



## STARSEAL® EF HARDNER 204

WATER WHITE SILICATE BASED HARDENING COMPOUND • ECO-FRIENDLY

### DESCRIPTION

STARSEAL EF HARDNER 204 is a water white silicate based solution that produces chemical hardening of concrete surfaces. It is formulated with proprietary additives to encourage maximum penetration and to minimize dusting.

### BENEFITS

- Provides for complete development of concrete's wear resistance and strength properties
- Reduces dusting
- Allows for bonding of all finishes
- Rehabilitates old worn floors, platforms, etc., by chemically reacting to provide a hard and usable surface
- Meets requirements of Federal Specification CE-204
- Economical

### APPLICATION

- Apply StarSeal EF Hardener 204 to cured concrete.
- Do not add thinner or water as product is supplied at the proper consistency for application. Dilution will reduce efficiency.
- Thoroughly mix StarSeal EF Hardner 204 by air or mechanical methods before use to ensure best results and ease of application.
- Apply by brush, roller, or sprayer; however, application by sprayer is preferred.
- Spread at the rate appropriate to the floor finish (see Coverage section) using care to avoid puddling. Excess liquid should be removed by squeegee or mop.
- Clean up equipment with water. Coat uniformly, leave no gaps.

### REPAIR

Invisible surface repair treatment that improves the appearance, gloss and clarity of concrete. **StarSeal Fusion** technology makes large and small surface imperfections such as crazing, pin holes, pop-outs and divots blend into the concrete.

### COVERAGE/ESTIMATING

- Rough Finish 200-300 sq.ft./gal (5-7.5 m<sup>2</sup>/L)
  - Fine Broom Finish 300-400 sq.ft./gal (7.5-10 m<sup>2</sup>/L)
  - Hard Trowel Finish 500-600 sq.ft./gal (12-15 m<sup>2</sup>/L)
- Porosity and texture of the surface will affect the amount of material necessary for effective treatment. Always perform a test patch prior to full use.

### APPLICATION – Existing Slab

Net Coverage Rate: 200-300 sq. ft. /gallon. Apply in thin coats depending on the porosity of the concrete. The goal is to densify the concrete to rejection.

- Apply an even coat of StarSeal EF Hardener 204 with a low pressure (20-50 psi) pump-up sprayer, Fastrak Applicator, EvenFlow Applicator or micro-fiber pad and tray at a coverage rate of 400-600 sq. ft/gallon for the first coat. Typically this coat will penetrate easily and be fully absorbed.
- Apply additional StarSeal EF Hardener 204 at 400-600 sq. ft/gallon and allow the product to penetrate. If it absorbs fully, continue to apply StarSeal EF Hardener 204 at 400-600 sq. ft/gallon until the surface remains wet.
- If most of the material has penetrated, redistribute the remaining product from the wetter areas to the drier areas. Add water to slick areas after 30 minutes.
- If all material has absorbed in without a surface film, let the fully densified concrete dry overnight. Make sure there are no puddles or squeegee ridges; these should all be spread out evenly to dry.
- To enhance shine, high speed propane burnish with a black or heat pad the next day. This process should be a very slow walk, producing friction and heat; target initial floor temperature is substrate temperature plus 20°F minimum.
- Continue diamond polishing if required.

### APPLICATION – Freshly Placed Concrete

NOTE: Silicate solutions do not perform as liquid membrane-forming curing compounds for meeting ASTM C309, and do not adequately reduce water loss as tested by ASTM C156.

- Apply StarSeal EF Hardener 204 at full strength to the concrete immediately after the final finishing and gauging water is absorbed and concrete can be walked on, at 200-300 sq.ft./gal (5.0-7.5 m<sup>2</sup>/L) by sprayer or applicator.
- Keep the surface wet with StarSeal EF Hardener 204 by reapplying to dry spots, but do not puddle, or until the 200-300 sq., ft. /gal is absorbed.
- If gel forms on the surface, it should be flushed with clean water to remove excess material.
- Supplemental curing methods are recommended, such as water mist, cure & seals (**StarSeal 309**), bond breakers (**Clean Lift**), dissipating curing compounds (**Certi-Vex Envio Cure**), or moisture retention blankets. For maximum curing results, the surface must be cured over 72 hours.
- If applying membrane cure, follow instructions on **StarSeal EF Concrete Cure and Strip System** data sheet.
- After removal of the Certi-Vex Envio Cure and 72-hour curing period, the dry surface may be burnished, and then if desired, diamond polished with appropriate polishing equipment to achieve desired level of gloss. The surface must be free of all standing water and dry.
- Do not subject the floor to traffic until dry. The surface can be used as soon as it is totally dry.

