



# SCOFIELD® Formula One™ SG

An economical, chemically reactive, sodium silicate treatment designed to harden the surface and increase the durability and life span of uncolored, nonarchitectural concrete floors and hardscapes. It is diluted with water on-site prior to use.

## TECH-DATA BULLETIN B-414.02

### 1. Product Description:

SCOFIELD® Formula One™ SG is a penetrating, transparent or translucent liquid for use on concrete to reduce porosity, protect the surface, reduce dusting, improve abrasion resistance and provide overall long-term durability. It is formulated specifically for use on uncolored concrete. The protective treatment produces a vapor permeable (breathable) finish but is not a sealer. The finished concrete surface is nontoxic, easy to maintain, and environmentally sound after installation.

SCOFIELD Formula One SG is a high solids formulation and is used diluted with clean water at a ratio of one part product to one part water by volume. It is an economical solution to providing a longer life for uncolored concrete floors in warehouses, distribution centers, retail stores, shopping centers, and manufacturing sites. SCOFIELD Formula One SG is suitable for interior and exterior concrete surfaces in areas subject to heavy pedestrian use and light utility vehicle traffic.

### 2. Coverage:

The application rate of SCOFIELD Formula One SG after proper 1:1 dilution with water is largely determined by the porosity of the concrete to be treated. Most concrete over 30 days old will require an application rate of 300–400 square feet per gallon (7–10 m<sup>2</sup>/L). Highly porous concrete may require two treatments at a rate of 200–300 square feet per gallon (5–7 m<sup>2</sup>/L) per treatment. SCOFIELD Formula One SG is not normally used on freshly placed and finished concrete due to water in the concrete's surface pores that impairs penetration of the silicate treatment. If used on freshly placed concrete, an application rate of 300–500 square feet per gallon (7–12 m<sup>2</sup>/L) should be used, followed by proper curing procedures. SCOFIELD Formula One SG is applied in slight excess and the amount that does not penetrate is removed after the treatment period is complete.

### 3. Limitations:

SCOFIELD Formula One SG is a sodium silicate-based product which may leave persistent white stains and form a whitish carbonation surface bloom as the concrete ages. SCOFIELD Formula One SG is formulated for use on nonarchitectural concrete. The appearance of this whitish surface bloom is a known characteristic of nonarchitectural sodium silicate products. SCOFIELD Formula One SG is used to reduce the permeability of the concrete and to strengthen the treated concrete surface.

SCOFIELD Formula One SG is not a membrane-forming curing compound. It does not conform to ASTM C 309 requirements. During rapid drying conditions, freshly placed concrete should be kept from prematurely drying both before and after the SCOFIELD Formula One SG has been applied and until the start of curing.

SCOFIELD Formula One SG is highly alkaline and can react with glass and aluminum. Such areas adjacent to the concrete to be treated should be properly covered for protection.

**Extreme caution must be exercised while working with SCOFIELD Formula One SG because it can create slippery surfaces during application.**

On concrete surfaces treated with SCOFIELD Formula One SG any subsequent acid treatments, such as the use of LITHOCHROME® Chemstain® Classic, will leave white surface areas that are difficult to remove.

Concrete that has carbonated at the surface may lack the necessary components to complete the necessary chemical reactions. If surface carbonation is present it should be removed prior to application of SCOFIELD Formula One SG. Light sandblasting or shot-blasting can be used to remove the carbonated concrete.

SCOFIELD Formula One SG may cause or contribute to alkali aggregate reactivity, also known as alkali silicate reactivity (ASR) or alkali carbonate reactivity (ACR). It should not be used on any concrete where the aggregates, both coarse and fine, have any history of alkali aggregate reactivity. In cases where the aggregate characteristics are unknown, sodium silicate-type chemical hardeners should not be used.

### WARNING!

**SCOFIELD Formula One SG is strongly alkaline and can quickly damage eyes, skin and other body tissues upon contact. Use of proper safety equipment is required. Before using or handling, read the *Material Safety Data Sheet and Warranty*.**

### TEST SECTION

**Treating concrete flatwork takes skill and practice. Prior to general application, a representative jobsite test section must be produced and approved on each individual concrete surface as described in section 6. *Jobsite Test Sections* to verify and approve suitability, proper surface preparation methods, performance, wet and dry slip resistance, application techniques, and coverage.**

### 4. Textures and Slip Resistance:

When properly applied, SCOFIELD Formula One SG will not alter the texture of concrete. The treated concrete surfaces may develop a shiny, wet look, which may appear darker than the original installation. Only surfaces that have adequate texture to provide slip resistance should be considered for treatment with SCOFIELD Formula One SG. After application of SCOFIELD Formula One SG the slip resistance (Coefficient of Friction) should be determined to ensure that it is within established safety guidelines.

