

# Reflect-O-Crete Architectural Color Hardener

## Technical Data Sheet



*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

Reflect-O-Crete Architectural Color Hardener is a specialty formulated, dry-shake, colored surface hardener that contains premium graded reflective aggregates and is designed to be lightly exposed using CSI Surface Etch or *Surface Gel Tek* gelled acid. It is used for coloring, hardening and conditioning freshly placed concrete flatwork when a more refined lightly exposed surface is desired.

### Product Benefits

- Reflect-O-Crete Architectural Color Hardener is a cost effective method for obtaining a uniform lightly exposed colored concrete surface with reflective aggregates. All of the aggregates are contained in the product eliminating the need to surface seed aggregate or pay for through body aggregate in the concrete.
- Reflect-O-Crete Architectural Color Hardener is offered in 6 standard colors with 3 different reflective aggregate types. Custom colors and aggregate blends are available upon request.
- Reflect-O-Crete Architectural Color Hardener increases abrasion resistance and increases coefficient of friction reducing slip issues. Proper use of Reflect-O-Crete Architectural Color Hardener can increase surface strength.
- Used in conjunction with CSI Release Powder\* and *Surface Gel Tek*, gelled acid Reflect-O-Crete Architectural Color Hardener can be used to create reflective stamped and textured surfaces.
- Reflect-O-Crete Architectural Color Hardener is an excellent choice for the following types of projects: Lightly exposed surfaces, driveways, sidewalks, pool decks and a variety of architectural concrete treatments that would benefit from aggregate reflectivity
- Performs well in properly air-entrained, surfaces in cold, harsh climates exposed to freeze-thaw cycles.
- With its blend of select and gradated aggregates, architectural cements, and plasticizers, Reflect-O-Crete Architectural Color Hardener creates surfaces that are substantially harder and more wear-resistant than concrete not treated with color hardener.
- Reflect-O-Crete Architectural Color Hardener is an excellent choice for coloring concrete in order to achieve lighter colors and/or more brilliant reflective surfaces.

### Pre-Application

1. Good subgrade preparation is essential. Subgrade must be well drained. To create uniform load-bearing characteristics and to reduce cracking, subgrade should be graded at a uniform thickness. Subgrade should be moist, completely consolidated, and free of frost. The subgrade should be dampened with water in advance of concreting. Concrete should not be placed over freestanding water or over areas that are muddy, frozen or soft.

2. Good concrete mix design is essential. Concrete should contain a minimum of 5 sacks (3000 psi) of cement per cubic yard of concrete. All aggregate must be non-reactive. Water content should be at minimum, and the slump should not exceed four inches. A normal or retarded-set, water-reducing admixture may be used. An air-entraining admixture complying with ASTM C260 is recommended in all concrete flatwork that will be subject to freeze-thaw cycles. The concrete mix must not contain any admixture or additive that contains calcium chloride. During cold weather, a non-chloride accelerator may be used. No high-range water-reducing admixtures (super plasticizers) should be added unless ChemSystems, Inc. is consulted. Mixes containing fly ash will result in reduced

bleed water, and can be more difficult to finish.

3. Good concrete pouring practices are essential. Weather conditions should be considered during application. Follow ACI standards for installation, especially in extremely hot or cold weather conditions. Concrete mix should be controlled to provide good batch-to-batch uniformity. Concrete should be placed and spread so that it completely fills space inside the forms. Concrete should be consolidated by vibrating to create a suitable surface for finishing. If tamping is done, it should be kept to a minimum and concrete closest to the forms should be spaded. Before the appearance of bleed water, the surface should be screeded and wood-floated to the finished grade.

4. Before applying Reflect-O-Crete Architectural Color Hardener, a job site sample—using the specified mix design, tools and construction techniques—is recommended. If in doubt about application methods, consult ChemSystems, Inc.

5. It is recommended that a pre-site meeting take place to include the proper authorities and to ensure site conditions are met.

### Application

1. Once concrete reaches the point when no bleed water remains on the surface, bull float the surface to bring a small amount of moisture back to the surface.

2. Reflect-O-Crete Architectural Color Hardener should be evenly hand-broadcast or mechanically applied on the surface.

3. Reflect-O-Crete Architectural Color Hardener is applied at a coverage rate of 1 lb. per square foot in three equal broadcast applications. Proper application and coverage is critical for product performance.

4. After each broadcast application, Reflect-O-Crete Architectural Color hardener should be thoroughly worked into the surface of the concrete using a bull float and or hand floats. Before beginning subsequent applications assure that all of the previous broadcast application is worked into the concrete surface.

5. Apply the second and third broadcast perpendicular to the first application in a uniform manner. Assure that the final color is uniform and consistent and no areas of gray concrete are visible.

6. After bull float application is complete, steel trowel to a hard tight uniform finish. Hand or machine finish is recommended.

7. Do not hand tool joints when working with Reflect-O-Crete Architectural Color Hardener. Only saw cut joints! Saw cuts should be made as soon as possible without disturbing the joint edges.

8. Special Care should be taken when finishing Reflect-O-Crete Architectural Color Hardener to assure a uniform and consistent exposure.

