

## PI.145 - PRODUCT INFORMATION: CHEM-STONE™ Reactive Stain

Revised: 3/16/2023 Version: 1.2

CHEM-STONE™ Reactive Stain is a concentrated, penetrating, stain that chemically colors conventional concrete and polymer modified cementitious overlays to produce a permanent, variegated and translucent coloring effect.

### 1. DESCRIPTION and USES:

CHEM-STONE™ Reactive Stain reactively creates variegated, uneven and translucent coloring effects resembling that of natural stone. Elegant, distinctive and lasting, the look is ideal for exterior architectural concrete surfaces as well as interior floors and walls. Each application of CHEM-STONE™ Reactive Stain is completely unique from the last, which is why the look cannot be duplicated.

Surfaces colored with CHEM-STONE™ Reactive Stain offer the aged appearance of those from ancient times yet offer the design, appeal and elegance modern designers want.

CHEM-STONE™ Reactive Stain adds life to conventional sidewalks. Malls, retail floors and office complexes become alive with durable, yet imaginative, glare-reducing colors and patterns.

CHEM-STONE™ Reactive Stain offers superior durability and abrasion resistance compared to that of conventional concrete floors coated with acrylic stains and paint which can wear off weather away quickly and delaminate. Due to the chemical reaction created by CHEM-STONE™ Reactive Stain, the coloring becomes a permanent part of the surface which will not peel, fade or flake off and only wears as the surface does.

When planning an installation of CHEM-STONE™ Reactive Stain, the coloring effect can be increased by applying HYDRA-STONE™ Dye Stain once the CHEM-STONE™ Reactive Stain has dried and been neutralized.

### 2. PRODUCT LIMITATIONS:

CHEM-STONE™ Reactive Stain is not intended to be used to hide existing surface defects or correct construction errors. If such a result is desired, first use THIN-FINISH™ or MICRO-FINISH™ Overlay to resurface/restore the concrete prior to installing the CHEM-STONE™ Reactive Stain.

The variegated coloring effects produced are unique to each surface and are determined by chemical composition, mix design, dilution, surface porosity, age, texture and substrate color.

The appearance of the finish will also vary due to the color of the dilution of the CHEM-STONE™ Reactive Stain, number of applications, experience of use, method of application and the type of protective sealer used on the finish.

The user should verify and approve the suitability and appearance by installing a small test section.

Variations and mottling in color and intensity will occur. The coloring obtained and the depth of penetration is not predictable. Note that it is not possible to successfully stain some concrete surfaces. Concrete with surface contaminants which block the effectiveness of the stain cannot be stained, as well as some older or harsh weather exposed concrete that may now lack the components which are necessary to react with the stain.

Concrete from separate pours or loads, as well as patched areas should expect for the CHEM-STONE™ Reactive Stain to take differently.

The abrasion and wear resistance as well as the durability of the CHEM-STONE™ Reactive Stain depends on the strength and abrasion

resistance of the concrete surface or polymer modified concrete overlay which is to be stained.

The application of a protective sealer will greatly assist in the protection of the CHEM-STONE™ Reactive Stain finish.

### 3. COMPOSITION and MATERIALS:

CHEM-STONE™ Reactive Stain is a concentrated acidic, waterborne solution of metallic salts that penetrate and react with chemicals in cured concrete and some polymer modified concrete overlays such as THIN-FINISH™ and MICRO-FINISH™ Overlays. Each color is produced from different formulations containing no pigments or resin emulsions.

### 4. APPLICABLE STANDARDS:

CHEM-STONE™ Reactive Stain complies with applicable air quality management regulations.

### 5. COLORING EFFECTS:

CHEM-STONE™ Reactive Stain is available in 8 standard colors. See color chart. The coloring effect produced is unique to each surface and may differ from that shown on the color chart. Experimentation with colors and application techniques is suggested. A test area should be installed to ensure product suitability and color.

A wide variety in coloring, mottling, and unevenness is normal and typically desired when using the CHEM-STONE™ Reactive Stain. These variations are enhanced when the surface is sealed.

In order to produce satisfactory coloring results, a minimum of two applications of CHEM-STONE™ Reactive Stain is recommended.

For a greater selection of coloring, CHEM-STONE™ Reactive Stain, HYDRA-STONE™ Dye Stain can be used on the dry and neutralized CHEM-STONE™ Reactive Stain to add additional highlighting effects.

### 6. SPECIAL EFFECTS:

Many unique design effects are possible. Experimentation with various colors of CHEM-STONE™ Reactive Stain and applications techniques is suggested.