For safety considerations, a representative jobsite test section as described in section 6. *Jobsite Test Sections* must be produced prior to SCOFIELD Formula One SG application. The entire surface of the test section must be inspected after completion to verify and approve the adequacy of wet and dry slip resistance.

### 5. Storage and Shelf Life:

Under normal conditions and when kept indoors, off of the floor, and within a temperature range of 40–100° F (4–38° C), the nominal shelf life of SCOFIELD Formula One SG in unopened containers is 2 years from the date of purchase. Opened containers should be closed after use and then used within 1 month and must be discarded if the material becomes cloudy. Inventory must be rotated to maintain product that is within shelf life limits.

SCOFIELD Formula One SG must not be exposed to freezing temperatures. If SCOFIELD Formula One SG becomes frozen it must be discarded.

**6. Jobsite Test Sections:**

To verify and approve suitability, appearance, and safety, representative test sections must be produced on the actual jobsite substrate prior to general application of SCOFIELD Formula One SG. Test sections should be of adequate size to be representative, and be produced by the same workers who will apply the SCOFIELD Formula One SG using the contemplated preparation and application equipment and techniques. All test sections should be prepared and treated as specified to verify and approve the suitability of the product for its intended purpose. The entire surface of the test section must be inspected after completion to verify and approve the adequacy of wet and dry slip resistance.

**7. Cautions:****WARNING!**

**IRRITATING TO EYES, SKIN AND RESPIRATORY TRACT. DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.** Contains silicic acid, sodium salt. Use only with adequate ventilation. Do not breathe vapors or spray mist. Avoid contact with eyes, skin and clothing. Ensure fresh air entry during application and drying. If you experience eye watering, headaches or dizziness or if air monitoring demonstrates vapor/mist levels are above applicable limits wear a properly fitted P100/organic vapor respirator (NIOSH TC-84A approved) during and after application. Follow respirator manufacturer's directions for respirator use.

**First Aid:** Eyes—DO NOT RUB EYES. FLUSH IMMEDIATELY WITH WATER. Hold eyelids apart while flushing material out thoroughly with large amounts of water. Skin—Wash thoroughly with soap and water. Remove soiled clothing and footwear and wash before reuse. Inhalation—Move to fresh air. If symptoms persist or develop or if ingested, get medical attention.

Wash thoroughly immediately after handling. Close container after each use. In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations. Do not reuse empty container. Before using or handling, read the *Material Safety Data Sheet and Warranty*.

**8. Packaging:**

SCOFIELD Formula One SG is available in 5-gallon (18.9 L) pails and 55-gallon (208 L) drums.

**9. Applicable Standards:**

No ASTM specifications exist at this time covering silicate treatments for concrete. Typical test results for 28 day old concrete or mortar specimens treated with SCOFIELD Formula One SG as compared to similar concrete or mortar control specimens of the same age and composition are given in the table below.

**10. Equipment for Preparation and Application:**

When using equipment and materials during preparation and installation, suitable protective gear must be worn and government regulations, manufacturer's instructions, and all applicable safety requirements must be followed.

The use of a pressure washer, a rotary floor machine, a walk-behind scrubbing machine, or a terrazzo grinder will facilitate surface preparation.

A pump-type spray can, such as a Chapin or Hudson sprayer, is required for application of SCOFIELD Formula One SG. In addition to a pump sprayer any type of spray equipment that minimizes atomization such as a High Volume Low Pressure (HVLP) sprayer can be used. Power spraying equipment can also be used on larger projects. Airless sprayers must not be used. Spill-and-spread methods using a push broom are also commonly used. A soft-bristle or nylon bristle push broom is required to scrub SCOFIELD Formula One SG into the surface after spray application. A wet vacuum equipped with a squeegee-type attachment should be used for removing excess material and rinse water. All equipment should be washed with soap and water after use.

**11. Substrate Preparation:**

Surrounding areas and adjacent surfaces should be protected from spills, tracking, and equipment contact. The work area should be roped off and appropriate sections closed to traffic.

Concrete floors or slabs that have tight or highly burnished trowel finishes must be opened to provide water permeability prior to application of SCOFIELD Formula One SG. Acid etching must not be used as a means of surface preparation.

All oil, grease or other contaminants must be completely removed and the surface thoroughly rinsed prior to application of SCOFIELD Formula One SG. After cleaning and rinsing is complete allow the wet concrete to dry before applying the Formula One SG material so that the pores near the surface are not completely filled with water.

