



LITHOCHROME® Tintura™ Stain

A nonacidic, waterborne, low VOC, penetrating stain that reacts with cured concrete or cementitious toppings to produce a wide variety of long-wearing, distinctive color effects.

TECH-DATA BULLETIN A-424.05

1. Product Description:

LITHOCHROME® Tintura™ Stain is an environmentally friendly, penetrating, waterborne system formulated specifically to stain concrete or cementitious toppings. LITHOCHROME Tintura Stain reacts with cured concrete that is uncolored, color hardened, or integrally colored and is also compatible for use on SCOFIELD® Texturetop® cementitious toppings. The Tintura System includes companion sealers that are required for long-term durability and long-lasting colors.

LITHOCHROME Tintura Stain is a unique, proprietary system that can be used to achieve either a translucent or a nearly opaque appearance. The final appearance varies depending on the Tintura color used, the condition and porosity of the substrate, and the number of coats applied, as well as the color of the cement and aggregates in the substrate. The standard stocked colors range from pastel tints and natural earth tones to brilliant and vivid hues. LITHOCHROME Tintura Stain can be color-matched to the full range of Scofield colors, and custom colors can be produced.

LITHOCHROME Tintura Stain is intended for use in applications not subject to abrasion or heavy traffic and where a regular maintenance program will be followed. It is also suitable for use on vertical concrete surfaces such as walls or columns.

LITHOCHROME Tintura Stain is a low VOC, environmentally sound, green building material. It may contribute to earning LEED® credits for Low-Emitting Materials, based on low contribution of VOC. See the current *Material Safety Data Sheet* for exact VOC documentation.

2. Coverage:

LITHOCHROME Tintura Stain must be applied without thinning. The coverage will vary depending on the method of application, the porosity and texture of the surface, and the appearance desired.

One, two, or three coats may be required to produce the desired color effect and intensity on colored or uncolored concrete and cementitious toppings. The recommended coverage rate is 1000–1200 square feet per gallon (25–30 m²/L) per coat.

3. Limitations:

LITHOCHROME Tintura Stain must only be used on dry concrete that is placed on a well-drained subgrade and is not subject to hydrostatic pressure.

The final surface appearance will be significantly influenced by the Tintura Stain color, preparation methods and application procedures, number of coats applied, experience in use of the material, and other factors. Applying more than three coats or applying the material too heavily may result in adhesion failure and a paint-like appearance.

The color obtained and the depth of penetration are not predictable, and it may be difficult to successfully stain some concrete surfaces, especially if contaminants are not completely removed. Mottling and variations in color often occur.

Concrete from different loads or pours and in patched areas may appear significantly different in color than from that in adjacent areas when stained.

The durability of LITHOCHROME Tintura Stain is dependent on the strength and abrasion resistance of the concrete surface to which it is applied. A weak, aggregate-deficient surface layer can cause poor adhesion and reduced durability.

Surfaces stained with LITHOCHROME Tintura Stain require the application of a compatible Scofield sealer and periodic maintenance and resealing. For optimum performance, waterborne SCOFIELD® Selectseal-W™ is the preferred sealer for use over LITHOCHROME Tintura Stain, and its use will produce the most durable finish. Alternatively, the use of solvent-borne SCOFIELD® Cureseal-S™ may be considered for applications where high humidity and/or low temperatures exist and the use of SCOFIELD Selectseal-W is not practical. The use of SCOFIELD Cureseal-S over LITHOCHROME Tintura Stain will produce a significantly darkened appearance and may result in reduced adhesion or decreased abrasion resistance when compared to SCOFIELD Selectseal-W. The use of other sealers will cause performance failure of the stain/sealer system and unacceptable results in most cases. Unsealed surfaces are likely to experience wearing off and/or UV degradation of the LITHOCHROME Tintura Stain.

LITHOCHROME Tintura Stain should not be used in areas subject to water submersion or significant chemical exposure, abrasion and scratching (including snow-removal procedures), or metal-wheeled traffic.

LITHOCHROME Tintura Stain must be applied evenly or lap marks will be visible. During use, frequent remixing must be performed to ensure uniform color distribution.

LITHOCHROME Tintura Stain must be allowed to dry thoroughly, normally 24–48 hours depending on temperature, wind speed, and humidity, before it is subjected to temperatures below 42° F (6° C) or to water from any source.

