INNOTECH™
DECORATIVE CONCRETE PRODUCTS

FOR PROFESSIONAL USE ONLY

Technical Bulletin
CmS TB.0110

Chemical Stain

INNOTECH CHEMICAL STAIN produce surfaces with rich and variegated finishes. Instead of covering the concrete like paints or coatings, chemical stains infuse color into a surface while showcasing characteristics of the substrate. The translucent effects and the broad drifts in color—considered trademarks of chemical stains—give surfaces the appearance of a timeworn "patina" finish.

Product Features and Benefits

INNOTECH CHEMICAL STAIN...

- Etch and penetrate 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 so color won't crack, chip, peel or fade.
- Does not "cover up" the concrete surface but rather works in conjunction with the character of the substrate. INNOTECH CHEMICAL STAIN produces a variegated finish, 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 identifier of this concrete coloring method. (INNOTECH CHEMICAL STAIN is reactive by nature. Stains are not paints or coatings, and are therefore pigment-free.)
- Is available in eight standard colors which create expanses of rich color and marbleized hues from plain, gray concrete.
- Can be applied inside or outside to walkways, driveways, pool decks, patios, plazas, street pavements and more.
- Can be used to expand the color palette on new projects . Use over all INNOTECH COLOR HARDENER†, INNOTECH MICRO-TOPPING†, INNOTECH STAMPABLE OVERLAY†, INNOTECH INTEGRAL COLOR - EX† and INNOTECH INTEGRAL COLOR - SG† colors to further enhance the tone of colored concrete. To produce enhanced and richer effects, white-based INNOTECH COLOR HARDENER† can be excellent base choices for the application of INNOTECH CHEMICAL STAIN.
- Can also be applied over another stain to expand color possibilities.
- Create broad artistic potential. Utilize an experienced contractor or artisan for installations of INNOTECH CHEMICAL STAIN and other decorative concrete products.
- 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 (such as limestone).

Prior to Application

- ***Always create an actual finished mock-up sample for client approval prior to installation of each project.***
- INNOTECH CHEMICAL STAIN should be applied to concrete that has fully cured. Concrete should be cured according to ACI standards. For ideal results, allow concrete to cure for 28 days. If stain is applied to concrete that has not fully cured, results may be unpredictable.
- 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 an INNOTECH Sales Representative for more technical information on internal curing compounds.
- Reference the International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP) standards to specify finished surface roughness prior to applying this product. For proper adhesion, the concrete must be a minimum #1 surface profile in accordance with the ICRI CSP chart. Contact ICRI at www.ICRI.org or INNOTECH for more information on these surface profiles.
- Before applying INNOTECH CHEMICAL STAIN, 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. If surface is not structurally sound and is found to be dusty/soft from improper curing, apply INNOTECH MVT REDUCTION†. INNOTECH MVT REDUCTION† is a clear, penetrating water-based impregnating sealer designed to harden the concrete matrix while reducing moisture vapor transmission in cementitious substrates (moisture may cause the blue/green stains to produce undesired black, spotty effects). INNOTECH MVT REDUCTION† will also prevent potential problems due to subsurface moisture.
- The surface should be clean and dry. If the surface is not completely dry, the product may turn white or hazy.
    1. ***For interior surfaces***, exact moisture movement levels can be measured using a moisture test kit in accordance with ASTM D 4263 standards, following the manufacturer's instructions. Moisture measurements of five pounds and below are acceptable. If measurements fall outside of this range, INNOTECH CHEMICAL STAIN should not be applied.
    2. ***For exterior surfaces***, there is no method to effectively test for moisture movement and related problems. If moisture problems are suspected, pretreat the surface with INNOTECH MVT REDUCTION† according to the instructions in the corresponding Technical Bulletin. ***Important:*** INNOTECH MVT REDUCTION† should not be used after stain application.
- 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 INNOTECH CHEMICAL STAIN followed by recommended finish sealers. Abrade with 100- to 120-grit sanding screen.
- To test the surface for color acceptance, a sample conducted with the proposed INNOTECH CHEMICAL STAIN, 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.