**12. Application:**

Although not normally recommended, SCOFIELD Formula One SG can be applied to freshly placed uncolored concrete immediately after finishing operations are complete and the concrete is hard enough to walk on and scrub using a soft-bristle push broom. However, optimum results are achieved after curing and drying for a minimum of 7 days prior to application. Apply SCOFIELD Formula One SG after proper 1:1 dilution with water at the application rate described in section 2. *Coverage* that is correct for the substrate condition. If used on freshly placed concrete, proper curing procedures should be utilized following the application of SCOFIELD Formula One SG.

After the proper amount is applied, brush the surface with a push broom or rotary floor machine equipped with a brush or pad. Allow SCOFIELD Formula One SG to remain on the surface for at least 30 minutes. As necessary during this 30 minute minimum penetration period, keep the surface from drying by reapplying SCOFIELD Formula One SG to areas that start to lose the wet-film sheen, then brush again using a push broom or floor machine. It is important to maintain a fluid condition of the in-place Formula One SG material so that it can penetrate properly. If the applied material soaks in quickly the amount applied should be increased until the surface is flooded with a visible layer of material.

Once the required treatment period is complete and the SCOFIELD Formula One SG has been on the concrete surface for at least 30 minutes, use a wet vacuum or auto-scrubber to remove excess material. After excess product removal, follow with at least two water rinses that are brush scrubbed into the surface, each of which is removed using a wet vacuum.

**Test results for specimens treated with SCOFIELD Formula One SG compared to control specimens**

ASTM Test Method	Property Measured	Test Result (*compared to untreated control)
D 4060, H-22, 1000 g, 1000 cyc	Taber Abrasion Resistance	* 10–30% increase in abrasion resistance
C 805	Rebound # Compressive	* 5–20% increase in compressive strength
G-154, 1000 hr, 4/cond, 8/UV	Artificial weathering, UV	White surface bloom and/or efflorescence



Highly absorbent concrete will require two applications of SCOFIELD Formula One SG. In this situation reapply SCOFIELD Formula One SG after the rinsing cycle from the first application is complete following the application procedures outlined in the previous two paragraphs.

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Once adequate rinsing is complete, drying time will vary depending on relative humidity, temperature and air movement. Drying time could range from less than an hour to several hours.

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■ **13. Maintenance:**

Concrete surfaces treated with SCOFIELD Formula One SG are generally low maintenance. When desired to enhance sheen or increase hardness, a maintenance reapplication can be made in accordance with section 12. *Application* on concrete treated only with SCOFIELD Formula One SG. This spiff coat will restore original appearance and sheen in most cases. All coatings, waxes or other materials must be completely stripped and the floor dried and checked for water absorbency prior to the reapplication of SCOFIELD Formula One SG.

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■ **14. Availability:**

SCOFIELD Formula One SG is marketed nationwide and internationally, directly to the user through strategically located warehouses, dealers, and representatives. Contact Scofield for its nearest representative.

Scofield offers a complete line of engineered systems for coloring, texturing, and improving performance in architectural concrete. Scofield Systems address specialized requirements for interior, exterior and vertical uses with compatible systems of complementary products including coloring admixtures, color hardeners, colored cementitious toppings, stains, curing compounds, sealers, coatings, repair products and texturing tools. Visit the Scofield website at [www.scofield.com](http://www.scofield.com) for further information.

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■ **15. Limited Warranty:**

Since no control is exercised over product use, L. M. Scofield Company (Scofield) represents and warrants only that its products are of consistent quality within manufacturing tolerances. NO OTHER ORAL OR WRITTEN REPRESENTATION OR STATEMENT OF ANY KIND, EXPRESS OR IMPLIED, NOW OR HEREAFTER MADE IS AUTHORIZED OR WARRANTED BY SCOFIELD, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Liability for breach of contract, negligence, or on any other legal basis is limited to the lesser of refund or replacement of defective materials. SCOFIELD WILL NOT BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING FOR DELAYS OR LOST PROFITS. Communication of this warranty and its limitations to end users is not the responsibility of Scofield, but should be communicated by those in direct contract with the end user. Any claim regarding product defect must be received in writing within one year from the date of manufacture. No claim will be considered without such written notice or after the specified time interval. The end user shall determine the suitability of the products for the intended use and assumes all risks and liability in connection therewith.



1 800 800 9900 or [www.scofield.com](http://www.scofield.com)

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**SCOFIELD PRODUCTS ARE INTENDED FOR PROFESSIONAL USE ONLY**

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