WARNING!

LITHOCHROME Tintura Stain must never be mixed with LITHOCHROME® Chemstain® Classic or any other acidic chemical stain. Doing so will produce a dangerous chemical reaction. LITHOCHROME Tintura Stain base material must only be mixed with LITHOCHROME Tintura Stain tint cups.

TEST SECTION

Successful staining of concrete flatwork takes experimentation, skill and practice. Prior to general application, a representative jobsite test section must be produced and approved on each individual concrete surface for each color effect as described in section 10. *Test Sections* to verify and approve suitability, proper surface preparation methods, adhesion, safety, performance, wet and dry slip resistance, application techniques, and coverage.

4. Applicable Standards:

LITHOCHROME Tintura Stain complies with applicable air quality management regulations.

5. Sizes:

LITHOCHROME Tintura Stain base material is available from stock in 1-gallon (3.8 L) pails. Tint cups are sold separately.

6. Storage and Shelf Life:

When stored indoors in the original unopened containers



and protected from freezing and extreme heat, the shelf life of LITHOCHROME Tintura Stain base material and tint cups is at least 1 year from the date of purchase. Inventory should be rotated to maintain product that is within shelf life limits. LITHOCHROME Tintura Stain should be used within 1 week of mixing tint cups with base material.

7. Colors:

LITHOCHROME Tintura Stain is available in a wide variety of colors including all colors depicted on Scofield's color charts A-422 LITHOCHROME Tintura Stain, A-112 LITHOCHROME® Color Hardener, A-132 Color Selection Chart, and A-312 CHROMIX® Admixtures for Color-Conditioned® Concrete. Contact Scofield Customer Service at 800-800-9900 for stock status. With sufficient prior notification, custom colors can be manufactured per quotation. Contact your Scofield representative for availability, pricing and minimums.

The color effect produced is unique to each concrete surface, and may differ significantly from that shown on the color charts. A representative test section must be prepared on the jobsite concrete as described in section 10. *Test Sections* to verify and approve suitability and color. Color variations often occur. Mottling, unevenness of color and a translucent appearance are normal and usually desired. To minimize mottling or unevenness if greater color uniformity is desired, an initial prime coat of Tintura Stain base material without color added may be applied, followed by one or two coats tinted with the chosen color.

For a multicolored effect, a single application of LITHOCHROME Tintura Stain may be made over concrete previously colored with LITHOCHROME Color Hardener or CHROMIX Admixtures for Color-Conditioned Concrete, or over SCOFIELD Texturetop toppings. The surface color produced is uniquely modified by the underlying concrete or topping color.

LITHOCHROME Tintura Stain may color the aggregate as well as the concrete matrix when applied to exposed-aggregate concrete, depending on the composition of the aggregate.

8. Discoloration:

After the application of LITHOCHROME Tintura Stain, discoloration may occur from other materials if they come in contact with the surface. The surface must be sealed promptly after drying as described in section 3. *Limitations* and section 16. *Sealing*.

9. Textures and Slip Resistance:

Surfaces that are not slip resistant to meet the intended use must be roughened by some mechanical method. Adequate precautions must be taken to ensure that the surface is not slippery.

For safety considerations, a representative jobsite test section as described in section 10. *Test Sections* must be produced prior to general application and the entire surface inspected after completion to verify and approve the adequacy of wet and dry slip resistance.

10. Test Sections:

To verify and approve suitability and appearance, representative jobsite test sections must be produced prior to general application of LITHOCHROME Tintura Stain on each individual concrete or topping surface and for each color effect. Test sections must be of adequate size to be representative and be produced by the same workers who will apply the LITHOCHROME Tintura Stain, using the selected Tintura Stain colors and the contemplated preparation and application equipment and techniques. All test sections should be prepared, stained, and sealed as specified.

11. Cautions:

WARNING!

CAUSES EYE, SKIN, AND RESPIRATORY TRACT IRRITATION. DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN. Contains Ethoxylated Acetylenic Diols and Alkali Silicate. Use only with adequate ventilation. Do not breathe vapors or spray mist. Avoid contact with eyes and skin. 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. Avoid having material come into contact with glass or aluminum. 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*.

12. 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 scrubbing machine, a walk-behind scrubbing machine, or a sandblaster as described in section 13. *Preparation* will be required for adequate surface preparation.

