CSI ChromaStain

Technical Data Sheet 5.0509DS

Helix Color Systems is a premier line of specialty decorative concrete admixtures manufactured by ChemSystems Inc. Helix Color Systems is manufactured for the discriminating installer or designer who values service and quality. Specializing in custom colors, specialty products, and superior service, Helix Color Systems offers an innovative alternative in the decorative concrete industry.

Description

CSI ChromaStain produces a rich and variegated finish unique to each surface. Instead of covering up the concrete like a paint or coating, stains infuse color into the surface while also showcasing the character of the substrate. The translucent effects and the broad drifts in color—considered hallmarks of the stains—give surfaces the appearance of a timeworn finish.

Product Benefits

- CSI ChromaStain is a combination of metallic salts in water-based solutions that are slightly acidic. By reacting with the free lime available after concrete has fully cured, stains penetrate and etch new or existing concrete that is free from sealers, paints, and other forms of resists. Stains form permanent precipitates, becoming part of the concrete. Color remains in the concrete pores which means color won't chip, crack, fade or peel.
- CSI ChromaStain does not "cover up" the concrete surface but rather works in conjunction with the finish character of the substrate. CSI ChromaStain produces a variegated finish and beautiful patina, an "old world" surface effect, similar to the patination of bronze or the natural oxidation of copper. The broad drifts of color and mottled surface effects are not considered defects but rather architectural hallmarks of this concrete coloring method. (CSI ChromaStain is reactive by nature. Stains are not paints or coatings, and therefore contain no pigments.)
- Available in eight standard colors, CSI ChromaStain creates expanses of rich color and marbleized hues from plain, gray concrete.
    - Inside or outside, CSI ChromaStain can be applied to walkways, driveways, pool decks, patios, plazas, street pavements and more.
    - To expand the color palette on new projects, CSI ChromaStain can be used over all CSI Color Hardener*, CSI Microtopping INT*, CSI Microtopping HD*, CSI Stampable Overlay* and CSI Integral Color* colors to further enhance the tone of colored concrete. To produce enhanced and richer effects, white-based surfaces can be used.
    - Stain can also be applied over another stain to expand color possibilities.
    - A wide variety of artistic and graphic effects are possible with this product. Utilize an experienced contractor or artisan for installations of CSI ChromaStain and other decorative concrete products.
    - These stains may also be used to treat other cementitious materials (such as terrazzo, gunite, shotcrete, stucco, cement plaster, and certain self-leveling toppings) as well as any lime-based natural stone that has a chemistry similar to concrete (for example, limestone).

Pre-Application

1. A jobsite sample is strongly recommended.

2. CSI ChromaStain should be applied to concrete that has fully cured. Concrete should be cured according to ACI standards. For optimum results, allow concrete to cure for 28 days. If stains are applied to concrete that has not fully cured, unpredictable results may occur.

3. If a curing compound is needed for freshly placed concrete that will later be stained, an impregnating internal cure may be considered. Unlike other curing compounds, internal curing compounds do not form a film or membrane. Designed for use on non-colored concrete, internal cures, unlike common sodium silicate curing products, will not interfere with the reaction of chemical stains. Because there is no membrane to remove during preparation, contact a CSI Sales Representative for more technical information on internal curing compounds.

4. Do not over apply stain. This can cause reduced stain penetration, resulting in reduced or no color development. Strive for 300 sq/ft per gallon during application of CSI ChromaStains.

5. Before applying CSI ChromaStain, your surface must be dry, structurally sound and clean—free of dirt, grime and any other material that would act as a resist to the stain.

6. The surface should be clean and dry. If the surface is not completely dry, the product may turn white or hazy.

- ***For interior surfaces,*** exact moisture movement levels can be measured using a moisture test kit in accordance with ASTM D4263 standards, following the manufacturer's instructions. Moisture measurements of five pounds and below are acceptable. If measurements fall outside of this range, CSI ChromaStain should not be applied.

7. To test the surface (to be stained) for the presence of sealers, curing compounds or release agents, mist the surface with water from a hand-held spray bottle. Potential problem areas will not "wet out" uniformly. Extremely dense or burnished surfaces should be slightly abraded to better accept CSI ChromaStain followed by recommended finish sealers. Abrade with 100 grit to 120 grit sanding screen.

8. To test the surface for color acceptance, a sample conducted with the proposed CSI ChromaStain, application procedures and sealing products should be determined prior to application to better anticipate results. For existing slabs, it is strongly recommended that a sample be completed in an inconspicuous area on the actual surface to be stained.

