCRETE PLACEMENT. IT IS YOUR RESPONSIBILITY TO VERIFY A CONTINUOUS FILM OF BONDBREAKER CAN BE FELT ON THE CASTING SLAB SURFACE AS PREVIOUSLY DESCRIBED IMMEDIATELY PRIOR TO PLACEMENT OF PANEL CONCRETE.
- ◆ Rain occurring prior to product drying will necessitate reapplication of bondbreaker.
- ◆ Do not apply to reinforcing steel or lifting inserts.
- ◆ Avoid spray drifts, runs or puddles. Promptly wipe up any material excesses that can lead to subsequent adhesive failure of floor coatings and wall paints.
- ◆ When using SILCOSEAL ADVANTAGE for sand bed casting, contact Nox-Crete for specific written recommendations.
- ◆ To avoid wood sugar-related concrete retardation and dusting at panel edges and feature strip locations, use Nox-Crete's PRE-FORM to seal all wood that may contact panel concrete, including edge forms, blockout forms and chamfer and feature strips prior to bondbreaker application.

## **Casting Slabs Cured With SILCOSEAL ADVANTAGE**

- ◆ Apply successive coats of SILCOSEAL ADVANTAGE until the casting slab surface appears uniformly dark in appearance for at least 2-3 hours following the last coat. If the treated slab appears light in color either generally or in spots within 2-3 hours of last application, excessive slab porosity is indicated. Reapply SILCOSEAL ADVANTAGE to all light-colored areas. If areas of light color or dry appearance persist, thoroughly wet affected areas with water to fill concrete surface pores, squeegee off excess water and then immediately re-apply SILCOSEAL ADVANTAGE.
- ◆ The typical effective coverage rate for all combined bondbreaker coats applied to new casting slabs previously cured with SILCOSEAL ADVANTAGE is 200-400 sf/gal (5-10 sm/l). The application rate can vary widely depending on the specific conditions. Do not over or under apply.

## **Casting Slabs Previously Cured and Sealed With CURE & SEAL 1200 E Or DURO-NOX**

- ◆ Casting slabs previously cured or sealed with CURE & SEAL 1200 E or DURO-NOX will require a lesser amount of SILCOSEAL ADVANTAGE to perform the bondbreaker function. Over application of SILCOSEAL ADVANTAGE can result in panel surface dusting, surface irregularities and/or discoloration.
- ◆ Application of SilcoSeal Advantage to CURE & SEAL 1200 E or DURO-NOX-sealed casting slab surfaces interferes with the normal chemical reaction of SILCOSEAL ADVANTAGE and the casting slab surface. As a result, under these circumstances, SILCOSEAL ADVANTAGE may be subject to removal by rainfall or contact with water. Verify the presence of an adequate bondbreaker film as indicated by a dry, soap-like feel uniformly apparent to the touch over the entire treated area with no indication of greater accumulations in low spots or depressions, as described above, before placing panel concrete.
- ◆ The typical effective coverage rate for all combined bondbreaker coats of SILCOSEAL ADVANTAGE applied to casting slabs sealed with CURE & SEAL 1200 E or DURO-NOX is 300-500 sf/gal (10-12.5 sm/l). The application rate can vary widely depending upon the specific conditions. Do not over or under apply.

## **Existing Casting Slabs**

- ◆ Verify concrete surface is free of substances that could adversely affect product performance.
- ◆ If a curing or sealing compound other than CURE & SEAL 1200 E or DURO-NOX was used, it will be necessary to remove the coating from the casting slab surface prior to applying bondbreaker. Use Nox-Crete's BIO-CLEAN PLUS to chemically remove all coating residue.
- ◆ Apply successive coats of SILCOSEAL ADVANTAGE until the casting slab surface appears uniformly dark in appearance for at least 2-3 hours following the last coat. If the treated slab appears light in color either generally or in spots within 2-3 hours of last application, excessive slab porosity is indicated. Reapply SILCOSEAL ADVANTAGE to all light-colored areas. If areas of light color or dry appearance persist, thoroughly wet affected areas with water to fill concrete surface pores, squeegee off excess water and then immediately re-apply SILCOSEAL ADVANTAGE.
- ◆ The typical effective coverage rate for all combined bondbreaker coats applied to an existing, clean and unsealed casting slab is 200-400 sf/gal (5-10 sm/l). The application rate can vary widely depending on the specific conditions. Do not over or under apply.