For mixing, a Jiffy Mixer-type blade with a shaft long enough to reach the bottom of the container must be used. Hand mixing can result in color defects and performance failure.

An airless sprayer or High Volume Low Pressure (HVLP) sprayer is required for application of LITHOCHROME Tintura Stain. Small areas and trim or intricate work should be done with a small HVLP sprayer (cup gun). Hand-pump sprayers must not be used. Mixed Tintura Stain material should be strained with a paper paint filter to remove particulates when filling the sprayer. Spray equipment should be rinsed with water between refillings. All equipment should be washed with soap and water after use.

For preparation, the sandblaster must be capable of producing a light, uniform sandblast and be equipped with a dust collector.

For preparation, the pressure washer must be equipped with a fan tip and have a minimum pressure capability of 2000 psi (14 MPa). Hot water capability may facilitate cleaning of existing concrete. Nonmarking hoses are helpful.

For mixing, use a metal mixing blade with a flat bottom (Jiffy Mixer from the Midwest Rake Company, 800-815-7253) fitted onto a heavy-duty, 1/2 inch (13 mm), variable-speed drill. The drill motor should be operated at slow speed during mixing. The shaft must be long enough to reach the bottom of the container.

For general application, the airless sprayer must be of professional quality with a variable output fluid pressure of 1500–2500 psi (10–17 MPa). The sprayer should be fitted



with a fan tip of 0.013–0.018 inches (0.33–0.46 mm).

For application, the HVLV sprayer must be of professional quality with a spray pressure capability of 5–40 psi (35–275 kPa) and should be used following the manufacturer's instructions.

13. Preparation:

All surfaces must be sufficiently cured and completely clean, sound, and free of any debris, contamination or weakly bonded surface material. All dirt, form oil, grease, and oil must be completely removed by cleaning. Coatings, water repellents, previously applied adhesives, and curing membranes must be removed by mechanical means. Failure to remove all weakened surface material, contaminants and coatings will interfere with the penetration of LITHOCHROME Tintura Stain, causing appearance defects, adhesion loss, peeling, and reduced durability.

During cleaning and stripping, all surrounding areas should be closed to traffic, roped off, and protected. Testing should be performed to verify that the cleaning or stripping methods and materials will not damage the concrete.

All washed or wet areas should be allowed to dry thoroughly before application of LITHOCHROME Tintura Stain. To reduce hard-water and alkali deposits, sprinklers and fountains should be adjusted to avoid wetting of the surface.

CONCRETE SURFACES

Concrete surfaces must be uniformly slip resistant and profiled to meet a Concrete Surface Preparation (CSP) profile of 1–2 per International Concrete Repair Institute (ICRI) guidelines. Surfaces that are not slip resistant must be roughened by some mechanical method.

Newly placed concrete should be sufficiently cured to allow the concrete to become reactive, normally 28 days. Liquid membrane-forming curing materials must not be used. Concrete flatwork should be cured with new and unwrinkled, nonstaining, kraft curing paper conforming to ASTM C 171 *Sheet Materials for Curing Concrete*. For a more uniform color appearance, all surfaces should be cured by the same method and be stained when the concrete is approximately the same age.

Before applying LITHOCHROME Tintura Stain, the concrete must be cleaned completely so that the surface is water penetrable. An indication of whether the concrete is penetrable can be obtained by spotting the surface with water. The water should immediately darken the substrate and be readily absorbed. If the water beads and does not penetrate or only penetrates in some areas, additional surface preparation and testing must be performed.

Wet scrubbing with a rotary scrubbing machine and grit brush is required for adequately cleaning concrete that has had no prior surface treatment. Any dirt or other material left on the surface will show through the Tintura Stain application and may result in adhesion failure.

Concrete that has been previously coated with liquid curing materials, paints, coatings, waxes, or water repellents or surfaces that cannot be successfully cleaned by other methods must be mechanically cleaned. The method selected must be sufficient so that the coatings or contaminants are completely removed. Sand or debris remaining on the surface should be removed by sweeping or pressure washing, followed by vacuuming, prior to application of LITHOCHROME Tintura Stain.

Some concrete may require abrading to remove weakly bonded material or to open the surface and make it sufficiently penetrable. In these instances the concrete surface must be prepared using a low-speed floor machine equipped with a 60–80 mesh sanding screen or a grit brush. After sanding, all residue must be removed by power vacuuming. The surface should then be pressure washed or scrubbed using a rotary floor machine. Use of a suitable, high-quality commercial

detergent will facilitate cleaning. After cleaning, the surface must be rinsed to remove any remaining residue.

