BUILDING TRUST

PRODUCT DATA SHEET

SikaColor®-420 Chemstain®

Penetrating reactive stain that chemically combines with cured cementitious surfaces to produce permanent, variegated coloring effects

PRODUCT DESCRIPTION

SikaColor®-420 Chemstain® is a penetrating reactive stain that chemically combines with cured concrete to produce permanent, variegated coloring effects. When applied to concrete or some other cementitious materials such as overlays, the stain reacts with the free lime to create colored mineral deposits in the pores of the surface. Because there are so many variables involved in the chemical reaction process (i.e., mix design, age, porosity, texture and color of the concrete substrate), each application of SikaColor®-420 Chemstain® produces unique results. Expect wide color variations, mottling and unevenness of the color, within the confines of the concrete slab and from slab to slab. Previously named Sierra Stain® Reactive Acid Stain and LITHOCHROME® Chemstain® Classic.

USES

- Applied as the primary coloring material over uncolored concrete and other compatible substrates
- Can be applied over integrally colored concrete, color hardened concrete, and cementitious overlays
- Interior or exterior cementitious hardscapes including floors, walls, stairs, ramps, pools, ponds, precast structural pieces, rock simulations, statues, or other concrete objects

CHARACTERISTICS / ADVANTAGES

- Chemical reaction to the concrete allows mineral deposits to be embedded as part of the surface
- Higher color durability and abrasion resistance than concrete surfaces coated with acrylic paints or stains
- Color does not fade, chip, crack, or peel
- Wide color variations, mottling, and unevenness of the color is normal and to be expected
- Multiple colors may be used for a more creative effect
- Seal for enhanced colorations and durability

APPROVALS / STANDARDS

- Complies with applicable air quality management regulations

PRODUCT INFORMATION

Chemical Base	Corrosive, Acidic Solution of Metallic Salts
Packaging	1 gal. (3.8 L) fill in 1 gal. (3.8 L) plastic jug
Shelf Life	36 months in original unopened container

Storage Conditions	Store upright in tightly closed original containers in dry storage away from sources of heat and combustible materials. Do not store in unlabeled containers. Do not reuse empty container. Do not freeze.
Appearance / Color	Available in 10 standard colors

APPLICATION INFORMATION

Coverage	Coverage rate will vary depending on the porosity and texture of the concrete surface, composition and age of the concrete, surface preparation, application method, number of applications required, and desired color intensity.

Application Rate	200-300 sq. ft./gal. (4.9-7.4 sq. m/L)
Recommended Applications	2

Substrate Temperature	50-90°F (10-32.2°C)

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

LIMITATIONS

- SikaColor®-420 Chemstain® must be able to penetrate the substrate for a proper chemical reaction.
- Old or weathered concrete may not be effectively colored with SikaColor®-420 Chemstain®.
- Not all concrete can be stained with SikaColor®-420 Chemstain®.
- Concrete containing reactive pozzolans may not accept SikaColor®-420 Chemstain®.
- The colorations produced are translucent. Do not use SikaColor®-420 Chemstain® to hide surface blemishes or construction problems.
- Patching materials may not effectively react with SikaColor®-420 Chemstain® or may produce colorations distinctly different from the adjacent concrete.

Interior Use Only Colors
The colors listed below must only be used for interior applications since they may blacken when exposed to moisture from rain or sprinklers:
- CS11 Fern Green
- CS13 Copper Patina
- CS12 Weathered Bronze

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

APPLICATION INSTRUCTIONS

Produce and approve a mock-up on the actual surface that will be chemically stained. Mock-up should include all the tools and techniques that will be used on the actual job, including sealer. If, during the mock-up application, SikaColor®-420 Chemstain® does not create a fizzing reaction, additional cleaning may be needed, or the surface may be too old or weathered to react with the chemical stain.

Consider using SikaColor®-430 Elements® on old and weathered concrete, or when the desired color effects cannot be achieved with a chemical stain. Consult most current SikaColor®-430 Elements® local Product Data Sheet for complete Application Instructions.

Consistent batching, pouring, finishing, curing, sealing, and preparation techniques, will ensure the uniformity of architectural concrete. Verify adequate wet and dry slip resistance. Maintenance requirements should also be discussed.

EQUIPMENT

- Application tools such as brushes, sponges, containers, and sprayers must be acid resistant.
- Brushes must be capable of holding SikaColor®-420 Chemstain® without excessive dripping.
- Do not use application equipment that contains metal.
- Do not use tools that will soften or deteriorate or leave a color residue when in contact with SikaColor®-420 Chemstain®.
- Do not use a paint roller, as it will create distinct overlap lines.

SUBSTRATE QUALITY

All surfaces must be clean and dry. Do not apply SikaColor®-420 Chemstain® to frozen concrete or if the slab temperature will drop below freezing within 4-6 hours after application.