## STRIPPING

- ◆ To remove residual bondbreaker from casting slab floor surfaces resulting from over application of the bondbreaker, pretreat the areas to be cleaned with Nox-Crete's BIO-CLEAN PLUS. Scrub the treated surfaces using a floor-scrubbing machine equipped with nylon scrub brushes. Squeegee off the excess BIO-CLEAN PLUS residue and rinse thoroughly with water and squeegee dry.
- ◆ To clean panel surfaces, pretreat the areas to be cleaned with a detergent solution consisting of 0.5 lbs (225 gms) of trisodium phosphate in 1 gal (3.8 l) of water. Rinse the detergent solution off with water using a minimum 4,000 psi power washer.
- ◆ Determine adequacy of the surface preparation of panels and casting slabs with appropriate site test to verify acceptable adhesion, appearance and performance of paints, coatings, adhesives, sealers, sealants, grouts, etc. prior to application. See ACI 551 for specific recommendations.

## TECHNICAL DATA—SILCOSEALADVANTAGE

<b>Color</b>	White Liquid
<b>Clarity</b>	Opaque Emulsion
<b>Bulk Density</b>	8.08 lbs./gal. (968.5 g/l)
<b>VOC</b>	<120
<b>Viscosity</b>	3 cps @ 25° C (77° F)

## TEST DATA

Meets the moisture retention properties of ASTM C309 when applied to a steel troweled surface prepared in accordance with CEN/TS 14754.

## PACKAGING

Product is packaged in lined steel 5 gal (19 l) pails, 55 gal (208 l) drums and 275 gal (1,047 l) totes. Drums are equipped with a 2-inch center port opening for use with Nox-Crete's DRUM AGITATOR.

## SHELF LIFE

Shelf life is nine months. Use before the "USE BY" date stated on product packaging.

## HANDLING/STORAGE

Product is a flammable liquid. Store in a dry location within a temperature range between 40° F (4° C) and 100° F (38° C). Drums stored outside should be protected from allowing water to accumulate on drum head. Following each liquid removal, tightly reseal all container bungs or caps promptly to prevent loss of necessary volatile solvents.

CAUTION: FAILURE TO PROPERLY STORE PRODUCT CAN RENDER IT UNSUITABLE FOR USE.

## AVAILABILITY & TECHNICAL SERVICES

In addition to corporate offices in Omaha, Nebraska, Nox-Crete Inc. maintains regional offices and distribution centers in principal markets throughout the world. For source or technical information, call 800-669-2738 or 402-341-2080.

## LIMITED WARRANTY

### NOTICE-READ CAREFULLY

#### CONDITIONS OF SALE

NOX-CRETE offers this product for sale subject to, and Buyer and all users are deemed to have accepted, the following conditions of sale and limited warranty that may only be varied by written agreement of a duly authorized corporate officer of NOX-CRETE. No other representative of or for NOX-CRETE is authorized to grant any warranty or to waive limitation of liability set forth below.

#### WARRANTY LIMITATION

NOX-CRETE warrants this product to be free of manufacturing defects. If the product when purchased was defective and was within use period indicated on container or carton, when used, NOX-CRETE will replace the defective product with new product without charge to the purchaser.

NOX-CRETE makes NO OTHER WARRANTY, either express or implied, concerning this product. There is NO WARRANTY OF MERCHANTABILITY. In no case shall NOX-CRETE be liable for special, indirect or consequential damages resulting from the use or handling of the product and no claim of any kind shall be greater in amount than the purchase price of the product in respect of which damages are claimed.

#### INHERENT RISKS

NOX-CRETE MAKES NO WARRANTY WITH RESPECT TO THE PERFORMANCE OF THE PRODUCT AFTER IT IS APPLIED BY THE PURCHASER, AND PURCHASER ASSUMES ALL RISKS ASSOCIATED WITH THE USE OR APPLICATION OF THE PRODUCT.