Where sandblasting is desired, the equipment manufacturer's instructions and safety precautions must be followed.

After cleaning, the surface should be rinsed thoroughly with clean water several times. Rinsing should continue until the rinse water is clean. Rinse water should be removed with a wet vacuum, squeegee, or by similar means. Rinse water left on the surface to evaporate may cause efflorescence. If LITHOCHROME Chemstain Classic was used in conjunction with LITHOCHROME Tintura Stain, the stained surface must be neutralized and then tested with pH paper and a pH of 7 or more obtained. If the tested pH is less than 7, the neutralization step must be repeated until a pH of greater than 7 is obtained. Refer to Scofield Tech-Data Bulletin A-414 *LITHOCHROME Chemstain Classic* for further information.

After drying, the surface should be retested for penetrability as described above. Additional general or spot cleaning, sanding and rinsing should be performed if necessary. All applicable federal, state, and local safety, disposal, and other regulations, including OSHA, must be followed.

A LITHOCHROME Tintura Stain application should not be made over concrete to which a liquid or powdered release agent has been applied unless the liquid release agent has been removed using a detergent wash and no residue remains on the surface or the majority of the powdered release agent has been removed using a detergent wash. In either case a field mock-up is recommended to determine suitability and appearance.

SCOFIELD TEXTURETOP

On flatwork or interior floors topped with SCOFIELD Texturetop (Stamp, Stencil, and Trowel & Spray grades), the top-ping must be sufficiently cured to walk on without damage prior to staining, at least 4–8 hours after installation at 70° F (21° C) and 50% relative humidity. Dust, slurry residue, release agents or other contaminants must be removed from the Texturetop surface by light washing before LITHOCHROME Tintura Stain is applied. Do not use aggressive removal methods before the Texturetop topping is fully cured, a minimum of 14 days after installation.

14. Mixing:

LITHOCHROME Tintura Stain consists of a base material and a tint cup packaged in separate containers. Before mixing, the entire contents of the tint cup must be transferred into the Tintura Stain base material. The combined ingredients must then be thoroughly power mixed immediately prior to use. **A uniform, streak-free dispersion must be obtained, with no sedimentation at the bottom of the container.** During use, frequent remixing must be performed to ensure uniform color distribution.

15. Application:

Surrounding areas, landscaping, and adjacent surfaces must be masked or protected from overspray, spills, tracking, and equipment contact. The surface should be divided into work sections using walls, joint lines, or other stationary features as natural stopping points. This allows for easier control of coverage, wet edge, and overlap. The substrate must be dry and dust-free prior to applying LITHOCHROME Tintura Stain.

For applications over untreated or stripped concrete or concrete topped with SCOFIELD Texturetop, up to three coats may be required depending on the intensity of color desired.

The Tintura Stain emulsion will appear opaque when first applied but will develop a slightly translucent appearance as it dries.

An airless sprayer or HVLV sprayer must be used to apply the stain to all concrete surfaces. If contaminants are still



present on the surface, additional cleaning as described in section 13. *Preparation* must be performed.

LITHOCHROME Tintura Stain must be applied uniformly in a fine, fog pattern forming a thin, continuous film. Curbs and risers are easily spray coated. A wet edge should be maintained, and overlap controlled. LITHOCHROME Tintura Stain should not be overapplied or allowed to puddle or collect in joint indentations. A brush or rag should be kept available to brush out or mop up excess material.

On vertical surfaces, LITHOCHROME Tintura Stain should be spray-applied in light coats while maintaining a wet edge to ensure penetration into the surface. Overapplication leading to rundown must be avoided.

For exterior applications, LITHOCHROME Tintura Stain should be applied on a calm day when concrete and air temperatures are between 50 and 90° F (10–32° C). When interior heaters are required, temperatures and humidity should be moderate and consistently maintained. The surface must be dry and not subject to moisture that may interfere with proper drying of the applied LITHOCHROME Tintura Stain. Application should not be made during rainy, foggy, or very humid weather when water condensation forms on the surface. On hot, dry days, application should be made during the cooler part of the day and when the concrete is in the shade.