SURFACE PREPARATION

Clean surfaces to remove contaminants that may adversely affect the chemical stain reaction and to ensure adequate penetration of SikaColor®-420 Chemstain®. Do not use an acid solution to clean the surface. Dense concrete surfaces will require mechanical preparation. Concrete floors that appear glossy because of a hard troweled or burnished finish must be mechanically prepared to remove the surface shine before staining, using a low-speed floor machine with a cleaning pad, sanding screen or an aggressive grit brush depending on the surface porosity. Protect surrounding areas, particularly adjacent surfaces, during application of SikaColor®-420 Chemstain® and cleanup of the residue. Do not use acidic cleaning products before or after staining.

New Concrete

Concrete should be at least 21 days old and dry before applying SikaColor®-420 Chemstain®. Liquid curing compounds, liquid hardeners, densifiers, or other film forming products should not be used on new concrete installations prior to chemical staining. All surfaces should be cured by the same method and chemically stained at the same age. Consider using Sika® UltraCure NCF™ (Natural Cellulose Fabric) single-use wet curing blankets provide constant and thorough hydration while maintaining a 100% relative humidity condition on the slab for a curing period of 7 days resulting in less surface discoloration and a more evenly cured concrete slab.

Once the concrete has been placed, finished, and cured, protect the surface from all construction activity prior to chemical staining. Use Sika® Proguard™ Duracover™ while work is being done over the surface. Remove Sika® Proguard™ Duracover™ after work is completed, allowing the concrete to uniformly dry. Do not store lumber, steel, plumbing, masonry, or chemicals on the floor. Pressure wash or scrub with a rotary floor machine, dirt, and dust from the surface. Use a low foaming, alkaline cleaner and scrub floor with a black pad or grit brush. Thoroughly rinse and wet vacuum cleaning residues. This method of cleaning is generally effective for water-soluble contamination prior to the application of topical stains and sealers. Test the surface for penetration prior to chemical staining.

Existing Concrete

Older concrete must be free from sealers, wax, mastics, grease, oil and other contaminants that are blocking the pores of the substrate. Determining the effective penetration by SikaColor®-420 Chemstain® can be evaluated by wetting the surface with water. If the water is quickly and evenly absorbed, and darkens the surface, no extensive preparation may be required.

Surfaces that are densely burnished or heavily soiled will require mechanical abrasion. Use a 60-80 grit sanding screen or aggressive grit brush with a low speed floor machine.

- Mechanical preparation may change the surface texture and color. Evaluate cleaning methods thoroughly before proceeding.

Once the surface cleaning and preparation is completed, use a low foaming, alkaline cleaner and scrub the floor with a black pad or grit brush. Thoroughly rinse and wet vacuum cleaning residues. Test the surface for penetration prior to chemical staining.

Overlays

SikaCem®-171 T1000® Fine Overlay, SikaCem®-172 T1000® Stampable Overlay, and other similar cementitious topping products should be cured and dry before applying SikaColor®-420 Chemstain®. Consult most current SikaCem®-171 T1000® Fine Overlay and SikaCem®-172 T1000® Stampable Overlay local Product Data Sheets for cure times. Overlaid surfaces must be cleaned, rinsed, and dry prior to applying SikaColor®-420 Chemstain®. Do not utilize aggressive cleaning methods until surfaces are thoroughly cured.

Self-leveling overlays will require mechanical preparation prior to the application of SikaColor®-420 Chemstain®.

MIXING

SikaColor®-420 Chemstain® is ready to use and requires no blending or dilution. Mild agitation is recommended before usage.

- Filter SikaColor®-420 Chemstain® prior to adding to application equipment.

Note: SikaColor®-420 Chemstain® may be diluted with water up to a 1:1 water to stain ratio for ease of application and to reduce streaking on the first coat.

APPLICATION

During elevated ambient and slab temperatures, low humidity or high wind, the rapid drying of SikaColor®-420 Chemstain® may require additional applications to achieve the desired colorations. Lightly misting the concrete with clean water prior to staining can minimize problems associated with hot and windy job site conditions. Evaluate misting technique on your mock-up panel.

Protect adjacent surfaces with plastic. Duct tape should not be used, particularly on surfaces that will be stained, as adhesive residue may leave a shadow or inhibit the reaction of SikaColor®-420 Chemstain®. Blue painter's

tape is preferred. Tape applied to hot surfaces or exposed to direct sun for extended periods will leave a residue. Plastic sheeting or tape should be removed as soon as staining is complete.

Divide the surface into smaller working areas utilizing walls, control joints, and other fixed objects as natural stopping points, ensuring a wet edge during application. Organize application to minimize walking through the wet stain and possibly tracking into other areas. Restrict activity on the floor after it has been cleaned before staining.

