

SILCOSEAL EX

Solvent based, fast-drying, chemically active cure and bondbreaker for tilt-up, lift slab, and precast construction



VOLATILE ORGANIC COMPOUND (VOC) REGULATORY COMPLIANCE

USEPA
CARB-SCM
SCAQMD
LADCO, OTC
UT-R307, CO
MCAQD
CT, MD, DE, D.C.
CANADA

SILCOSEAL EX ■ ■ ■ ■ ■ ■ ■ ■

HOW IT WORKS

In contrast to most conventional cure and bondbreakers, SILCOSEAL EX 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 EX is formulated with organic compounds which react chemically with excess limes present in the concrete surface to form metallic soaps which, when properly applied, eliminate wall panel sticking. Site cast wall panels separate easily and completely without the need for pry bars or wedges commonly used with membrane-forming bondbreakers.

APPLICATIONS

- ◆ Use as a cure and bondbreaker in tilt-up, lift slab and precast concrete construction when weather conditions do not allow for the use of water-based products.
- ◆ 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 where the use of conventional resin-based curing compounds are impractical.

ADVANTAGES

- ◆ Being chemically active and highly effective, SILCOSEAL EX supplies part of the reaction product necessary for clean separation and the concrete provides the remaining portion. The amount of SILCOSEAL EX necessary to achieve the proper cure and bondbreaking function is typically less when compared to the use of hydrocarbon resin or wax type bondbreakers. The savings in application time and material costs make SILCOSEAL EX more economical to use than competing bondbreakers, irrespective of unit costs.
- ◆ SILCOSEAL EX is composed of exempt and low VOC solvents that allow it to be used in most markets where clean air regulations require the use of low VOC products.
- ◆ SILCOSEAL EX is fast drying making it very advantageous for use in cold and/or damp environments, compared to slower drying solvent-based or water-based alternatives, eliminating slippery conditions and providing a safer work surface.
- ◆ SILCOSEAL EX is an excellent alternative when protection from the "osmotic effect" is not required
- ◆ Achieves exceptional wall panel surface appearance.
- ◆ When properly applied, leaves no residue or resulting staining on wall panel or casting slab floor surfaces.
- ◆ Achieves a crisp, positive release that minimizes panel defects and reduces panel resurfacing / patching costs.

- ◆ Does not contain any wax or hydrocarbon resins like many conventional bondbreakers that 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 paint and coating adhesion problems.
- ◆ Meets the moisture retention properties of ASTM C309 when applied to a steel-troweled surface prepared in accordance with CEN/TS 14754.
- ◆ Excellent resistance to wash-off from normal rain showers and dew when applied directly to previously uncoated concrete surfaces.
- ◆ SILCOSEAL EX is used both as a cure and a 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.

▲ PRECAUTIONS ▲

- ◆ SILCOSEAL EX begins to gel at 20 deg. F (-6 deg. C). Product stored below this temperature must be warmed back up to a minimum of 20 deg. F (-6 deg. C) prior to use. Do not attempt to use SILCOSEAL EX if the liquid temperature is below this point.
- ◆ 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.
- ◆ 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 performance or failure.
- ◆ 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 2 hours of application. Surfaces exposed to rain or running water within this 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 EX 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

SILCOSEAL EX

Cure & Bondbreaker



chemical solutions to concrete problems

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 which are frozen or when ambient temperatures are below 40° F. (4° C) or expected to drop below 40° F (4° C) within 12 hours.
- ◆ 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 EX 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 product application rates. Failure to do so may result in panel surface blemishes and/or panel sticking.