Stepping on wet surfaces must be avoided. Irregularities such as footprints normally should be brushed out immediately and permitted to dry evenly.

The second coat and third coat, if required, should be applied after the prior coat has dried sufficiently and can be walked on without damage, normally 2–4 hours after application depending on temperature and humidity. For a more uniform application, apply an initial prime coat of uncolored Tintura Stain base material, followed by the second and third coats tinted with the desired color, which should be applied at 90 degrees to the direction of the prior coat.

LITHOCHROME Tintura Stain must be allowed to dry completely, normally 24–48 hours depending on temperature and humidity, before it is subjected to temperatures below 42° F (6° C) or to water from any source, such as hoses, sprinklers, condensation, or rain. After application is finished, tools should be cleaned with soap and water.

Stained surfaces will be tack-free after approximately 2–4 hours at a temperature of 75° F (24° C) and 50% relative humidity. LITHOCHROME Tintura Stain gains strength during the first several days after application. Longer drying times are helpful and will be necessary if temperatures are lower or the humidity is higher.

All surfaces stained with LITHOCHROME Tintura Stain must be protected from damage until they are sealed.

■ 16. Sealing:

To protect the surface, concrete flatwork and cementitious toppings stained with LITHOCHROME Tintura Stain must be sealed with a compatible Scofield sealer. For optimum performance and durability, waterborne SCOFIELD Selectseal-W is the preferred sealer for use over LITHOCHROME Tintura Stain. Alternatively, the use of solvent-borne SCOFIELD Cureseal-S may be considered when humid or low temperature conditions exist and the use of SCOFIELD Selectseal-W is not practical. Refer to section 3. *Limitations*. The use of other sealers will cause performance failure of the stain/sealer system and unacceptable results in most cases.

After the final Tintura Stain application has dried sufficiently, normally 8–24 hours at 75° F (24° C) and 50% relative humidity, seal stained surfaces with the chosen Scofield sealer. When sealing vertical surfaces, apply the sealer in light coats and avoid rundown. Drying times will be extended if temperatures are lower or humidity is higher.

The appropriate Scofield Tech-Data Bulletin *B-504 SCOFIELD Selectseal-W* or *B-604 SCOFIELD Cureseal-S* must be read completely before using.

All sealed surfaces should be thoroughly inspected to verify and approve installation and safety, including wet and dry slip resistance, before the area is opened to traffic. Sealed surfaces should be protected from damage by other trades.

■ 17. Maintenance:

A maintenance application of SCOFIELD Selectseal-W or SCOFIELD Cureseal-S should be made periodically as the sealer is worn off the surface.

All maintenance methods should be tested, and all surrounding areas should be closed to traffic, roped off, and protected. The need for a maintenance application of the chosen Scofield sealer will be accelerated in areas of heavy use or that receive frequent or aggressive cleaning.

If complete removal of the sealer becomes necessary, note that stripping the previously applied sealer will also remove the underlying LITHOCHROME Tintura Stain. Since abrasive stripping may wear away softer concrete, a test section should be stripped in an inconspicuous area to evaluate stripping procedures. After stripping, the concrete surface must be thoroughly rinsed and allowed to dry. Then LITHOCHROME Tintura Stain may be reapplied as described in section 15. *Application*.

■ 18. Availability:

LITHOCHROME Tintura Stain 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 for further information.

■ 19. 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.



Suggested Short Form Specification for Staining Concrete Flatwork:

All concrete surfaces designated as being stained in the plans or specifications shall be stained with LITHOCHROME® Tintura™ Stain in _____ color after the concrete has cured a minimum of 28 days. The surface shall be prepared and LITHOCHROME® Tintura™ Stain shall be applied full strength in accordance with Tech-Data Bulletin A-424 using the recommended coverage rate. The contractor shall submit the final stain color and application techniques on jobsite test samples to be approved by the architect prior to installation. All chemically stained surfaces shall be sealed with SCOFIELD® Selectseal-W™ in accordance with Tech-Data Bulletin B-504. All products shall be manufactured by L. M. Scofield Company, (800) 800-9900, Los Angeles, CA, (323) 720-3000, and Atlanta, GA, (770) 920-6000.



1 800 800 9900 or www.scofield.com

SCOFIELD PRODUCTS ARE INTENDED FOR PROFESSIONAL USE ONLY

■ **L. M. Scofield Company customer service:** 1 800 800 9900

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