

MicroStone Spray System



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

MicroStone Spray System is an ultra-thin, architectural concrete topping consisting of a combination of liquid polymer and specially formulated powder mixtures that is spray applied in colorful layers providing a durable and slip resistant coating. **MicroStone Spray System** is sold as an easy to use kit.

MicroStone Spray System tenaciously bonds to virtually any substrate, including concrete, wood, metal, plastic and sheet rock. **MicroStone** is applied in layers—using a hopper gun, each producing different colors, each accenting and highlighting the previous color spray.

Product Benefits

- **MicroStone** features exceptional bond strength. This product adheres to most stable substrates, well bonded adhesives and coatings on stable substrates.
- **MicroStone** features excellent abrasion resistance and can achieve a compressive strength of 6,000 PSI.
- **MicroStone** is a non-toxic design product and dries completely in 24 hours (70 °F/21 °C).
- The durable, high-strength **MicroStone** is applied in layers—using a hopper gun, each producing different colors, each accenting and highlighting the previous color spray.
- **MicroStone** is an ideal product for creating long lasting, colorfast and vibrant surfaces.
- **MicroStone** gives architects, designers and owners an expanded range of cementitious color selection that, in the past, was only available in less wear-resistant paint-type materials. The uses of **MicroStone** include, but are not limited to, large-scale commercial flooring, graphic artwork, stenciling, monograms, logos and traversing vertical surfaces.

Pre-Application

30 Sweep or vacuum loose dirt from the surface. Use a floor scraper or grinder to remove bumps and surface build-up. For best results, surface should be as smooth and level as possible. Tools and equipment requirements are largely dependent on the project. Common to most projects are: mixing motor, mixing paddle, eye goggles, polyethylene sheeting (and/or rosin paper), duct or reinforced tape, graduated measuring containers, empty containers for mixing and cleanup, gloves and rags. Application tools depend on the project and include squeegees, hopper guns, trowels, drywall knives, brushes and rollers. Suggested prep, cleanup and trimming tools include: scrapers, drywall knives, hammers, chisels, brooms, dustpan and vacuum. Additional specialty tools may be necessary, depending on the type and extent of preparation required.

40 ChemSystems Inc. utilizes the International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP) standards for specifying finished surface roughness prior to applying **MicroStone**. For proper adhesion, the concrete must be a minimum #2 according to the ICRI CSP chart. Contact the ICRI at www.ICRI.org or ChemSystems Inc. for more information on these surface profiles.

3. If there are foreign materials (such as adhesives, paints or high-performance coatings) on the substrate, **MicroStone** will bond tenaciously to those foreign materials. However, the ultimate test of the stability of the substrate depends on the integrity of the bond between the foreign material and the substrate (not between the foreign material and **MicroStone**). If stable glossy coatings are to be covered, abrade with an 80-100 grit sanding screen.

60 Standing oil and grease should be wiped clean, scrubbed with an appropriate industrial detergent, rinsed with clean water and completely dried before application of **MicroStone**. Any remaining oil or grease stains should not affect adhesion, but over time can produce shadowing or ghosting of the original stain.

70 **MicroStone** will not adhere to wet or damp surfaces.

80 Holes and large chips should be filled and troweled flat using an appropriate structural-grade repair product prior to the base coat application.

90 Control joints and moving/working cracks in the existing concrete are expected to transfer through the surface of the topping and create potential cracking problems. To isolate moving cracks, use a semi-rigid crack repair material. Install according to kit instructions. In the case of existing joints or saw cuts, new joints or saw cuts must be placed in the **MicroStone** directly over the existing joints or saw cuts. Any new joint or saw cut must penetrate entirely through the new layers of **MicroStone**.

0 Mask off perimeter and vertical surfaces for protection. Remove masking as soon as possible after application.

0 If the concrete surface exhibits moisture issues, dusting or flaking, a concrete densifying sealer should be used to waterproof and densify problem areas prior to application of **MicroStone**.

Mixing Preparation

Mixing should be done in a cool area using clean buckets. Because material dries quickly when exposed to air, buckets and small mixing drums work best. Do not allow **MicroStone** to air dry on tools or equipment. Wash mixing equipment immediately or place in water for later cleaning.

Application

1. Add 4 - 4 3/4 quarts of **MicroStone** Liquid Polymer diluted 1:1 with cool clean water to a clean empty bucket, add colorant labeled "BASE COAT" and blend.
2. Add **MicroStone** powder labeled "BASE COAT" to the liquid and blend until lump free. Maintain the material's consistency for the entire area being treated. Change in mix ratio could result in a color variation. Repeat this process for the second "BASE COAT" once the first "BASE COAT" has been applied.
3. The BASE COAT application should be applied in a wet fluid state to ensure proper adhesion and surface penetration.

Application

1. **40** While the primer is still tacky, apply **MicroStone** Liquid Polymer diluted 1:1 with cool clean water to a clean empty bucket, add colorant labeled "BASE COAT" and blend.
2. Add **MicroStone** powder labeled "BASE COAT" to the liquid and blend until lump free. Maintain the material's consistency for the entire area being treated. Change in mix ratio could result in a color variation. Repeat this process for the second "BASE COAT" once the first "BASE COAT" has been applied.
3. The BASE COAT application should be applied in a wet fluid state to ensure proper adhesion and surface penetration.