During application, avoid random dripping, spillage, and rundown from the equipment, which may produce undesirable colorations that will be difficult to remove. For most applications, a manually pumped or pressurized plastic garden sprayer can be used to apply SikaColor®-420 Chemstain® in a random or circular motion. SikaColor®-420 Chemstain® should fizz when applied. If it does not, additional cleaning is needed, or the concrete is too old and does not contain enough reactive materials for a chemical stain reaction. Keep the saturation amount consistent throughout application. If SikaColor®-420 Chemstain® is splashed, dripped, or puddled, those areas could produce undesirable effects. Evaluate application equipment and techniques with a mock-up panel.

Allow SikaColor®-420 Chemstain® to react on the surface for a minimum of 4 hours. Reaction time may vary with ambient and slab temperatures, wind, and humidity. At low temperatures above freezing, the reaction time of SikaColor®-420 Chemstain® will be extended beyond the typical 4 hours. For single color and multi-colored applications, a small area should be scrubbed and rinsed for effective color evaluation. Additional applications of SikaColor®-420 Chemstain® may be applied to achieve the desired coloration.

Vertical Application

Apply SikaColor®-420 Chemstain® to vertical surfaces in a consistent manner, starting at the bottom and working upward. Avoid excessive rundown of material, as this will produce darker streaks. In confined areas, where a sprayer is not practical, an acid-resistant natural fiber or sponge brush may be used. Proper personal protective equipment (PPE) is recommended during vertical application.

Rinsing

After the final application of SikaColor®-420 Chemstain® has remained on the surface for a minimum of 4 hours, all unreacted SikaColor®-420 Chemstain® residue must be neutralized and then removed entirely before sealing. A solution of baking soda (sodium bicarbonate) and water using 1 lb. (0.5 kg) of baking soda mixed with 5 gal. (18.9 L) of clean water can be used to neutralize the residual SikaColor®-420 Chemstain® acid. Apply the solution until it stops fizzing. After neutralization, the surface must be rinsed thoroughly with clean water several times to remove soluble salts. While rinsing, lightly abrade the surface using a low-speed floor machine equipped with a white pad to remove any residue and/or weakened surface material. Runoff may stain adjacent areas or harm plants. It should be collected by wet-vacuuming or absorbing with an inert material.

After rinsing is complete, a pH test must be performed using litmus paper, pH paper, or a properly calibrated surface pH meter to verify that no residual reactive material is present. A pH value of 7 or greater indicates that all reactive material has been neutralized. If the tested pH value is below 7, the neutralization step outlined above must be repeated until a pH value of 7 or greater is obtained. After neutralization, rinsing, and verification that no reactive material is present, the stained surface must be tested for cleanliness by wiping the surface with a white cloth. If residue appears on the fabric, additional surface cleaning must be performed.

Failure to completely remove all residue before sealing the surface will cause appearance defects, adhesion loss or peeling, reduced durability, and possible bonding failure and delamination of the sealer. All chemically stained surfaces must be protected from traffic until they are sealed.

Sealing

After the stained concrete has been thoroughly neutralized and the rinsed concrete has dried thoroughly, apply sealer.

Use SikaCem®-100 Clear Guard®, SikaCem®-100 PRO 350®, or SikaCem® water-based sealers for exterior applications. Use SikaCem® water-based sealers for interior applications. Consult most current SikaCem® sealer local Product Data Sheets for complete Application Instructions.

Do not apply sealers to concrete substrate with moisture levels > 6% mass (pbw – part by weight) as measured with Tramex® CME/CMExpert type concrete moisture meter.

CLEANING OF TOOLS

Clean equipment with a solution of 1 lb. (0.5 kg) of baking soda mixed with 5 gal. (18.9 L) of clean water to neutralize residual stain. Rinse with clean water.

MAINTENANCE

Periodically inspect cured and sealed surfaces for wear or damage. Consult most current SikaCem® sealer local Product Data Sheets for complete Maintenance Instructions.

Interior Floors

Regularly clean by dry and wet mopping. Periodically machine scrub, rinse, and wet vacuum the surface. Apply a maintenance wax or slip resistant wax as directed by the wax manufacturer. This type of periodic maintenance will greatly enhance the appearance of the floor and minimize the need to strip and/or reapply the sealer.

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

- **KEEP CONTAINER TIGHTLY CLOSED**
- **KEEP OUT OF REACH OF CHILDREN**
- **NOT FOR INTERNAL CONSUMPTION**
- **FOR INDUSTRIAL USE ONLY**
- **FOR PROFESSIONAL USE ONLY**

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates (“SIKA”), the user must always read and follow the warnings and instructions on the product’s most current product label, Product Data Sheet and Safety Data Sheet which are available at usa.sika.com or by calling SIKA’s Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

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