Special effects can be achieved by applying two or more colors of CHEM-STONE™ Reactive Stain or by applying ULTRA-STONE™ Antiquing Stain or HYDRA-STONE™ Dye Stain over dry and neutralized CHEM-STONE™ Reactive Stain.

Dramatically patterned flooring can be created by saw cutting abstract patterns, tiles, stones, shapes and logos in to the floor and then staining adjacent areas in different colors.

### 7. PACKAGING:

CHEM-STONE™ Reactive Stain is available from stock in one gallon bottles, five gallon pails and small samples kits..

### 8. COVERAGE:

Two coats of CHEM-STONE™ Reactive Stain is generally recommended. Additional applications may be needed on older concrete surfaces to obtain the desired color.

CHEM-STONE™ Reactive Stain should be applied full strength without dilution on conventional concrete and diluted 1:1, water to stain for applications over THIN-FINISH™ or MICRO-FINISH™ Overlays.

CHEM-STONE™ Reactive Stain coverage will vary depending on the dilution, porosity of the surface, texture, substrate color, composition, age, preparation and application technique.

The coverage rate is approximately 150 to 200 square feet per gallon, per application.

#### 9. SHELF LIFE:

Under normal conditions when properly stored, the shelf life of CHEM-STONE™ Reactive Stain is one year from date of purchase. Containers should be tightly closed and stored upright, away from direct sunlight, combustible materials and sources of heat. Stock should be rotated.

#### 10. CAUTIONS:

**DANGER! OXIDIZER. CAUSES SEVERE EYE IRRITATIONS, POSSIBLE BLINDNESS. CORROSIVE, MAY CAUSE EYE AND SKIN BURNS. MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CONTACT WITH BROKEN SKIN MAY RESULT IN ULCERS. PROLONGED OR REPEATED BREATHING MAY CAUSE ULCERATION OR PERFORATION OF NASAL MEMBRANES. CANCER HAZZARD. CAN CAUSE CANCER. RISK OF CANCER DEPENDS ON DURATION AND LEVEL OF EXPOSURE.**

Contains hydrochloric acid, chromic chloride, cupric chloride, ferrous chloride, ferric chloride, manganese chloride and sodium dichromate. Do not get in eyes, on skin or clothing. Wear acid vapor mask (NIOSH/MSHA TC 23C approved), goggles, gloves and protective clothing. Use with adequate ventilation. Do not breathe vapor or mist. Close container after each use. Store away from combustible materials and sources of heat.

**DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.** Wash thoroughly immediately after handling. Before using or handling, read the Material Safety Data Sheet and Warranty.

#### First Aid:

**Eyes – FLUSH IMMEDIATELY THEN SEEK MEDICAL ATTENTION.**

Flush eyes with large amounts of water.

**Ingestion – Give large amount of water or milk. GET MEDICAL ATTENTION IMMEDIATELY.**

**Skin – Wash thoroughly with soap and water. Remove soiled clothing and wash before use.**

**Inhalation – Move to fresh air. If symptoms develop or persist, seek medical attention.**

In case of spill, neutralize, absorb with inert material and dispose of in accordance with applicable regulations. Do not reuse empty containers.

#### 11. TEST SECTIONS:

Proper use of CHEM-STONE™ Reactive Stain requires experimentation, skill and practice. The color produced is unique to each surface and depends on the substrate composition, number of applications, mix design, porosity, age, texture and existing color.

To verify and approve the suitability and appearance, representative test sections must be produced prior to the general application of the stain on each individual surface for each individual color.

Test sections should be of adequate size to be representative, and be produced by the same workers who will apply the CHEM-STONE™ Reactive Stain using the same color, method of application and application technique. All test sections should be prepared, stained and sealed as specified.

If little or no coloring takes place, use a darker or more concentrated color. If the surface is old or weathered, chemical staining may not be possible.

#### 12. EQUIPMENT:

Protective clothing and equipment should be used during the preparation and application of CHEM-STONE™ Reactive Stain and all safety regulations should be followed.

CHEM-STONE™ Reactive Stain is typically applied by brushing or by pump up type sprayers. Other types of application methods can be used such as sponges, paint rollers or small spray bottles. All preparation and application procedures should be tested before use to ensure suitability.

**Brush application –** The brush should be of a professional quality with a long handle without metal parts. Brushes with colored bristles should not be used due to possible color bleed and discoloration. Do not use metal dispensing containers, pails or trays as metal will corrode and discolor the surface.

**Spray application –** The sprayer should be of a professional quality with a fan or cone tip without metal parts. An air sprayer is not recommended.

For residue and runoff collection, an acid resistant wet vacuum may be used.

**Cleaning conventional concrete –** A 2800 psi (or higher) pressure washer with a tight fan tip is recommended if excess water drainage is possible. If water drainage is not possible, use a rotary floor scrubber with 175 RPM.