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 can have a major influence 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 representation) to verify that product and quantities purchased can be satisfactorily applied and will achieve desired appearance and performance under intended use conditions.
- ◆ Due to the exempt solvents used in SILCOSEAL EX and the likelihood of compatibility problems with traditional tank type hand pump sprayers using conventional rubber seals and gaskets, Nox-Crete recommends the use of either the chemical resistant Nox-Crete, 20-volt, electric Perfect Power Sprayer or the Chapin Model 19069 tank type hand pump sprayer. The recommended spray tip size for application of SILCOSEAL EX is an 8003-LP. The use of an incorrect sprayer or spray tip may result in improper product application which can lead to inadequate cure of the casting slab, panel surface defects or panel sticking.
- ◆ SILCOSEAL EX 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 to 60 minutes.
- ◆ Avoid scouring the casting slab surface during panel concrete placement by using a deflection board.

CURE COAT APPLICATION

- ◆ Apply to the point of rejection and uniform surface film accumulation immediately after final finishing and control joint saw cutting.
- ◆ **The typical application range is 200 - 400 sf / gal (5-10 sm / L) but can vary widely depending on 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 EX 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 EX 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 A WET CURE IS RECOMMENDED IN LIEU OF SILCOSEAL EX 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 EX 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 the 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 EX 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 conditions such 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 EX 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 EX BONDBREAKER COATS. IF UNSURE, CONTACT NOXCRETE 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 THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT 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 EX 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 Clean Line Reveal rustication strips or Nox-Crete's CLEAR PRE-FORM to seal all wood that may contact panel concrete, including edge forms, block-out forms, chamfer and feature strips prior to bondbreaker application.

Casting Slabs Cured with Silcoseal EX

- ◆ Apply successive coats of SILCOSEAL EX 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 EX 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 EX.
- ◆ **The typical effective coverage rate for all combined bondbreaker coats applied to new casting slabs previously cured with SILCOSEAL EX is 200-400 sf / gal (5-10 sm / L).** The application rate can vary widely depending upon the specific conditions. Do not over or under apply.

Casting Slabs Previously Cured and Sealed with a Duro-Nox Liquid Floor Hardener

- ◆ Casting slabs previously treated with a DURO-NOX Liquid Floor Hardener will require a lesser amount of SILCOSEAL EX to perform the bondbreaker function. Over application of SILCOSEAL EX can result in panel surface dusting, surface irregularities and/or discoloration.
- ◆ Liquid floor hardeners interfere with the normal chemical reaction between SILCOSEAL EX and floor/casting slab surfaces. As a result, under these circumstances, SILCOSEAL EX 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 EX applied to casting slabs treated with a Duro-Nox liquid floor hardener is 300-500 sf / gal (7-12 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 membrane-forming curing or sealing compound 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 EX 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 EX 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 EX.
- ◆ **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 upon 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 stripped with Nox-Crete's BIO-CLEAN PLUS. Scrub the treated surfaces using a floor-scrubbing machine equipped with nylon-grit scrub brushes. Squeegee off the excess BIO-CLEAN PLUS residue, 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 dissolved in 1 gal (3.8 L) of water. Allow the cleaning solution to dwell for 20 – 30 minutes and then rinse clean with water using a minimum 4,000 psi (275 bar) pressure 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

Color	Red Liquid
Clarity	Clear
Bulk Density	8.66 lbs / gal (1040 g / L)
VOC	<120 g / L
Viscosity	43 SUS @ 100° F (37° C)
Flash Point	55° F PMCC
Gel Point	20°F (-6°C)

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 5 gal (19 L) pails and 55 gal (208 L) drums.

SHELF LIFE

Shelf life is twelve 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). SILCOSEAL EX begins to gel (changes to a solid) at 20°F (-6°C). Product stored below this temperature must be warmed up to

a minimum of 20°F (-6°C) prior to use. Do not attempt to apply SILCOSEAL EX if the liquid temperature is below this point. Protect drums from water accumulation on drum head by storing drums in an enclosed shelter. Small amounts of water allowed to accumulate on drum heads can enter sealed drums, resulting in damage to product. Following each liquid removal, tightly reseal all container bungs or caps promptly to prevent solvent loss.

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 which 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.

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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.