Application

1. Add 2 1/2 - 3 quarts of **MicroStone** Liquid Polymer diluted 1:1 with cool clean water to a clean empty bucket, add colorant labeled "SPRAY COAT #1" and blend.
2. Add **MicroStone** powder labeled "SPRAY COAT" to the liquid and blend until lump free.
3. Repeat process for the second "SPRAY COAT", the first "SPLATTER COAT" and the second "SPLATTER COAT" after each previous application is dry.

Application

1. For each spray application, pour mixed material into a hopper gun.
2. The first and second SPRAY COATS are sprayed evenly over the entire area being treated. Allow each SPRAY COAT to dry completely before applying the next colored spray coat.
3. Once each SPRAY COAT application can be walked on without marring the surface, care should be taken to knock down any irregularities or lumps using a trowel, scraper or drywall knife.
4. The first and second SPLATTER COATS are shot in small bursts to accent the first two SPRAY COATS. Allow each SPLATTER COAT to dry completely before spraying the next colored SPLATTER COAT. Rinse off all equipment immediately after use.
5. When all SPRAY & SPLATTER COAT applications are complete, allow to cure 24 hours before sealing.

Sealing with Sparkle Additive

1. After sufficient curing, if water gets on the surface before sealing, a white film can result. While this film won't affect bond or durability, the film should be cleaned off prior to sealing. Clean with a good commercial cleaner/degreaser and clear water rinse.
2. Sealing should be done as soon as possible after the surface has completely dried.
3. Once **MicroStone** has cured for 24 hours, apply 2 coats of sealer.
--**FOR LIGHT SPARKLE:** Do not add the sparkle additive in the first coat of sealer. Roll on or spray the first coat of sealer. Allow the first coat to dry completely (dry time is contingent upon weather conditions). Second Coat - Add sparkle additive to the sealer container and slowly mix to disperse the sparkle. The sparkle additive will settle between rolls so re-mixing is necessary to keep the sparkle dispersed. Roll on the second coat of sealer.
--**FOR HEAVY SPARKLE:** Add sparkle additive to the sealer container and slowly mix to disperse the sparkle. Roll on sealer. The sparkle additive will settle between rolls so re-mixing is necessary to keep the sparkle dispersed. Once first coat of sealer is dry, re-mix the sealer to disperse the sparkle and apply a second coat evenly over the entire surface.

Limitations and Precautions

- **MicroStone** will not properly bond to wet or damp concrete.
- **MicroStone** will not adhere properly to salt-damaged concrete (i.e. salt-finished surfaces or de-icing salt-infested surfaces).
- **MicroStone** will not adhere to standing oil or grease.
- Certain aggressive stains, such as hydraulic fluids, proteins and animal waste by-products, may appear through the topping as "shadowing" on the finished surface. Any of these materials found on the substrate should be cleaned with an appropriate cleaner and then sealed with a water-based epoxy.
- If heavy adhesive tapes (such as duct tape) are left on sealed **MicroStone** over an extended period of time, a chemical "weld" will be created between the tape and the **MicroStone**. If this happens, the **MicroStone** may be subject to delamination.
- Do not allow water on the surface until **MicroStone** has completely cured. Excessive water before sufficient cure will affect bond and durability.

Equipment Suggestions

1. An air compressor with continuous air delivery at 40-80 psi is recommended.
2. Hopper gun pressure control is recommended.

Shelf Life and Storage

MicroStone has a shelf life of approximately 18 months.

Liquid Polymer: **MicroStone** Liquid Polymer should be stored indoors and above freezing temperatures. If **MicroStone** Liquid Polymer freezes, discard.

Powder: **MicroStone** powders should be stored indoors and away from moisture.

Packaged as a Kit which includes:

1. 2 - BLUE pails consisting of pre-measured **MicroStone** Powder (1 bag - BASE COAT, 1 bag - SPRAY COAT, 1 bag - SPLATTER COAT)
2. 1 - WHITE pail of **MicroStone** Liquid Polymer concentrate
3. 1 - box consisting of 6 jars of liquid pigment (2 jars BASE COAT(s), 2 jars SPRAY COAT(s), 2 jars SPLATTER COAT (s) and 1 - jar of SPARKLE

Coverage:

Coverage per kit is approximately 350-400 square feet. Actual coverage may vary depending on surface, application method, and other local conditions.

Surface Protection and Maintenance

All installations should be maintained on a routine basis with the use of ChemSystems Inc. 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 refer to the corresponding MSDS for hazard-related information.

Technical Data

Bond Strength	Range: 414-466 PSI (ASTM D4541)
Compressive Strength	7-day cure: 6,225 PSI (ASTM C579) 28-day cure: 6,622 PSI
Abrasion Resistance	1,000 cycles, H-22 calibrate wheels – average depth of wear: 24 mils (roughly the equivalent to 5,000 PSI concrete in accordance with ASTM C501)
Weathering	After 31 cycles (5,208 hours), no sign of peeling, chalking, blistering, loss of adhesion, fading or algae growth (ASTM G43 — modified to include freeze-thaw cycle)
Smoke/Toxic Fume Emission	Negligible emission (British Standard 6853)
Skid Resistance	Dry: 65, Wet: 58 (British Pendulum Test)

Product Handling

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

Warranty

MicroStone Spray System 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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