Application

1. ChemSystems, Inc. recommends applying CSI Stain Pretreatment and Concrete Cleaner* as a surface cleaner and stain enhancer to all surfaces prior to staining with CSI ChromaStain. Lightly spray the areas to be stained with a good commercial pretreatment and cleaner. Very dense and hard burnished surfaces may require slight agitation with stiff bristle nylon brushes. Avoid puddling the pretreatment and cleaner. Rinsing the surfaces prior to staining is not necessary. Apply CSI ChromaStain directly over damp or dry surfaces that have been treated with a stain pretreatment or cleaner. In most cases, the use of a good commercial pretreatment and cleaner will enhance the final color of the stain.

2. CSI ChromaStain is best applied with an all-plastic pump-up sprayer at a rate of 200-400 square feet per gallon per application depending on surface texture. Smoother surfaces may yield higher coverage rates, resulting in less material usage.

3. Once sprayed onto surface, a stiff nylon brush can be used to massage stain in a circular motion into the surface. Avoid leaving brush marks or puddles, as they will become permanent if left to dry.

4. As stain is applied, various degrees of acidic reactions, such as fizzing and foaming, might occur. These types of reactions are generally signs that the substrate is accepting the stain. In certain cases, and with certain stain colors, no immediate visible reaction may take place. It is important to let the stain dwell for a minimum of 5 hours before rinsing or cleaning.

5. Stains may need to be applied in two or more applications. **Important Note:** Two or more applications are typical for concrete flatwork. Consult Chemsystems, Inc. for questions regarding applications.

6. After the *first* coat has fully reacted (five hours minimum), additional coats can be applied. To avoid any unevenness, brush out any excessive puddles.

7. Many faux effects can be achieved by the use of special application methods. Applicators such as, but not limited to, sponges, rags and hand sprayers can produce multiple effects. Any modifications to the product or application procedure or applied combinations of CSI ChromaStain are done at applicator's risk.

8. Allow *final* coat to dry. Recommended minimum dry time for final coat on many surfaces is 10 hours. Dense or burnished surfaces will require a *minimum* of 18 hours dry time. **Important Note:** For drying times on Adobe and Blackfoot stains, please see "Limitations" section.

9. Removal of all salty colored residue and proper surface neutralization of the stained surface is critical. Apply an alkaline solution (1 cup of a good commercial cleaner/degreaser to 1-gallon of water) to the stained surface. Agitate with stiff bristle nylon brushes to remove all colored residues. (A rotary floor machine with a pad driver and soft pad may also be used with care.) The use of a wet/dry vacuum is recommended to pick up colored waste water. Control and/or collect run-off to

keep from discoloring surface not designated for stain. Once all colored residue has been removed, rinse the floor with clean water until rinse water runs clear. When the floor is wiped with a white rag and comes away clean, the surface has been properly cleaned. **Note:** Multiple cleaning and neutralization cycles may be needed, especially when using high-solids stain colors such as Adobe and Blackfoot. Under normal circumstances all colored residue water and rinse water should be collected and disposed of properly. (Always consult Material Safety Data Sheets and appropriate agencies for disposal information.)

10. Prior to sealing, the surface must be clean and dry. After the final rinse cycle, wait 24 hours before applying any sealer. Fans and blowers may be used to speed the drying process. **Note:** Temperature and humidity will affect the drying times of the surface.

Surface Protection and Maintenance

- ChemSystems, Inc. offers a full range of high-end sealer systems for colored and stained surfaces to ensure the long lasting protection and enhanced color of the final project. The interior system consists of two coats with a durable base coat sealer, followed by three coats of a special high-solids top coat maintenance sealer. The exterior system consists of two thin coats of a high performance solvent or water-based sealer.

- All decorative concrete installations should be maintained on a routine basis with the use of maintenance products to ensure the preservation of a high-quality, long-lasting surface. Maintenance schedules will vary depending on a number of factors, including volume and intensity of traffic, ultraviolet light exposure, geographical location and weather conditions. Stained surfaces should be routinely swept and damp-mopped of dirt/loose debris to avoid unnecessary wear to the surface. Resealing will be required periodically, depending on the amount of foot traffic. As with any other surface treatment, the lifetime of this product is dependent on the care it is given. The use of a qualified flooring maintenance contractor is recommended for resealing, especially in commercial applications.