Product Application

- INNOTECH recommends applying INNOTECH CON-CLEAN† as a surface cleaner and stain enhancer to all surfaces prior to staining with INNOTECH CHEMICAL STAIN. INNOTECH CON-CLEAN† is a detergent-modified acid that will clean and prepare the surface. Once the INNOTECH CON-CLEAN† has been diluted (reference the INNOTECH CON-CLEAN† Technical Bulletin), lightly spray the areas to be stained. Very dense and hard burnished surfaces may require slight agitation with stiff bristle nylon brushes. Avoid puddling INNOTECH CON-CLEAN†. Rinsing the surfaces prior to staining is not necessary. Apply INNOTECH CHEMICAL STAIN directly over damp or dry surfaces that have been treated with INNOTECH CON-CLEAN†. In most cases, the use of INNOTECH CON-CLEAN† will enhance the final color of the stain.
- INNOTECH CHEMICAL STAIN is best applied with an all-plastic pump-up sprayer at 200-400 square feet per gallon per application depending on surface texture. Smoother surfaces may yield higher coverage rates, resulting in less material usage.
- 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.
- 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.
- Do not rinse stain between coats.
- After the first coat has dried (minimum of five hours), additional coats can be applied. To avoid any unevenness, brush out any excessive puddles.
- 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 INNOTECH CHEMICAL STAIN are done at applicator's risk.
- 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:*** For drying times on Adobe stain, please see the section "Product Limitations".
- Removal of all salty colored residue and proper surface neutralization of the stained surface is critical. Apply an alkaline solution (2.5-cup INNOTECH CONCRETE DEGREASER & NEUTRALIZER† cleaner to 5-gallons of clean 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. ***Important:*** 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 residual water and rinse water should be collected and disposed of properly. (Always consult Material Safety Data Sheets and appropriate agencies for disposal information.)

- 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. ***Important:*** Temperature and humidity will affect the drying times of the surface.

Maintenance

All installations should be maintained on a routine basis with the use of INNOTECH 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. 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.

- Please reference the "INNOTECH SEALER AND MAINTENANCE PRODUCT GUIDE" to determine the correct sealer for a specific application.

Product Limitations

- 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 and above 100 °F. In cases where stain must be applied on hot exterior surfaces, we recommend spraying the concrete surface with cool water and then allow it to evaporate which will help lower the surface temperature.
- On the INNOTECH CHEMICAL STAIN Color Chart, standard INNOTECH CHEMICAL STAIN colors are shown applied to both uncolored (gray) concrete and to a white base. INNOTECH CHEMICAL STAIN produces effects unique 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 INNOTECH CHEMICAL STAIN including uneven, mottled or translucent effects. Product literature images and sample color chips provide an acceptable representation of the colors, but actual colors achieved may differ significantly.
- Adobe and Blackfoot are high-solid INNOTECH CHEMICAL STAIN colors 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 ideal dry time. Allowing adequate dry time is especially important if applying these stains to hard-troweled surfaces. As noted in the "Prior to Application" section, a job site sample is highly recommended whenever applying stain. Producing job site samples is particularly important when working with these two colors.
- Fern, 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 colors, 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 "Prior to 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 dry time after each application on hard-troweled surfaces is a minimum of 10 hours, with 18 hours being the ideal dry time.
- INNOTECH CHEMICAL STAIN can be diluted to achieve lighter more subtle colors and tones. INNOTECH CHEMICAL STAIN can be diluted with INNOTECH CHEMICAL STAIN DILUTION LIQUID†.
- 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.

Available Packaging and Coverage Information

Packaging: INNOTECH CHEMICAL STAIN is available in 1- and 5-gallon containers.

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

Important: Do not over apply the stain, over application will cause a tremendous amount of residue that may be difficult to remove.

- Rough or Broom Finish: 200-400 square feet per gallon, per coat.
- Hard Troweled or Polished Concrete: Approximately 400 square feet per gallon, per coat.

Dry Time

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, after completing the neutralizing, rinsing and cleaning process.
- Hard-troweled surfaces need a minimum of 10 hours dry time for the first coat, 18 hours dry time being ideal.
- Adobe colors need a minimum of 10 hours dry time, 18 hours being ideal.
- Fern, Bluegrass and Jade colors need 24 hours dry time.

Product Shelf Life/Storage

INNOTECH CHEMICAL STAIN should be stored indoors, away from heat or direct sunlight. Do not store below 40 °F. If the Liquid freezes, discard. Shelf life: 12 months.

Product Handling

Prior to using INNOTECH CHEMICAL STAIN please reference the corresponding Material Safety Data Sheet to ensure safe handling.

Product Warranty

INNOTECH CHEMICAL STAIN is a proprietary product, warranted to be of uniform quality within our stringent manufacturing tolerances. As no control is exercised over the product use, no warranty is made as to the effects of such use (neither expressed or implied). Obligation of the seller and manufacturer under this warranty shall be limited to a refund of the purchase price of that portion of the material proven to be defective. The user assumes all other risk and liability resulting from uses of this product. Contact INNOTECH with any questions regarding this policy. *Innotech is a registered tradename of CHROMASYSTEMS LLC, an Ohio company.*

†PLEASE REFER TO THE CORRESPONDING TECHNICAL BULLETIN FOR PRODUCT AND APPLICATION DATA.

INNOTECH CHEMICAL STAIN and other INNOTECH products are for professional use only.

INNOTECH products can be purchased at:

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www.innotechdcp.com