#### 13. SUBSTRATE PREPARATION:

Prior to the application of CHEM-STONE™ Reactive Stain, a test area must be produced and approved. Surfaces should be adequately textured for slip resistance.

Surrounding areas, landscaping and adjacent surfaces should be protected. The work area should be sectioned off, nearby vehicles should be removed and appropriate sections should be closed to traffic.

Prior to applying CHEM-STONE™ Reactive Stain, precautions should be taken to prevent water penetration into the surface to be stained. Sprinklers and fountains should be adjusted to avoid wetting the surface.

Though the effect achieved is primarily dependent on the surface which is to be applied and not on ambient temperatures or weather conditions, the CHEM-STONE™ Reactive Stain will dry faster and require additional stain in hot, dry or windy conditions. Rain may cause stain runoff, which will damage adjacent areas or landscaping.

Before applying CHEM-STONE™ Reactive Stain, clean to remove all dirt, dust, oil, or anything that will interfere with the staining process and uniformity. Coatings, water repellents, adhesives and curing membranes must be removed by sandblasting, or scarifying. **DO NOT ACID WASH.** Acid washing will remove necessary reactants from the surface.

Newly placed concrete should be allowed to cure 14 to 28 days to become reactive. Liquid curing materials must not be used. Concrete flatwork should be cured with new curing paper. Overlapping or wrinkles in the curing paper will create defects which will be enhanced by the CHEM-STONE™ Reactive Stain.

Existing concrete should be cleaned so the surface is penetrable before the first application of the CHEM-STONE™ Reactive Stain. A test for penetration can be achieved by wetting a small section of the concrete. If the water darkens the surface and does not bead, the surface is suitable for CHEM-STONE™ Reactive Stain. If the water beads on the surface, a sealer may need to be removed prior to the application of the CHEM-STONE™ Reactive Stain.

The cleaning method to be used depends on the condition of the concrete. To remove dirt or other contaminants, detergents or commercial cleaners should be considered and tested. Pressure washing or scrubbing with a rotary scrubbing machine is normally required. After cleaning, the surface should be rinsed to remove any remaining residue. Rinsing should continue until the surface is sufficiently cleaned. Wet vacuums may be used to remove rinse water. After rinsing, the surface should be tested for penetrability.

Surfaces topped with THIN-FINISH™ or MICRO-FINISH™ Overlays should be dry and any liquid release should be 100% evaporated prior to the application of CHEM-STONE™ Reactive Stain.

**14. APPLICATION PROCESS:**

All surfaces must be dry and properly prepared and cleaned as described in section 13. The surface should be divided into smaller sections using walls, joint lines, design saw cuts or other features as natural stopping points. This allows for easier control of coverage, wet edge and overlap.

The application procedures should be planned so the wet surface will not be stepped on. Safety precautions must be followed and full protective gear must be worn.

CHEM-STONE™ Reactive Stain typically fizzes when the reaction occurs. If fizzing does not occur, the surface has not been properly prepared or the concrete is not reactive or a sealer is present.

CHEM-STONE™ Reactive Stain should be applied by brush or sprayer while maintaining a wet edge.

Reaction time varies depending on weather conditions, temperature and humidity. Depending on the desired color, allow the CHEM-STONE™ Reactive Stain to react on the surface for approximately one to three hours. Do not allow CHEM-STONE™ Reactive Stain to sit more than 4 hours.

Once the desired color has been achieved, rinse the CHEM-STONE™ Reactive Stain with a mild solution of 1 part ammonia to 8 parts water to neutralize the reaction of the stain. Immediately rinse the surface to remove residue and prepare for sealing.

**15. SEALING:**

CHEM-STONE™ Reactive Stain should be sealed for ease of maintenance and to protect the surface, using materials that have demonstrated compatibility. Seal as soon as the surface can be walked on, approximately 16 to 24 hours after the imprinting process was completed. Additional information is available in the Elite Crete Systems Technical Data TD-414 SEALER OPTIONS.

All sealed surfaces should be inspected to verify and approve installation and safety, including wet and dry slip resistance prior to opening the area to traffic.

**16. AVAILABILITY:**

CHEM-STONE™ Reactive Stain is marketed nationwide and internationally, directly to trained installers through strategically located authorized distributor and suppliers.

**17. WARRANTY SUMMARY:**

For the complete warranty statement and important limitations, read the Safety Data Sheet and Warranty. Generally, Elite Crete Systems, Incorporated represents and warrants only that its products are of consistent quality. No other oral or written statement is authorized. Any liability is limited to refund or replacement of the defective product. The end user shall determine product's suitability and assume all risks and liability.