## SPECIFICATIONS/COMPLIANCE

StarSeal EF Hardener 204 treated concrete performance is validated with the following standards:

- VOC 0 grams/liter or 0 #/gal
- Meets, US EPA AIM, OTC, LADCO/MRPO, CEPA/EC, Carb and SCAQMD VOC requirements.
- LEED NC category/points: For detailed information visit vexcon.com.
- ASTM D5178 - Balance Beam Mar Tester: >50% harder
- ASTM D2486 - Abrasive Scrub: 1200 Cycles
- Modified Taber Abrasion 600 Revolutions:
  - 0.37% treated vs. 0.68% untreated
- ASTM G53/G154 - 5000 HR QUV: No fade, change or erosion
- ASTM D4541 - Bonding: Greater than 50 psi
- ASTM C642 - Absorbability: Reduction of 75% of Control
- ASTM D2047 - Coefficient of Friction: average – 0.54
- ASTM E-84 - Surface Burning meets: 

Results		
- Class A Flame Spread Index	<25	0
- Smoked Developed Index	<450	0
- CSI Reference: 03 35 00

## SPECIAL NOTES

- StarSeal EF Hardener may be applied to fresh concrete that has been hard trowel finished. See Application – Freshly Placed Concrete.
- Do not apply to metal, glass or painted surfaces
- Not for use at temperatures below 40°F (4°C)
- Do not dilute except as directed
- Cannot hide surface blemishes or cover construction error
- Not recommended for epoxy terrazzo
- Not recommended for stamped concrete
- For use by experienced contractors
- Prior to use contact Vexcon Chemicals for warranty information.
- Shelf life: If properly stored in its original sealed container, one year from date of manufacture. Rotate your stock.
- Storage/ Handling: Store in tightly sealed original factory container. Keep from freezing and exposure to moisture. Store at room temperature prior to use. Care should be taken to keep dirt, water and contaminants away from the opening of containers.
- Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- Proper application of Vexcon material is the responsibility of the installer or user. Telephone consultation and/or field visits by Vexcon personnel are for the sole purpose of making technical recommendations only, and not for providing quality control or supervision on location.

## TOPCOATS AND ADHESIVES

- StarSeal EF Hardener 204 allows for bonding of all finishes.
- Concrete must cure a minimum of 28 days prior to applying paints or adhesives recommended by their manufacturer for compatibility and adhesion.
- We recommend the use of a test patch.
- Not recommended for colored concrete or terrazzo.

## MAINTENANCE

Spills should be removed promptly and cleaned with **StarSeal EF Degreaser and Cleaner** or a high quality commercial alkaline detergent. Floors should be cleaned as needed

## VITAL STATISTICS

- Boiling Point (760 mmHg) 212°F (100°C)
- Flash Point N/A
- Melting Point N/A
- Specific Gravity 1.068

## PACKAGING

StarSeal EF Hardener 204 is available in 55-gallon drums and 5-gallon pails. Contact Vexcon directly to discuss your customized packaging requirements.

## HEALTH AND SAFETY

- **CAUTION:** Alkaline or basic liquid may irritate mucous membranes.
- Long term overexposure may cause damage to skin and/or respiratory tract.
- Use of gloves, goggles and other protective clothing is advised when using this product.
- If swallowed, do not induce vomiting.

Vexcon SDS CT115 is an integral part of the safety and application of our product. Before using this Vexcon product, obtain a copy of the SDS from your distributor or available at vexcon.com.

## CONTACT US @

Additional product information, technical assistance and customer service are available by contacting Vexcon Chemicals directly or our distributors.

- vexcon.com
- sales@vexcon.com
- Voice: 888.839.2661
- techservice@vexcon.com
- Fax: 215.332.9997
- customerservice@vexcon.com

## WARRANTY

LIMITED WARRANTY: Vexcon warrants for a period of one (1) year from the date of manufacture that the goods supplied hereunder shall be of its standard quality and free of defects, and conforms to (a) Vexcon's published specifications in force on the date of acceptance by Vexcon of the order and (b) the sample which has been made available for testing by buyer prior to sale. Any claim under this warranty must be made in writing to Vexcon Chemicals within sixty (60) days after such non-conformity is first discovered. As the EXCLUSIVE REMEDY for any breach of this Limited Warranty, Vexcon at its option shall replace nonconforming goods or refund the purchase price. Since methods of use and application are beyond Vexcon's control, this Limited Warranty IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THOSE CONCERNING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY IS ALSO IN LIEU OF ANY OTHER POSSIBLE LIABILITIES OF VEXCON, WHETHER ALLEGED TO ARISE BY AGREEMENT OR BY OPERATION OF LAW, RESPECTING THE SALE, APPLICATION, USE OR FUNCTION OF VEXCON'S PRODUCTS, INCLUDING BUT NOT LIMITED TO CLAIMS OF NEGLIGENCE, GROSS NEGLIGENCE, MISUSE, STORAGE DAMAGE, MISAPPLICATION, ACCIDENT, STRICT LIABILITY OR ANY OTHER TORT. No person is authorized by Vexcon to assume for it any other liability of any kind in connection with the sale or use of products manufactured and sold by it, and there are no oral agreements or warranties collateral to or affecting any sale or use. All of the foregoing arises under the substantive law of Pennsylvania without regard to principles of conflicts of laws.

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