- Do not overwork edges and make sure to trowel out all edger lines.
- Do not finish with knee boards too early to avoid leaving marks on the surface
- Avoid random finishing. Finish the slab uniformly from one side across the slab to avoid leaving inconsistencies on the surface.
- Do not overwater the surface during finishing.

9. In dry, hot or windy conditions, the use of an evaporation retardant/finishing aid may be used. It is not recommended to use film forming curing compounds.

10. If using CSI Surface Etch to obtain exposure, apply once the final finishing process is complete, roughly 4 hours. Only use CSI Surface Etch level 01 or 03. Consult the CSI Surface Etch Technical data sheet for proper application guidelines.

## Exposing The Surface

- Protect all surrounding surfaces prior to exposing. Have all equipment on site prior to starting exposure.
- Always test exposure method before beginning work to assure concrete is cured enough and desired color and expose is obtained.

## CSI Surface Etch Exposure Methods

1. Once concrete has cured a minimum of 4 hours, remove CSI Surface Etch using a broom or low rpm scrubber with a black pad while having a low flow of water running across the surface during removal. Care must be taken to work in a uniform pattern to assure a consistent exposure. Longer cure times are acceptable and will not affect the exposure when using CSI Surface Etch.
2. Dispose of all waste water per local or regional regulations.
3. Once the entire surface has been exposed, pressure wash the area. Any areas with inconsistent exposure can be spot treated with a dilute acid (3 parts water to 1 part acid)
4. Treat the entire area with CSI Concrete Degreaser to remove any surface residue and eliminate surface haze.
5. Let the surface dry thoroughly and then seal. We recommend using a penetrating water proofing sealer like CSI Super Seal SB or WB. Film forming sealers are also acceptable if additional gloss is desired.

## Acid Etch Exposure Methods

1. Concrete needs to be well cured prior to acid etch exposing. The cure time will vary depending on environment and temperature. When daytime temperatures are 80 °F and above let concrete cure 3- 4 days before exposing. When daytime temperatures drop below 80 °F let the concrete cure 7 – 10 day before exposing.
2. CSI recommends the use of *Surface Gel Tek* HD 24 gelled acid when using the acid etch exposure method. Consult the HD 24 gelled acid application guidelines available at the *Surface Gel Tek* web site: [www.surfacegetek.com](http://www.surfacegetek.com)
3. Wet the surface thoroughly before applying acid.
4. If using liquid muriatic acid, dilute acid as follows: 3 parts water to 1 part acid.
5. Spray dilute acid on the surface with a plastic pump-up sprayer, or roller apply *Surface Gel Tek* HD24 gelled acid. Use a low rpm scrubber with a nylon grit pad to uniformly expose the surface. Care must be taken to work in a uniform pattern to assure a consistent exposure.
6. Once the entire surface has been exposed, pressure wash the area. Any areas with inconsistent exposure need to be spot treated
7. Treat the entire area with CSI Concrete Degreaser to remove any surface residue and eliminate surface haze.
8. Let the surface dry thoroughly and then seal. We recommend using a penetrating water proofing sealer like CSI Super Seal SB or WB. Film forming sealers are also acceptable if additional gloss is desired.

## Application To Vertical Surfaces

1. Reflect-O-Crete Architectural Color Hardener may be used to finish vertical surfaces such as curbs or the faces of step risers, but the product is not designed for use on large areas of vertical surfaces.
2. A “plaster mix” of Reflect-O-Crete Architectural Color Hardener may be used when doing steps or other vertical surfaces. To create this mix during the final set stage of the concrete, add only enough water, or a 1:1 mix of water and CSI Concrete Bonder, to Reflect-O-Crete Architectural Color Hardener to achieve a workable consistency. Then apply the “plaster mix” to the vertical surface while the concrete is fresh and finish as normal.

## Curing Color Hardened Concrete

Choose from a variety of CSI cures appropriate to the project requirements. It is recommended to use a clear or colored curing compound that meets ASTM C309 or ASTM 1315 when curing CSI color hardened concrete.

## Surface Protection and Maintenance

- Allow Reflect-O-Crete Architectural Color Hardener to fully cure before sealing, 28 days per ASTM.
- When using Reflect-O-Crete Architectural Color Hardener on air entrained concrete, air content should not exceed 4%.

## Shelf Life and Storage

Reflect-O-Crete Architectural Color Hardener has a 2 year shelf life if stored inside, in a dry and temperature controlled environment, in an unopened original container.

## Coverage Rate and Drying Times

Coverage rates may vary depending on color choice, application method, and other local conditions.

- Minimum for all colors is 1 lb. per square foot.

## Package Sizes

Reflect-O-Crete Architectural Color Hardener is available in 60-pound plastic-lined bags. Also available in 60-pound pails, at an additional charge.

## Applicable Standards

- Contributes toward Leeds Qualification depending on color – SS Credit 7.1: Heat Island Effect: Non-Roof
- The synthetic iron oxide pigments used in Reflect-O-Crete Architectural Color Hardener meet or exceed ATSM C979 and produce brilliant, streak-free, non-fading surfaces.

## Technical Data

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

## Product Handling

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

## Specifications

For specification assistance for Reflect-O-Crete Architectural Color Hardener and other CSI products, please contact ChemSystems, Inc.

## Warranty

Reflect-O-Crete Architectural Color Hardener 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.



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

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