Limitations and Precautions

- Inconsistencies in job site conditions, base color, concrete mix design and slump, curing methods, finishing practices, stain application, surface permeability, and age and condition of concrete in existing slabs may produce variations in the color of the finished product.
- Avoid applying stain to surfaces with temperatures below 60 °F or above 100 °F.
- On the CSI ChromaStain Color Chart, standard CSI ChromaStain colors are shown applied to both uncolored (gray) concrete and to a White Concrete base. However, CSI ChromaStain produces unique effects to each individual concrete substrate and may differ significantly from the colors shown on the chart. There is an element of uncertainty and unpredictability inherent in the use and final appearance of CSI ChromaStain including uneven, mottled or translucent effects. Product literature photos and sample color chips provide a good representation of the colors, but the actual colors achieved may differ significantly.
- **Adobe and Blackfoot** are high-solid CSI ChromaStains that work best in very thin applications. For these colors, two thin applications are recommended with the longest possible drying times in between coats. The recommended dry time after each coat is a minimum of 10 hours with 18 hours being the optimal dry time. Allowing adequate dry time is especially important if applying these stains to hard-troweled surfaces. A job site sample is highly recommended whenever applying stain. Producing jobsite samples is of particular importance for these two colors.
- **Neptune, Bluegrass and Jade** stains (the blue and green stains) react to the presence of moisture and can create a black, spotty effect. When working with these stains, a minimum of 24 hours dry time is recommended to ensure rinse moisture has left the slab before sealing. When using these stains, it is especially important to follow instructions outlined in the "Application" section.
- Hard-troweled concrete may be difficult to stain. Allowing adequate dry time in between application coats is especially important if applying stains to hard-troweled surfaces. The recommended reaction time after each application on hard-troweled surfaces is a minimum of 10 hours with 18 hours being the optimal dry time.
- CSI ChromaStain can be diluted to achieve lighter more subtle colors and tones. Dilute CSI ChromaStain with a solution of 10 parts water 1 part muriatic acid.
- Avoid the use of any type of tape on concrete surfaces prior to or after staining. Migration of glues and or plasticizers from the tape can affect the ability of the stain to penetrate and/or the final color. **In some cases if tape is left on the surface for a long period of time, when removed, it may remove the stain or sealer or both**
- **Avoid contact with any metal objects, particularly galvanized objects as an explosive gas (hydrogen) will be evolved.**

Shelf Life and Storage

CSI ChromaStain has a shelf life of one year. Store product indoors, away from heat or direct sunlight. Do not store below 40 °F and do not allow product to freeze.

Coverage Rate and Drying Times

Coverage rates may vary depending on the texture, porosity and condition of the concrete, application method, and other local conditions.

- *Rough or Broom Finish:* Material usage is 200-400 square feet per gallon/coat.
- *Hard Troweled or Polished Concrete:* Material usage is approximately 400 square feet per gallon/coat.

Drying times below will vary depending on surface permeability, temperature, humidity and local conditions. When drying, do not cover surface with anything non-permeable for a minimum of 24 hours.
See the "Limitations" section for more detailed information.

- Typical dry times are at 70 °F and 50% relative humidity.
- Allow a minimum of five hours dry time for the first coat.
- Allow 24 hours dry time prior to applying protective sealer.
- Hard-troweled surfaces need a minimum of 10 hours dry time for the first coat, 18 hours dry time being optimal.
- Adobe and Blackfoot colors need a minimum of 10 hours dry time.
- Neptune, Bluegrass and Jade colors need 5 hours dry time.

Package Sizes

CSI ChromaStain is available in 1-and 5-gallon units.

Applicable Standards

EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings (when used with a low VOC sealer)

Technical Data

Please refer to the corresponding-color MSDS for hazard-related information.

Physical	Liquid, various colors
Odor	Chlorine-like
Flash Point	None
VOC Content	0 (Zero)
Other	Nontoxic; contains no VOCs or solvents

Product Handling

For complete instructions on handling and use, consult the corresponding Material Safety Data Sheet before using product.

Warranty

CSI ChromaStain a proprietary product, is warranted to be of uniform quality within manufacturing tolerances. Since control is not exercised over its use, no warranty, expressed or implied, is made as to the effects of such use. Seller's and manufacturer's obligation under this warranty shall be limited to refunding the purchase price of that portion of the material proven to be defective. The user assumes all other risks and liabilities resulting from use of this product. If you have any questions, please contact ChemSystems, Inc.

*For complete information on all CSI products—including product information catalogs, product brochures, color charts, technical specifications, sales aids and more—contact ChemSystems, Inc.

www.helixcolorsystems.com
ChemSystems, Inc. 10101 Genard Road, Houston, TX 77041
P: 800.545.9827 • F: 713.329.9065 • www.chemsystemsinc.net