

# Microtopping 1K



## 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

Microtopping 1K is a polymer-modified, one component, cement-based universal coating that can be applied over a variety of surfaces including concrete, masonry, prepared wood decks, and tile. It consists of a proprietary dry polymer, cement and aggregate blend. Microtopping 1K is applied in two or more coats by trowel, brush, roller, spray or squeegee to a typical thickness of 1/16" to 1/8 (16 mm to 20 mm). Designed for both exterior and interior use, Microtopping 1K provides a new Portland cement based surface to most concrete floor or wall systems. It also restores and protects concrete surfaces from the consequences of exposure to water and salt intrusion, freeze thaw damage and carbonation. Microtopping 1K is a durable coating that is "breathable" and allows for the transmission of inherent moisture vapor within concrete without blistering or delaminating. Microtopping 1K is available in a white or gray sanded base or un-sanded finish, can be integrally colored using Microtopping 1K Liquid tint Packs, or stained with Helix Chromastain or Concrete Dye.

### Product Benefits

- Provides a breathable and durable decorative cementitious coating for exterior and interior concrete surfaces.
- Extraordinary adhesion and its ability to withstand prolonged pedestrian and vehicular traffic.
- Provides a tough water-retardant coating that substantially reduces water penetration, freeze-thaw scaling and concrete carbonation.
- It is a "breathable" coating that releases normal entrapped vapor without loosening or blistering.
- Microtopping 1K is available in two base colors – white and natural cement.
- Microtopping 1K Liquid Tint Packs are available to achieve additional colors.
- Microtopping 1K will accept all types of stains, including reactive, water based and concrete dyes.
- Recommended Thickness: 90 mils (3 /32") (2.38 mm) up to 1/8 inch thick. Can be used to fill pop outs, voids, and damaged areas up to 1 inch deep before final application.

### Pre-Application

1. CSI utilizes the International Concrete repair Institute's (ICRI) Concrete surface Profile (CSP) standards for specifying finished surface roughness prior to applying Microtopping 1K. For proper adhesion, the surface must be a minimum #2 in accordance with ICRI's CSP chart. Contact the International Concrete repair Institute at [www.ICRI.org](http://www.ICRI.org) or CSI for more information on these surface profiles.
2. Remove all loose decking material, paint or other coatings. Remove all spalled concrete. In particular, be sure to remove all grease, oil, silicone coatings, or any other material on concrete that would prevent adhesion. Generally, concrete is to be etched with a 1:4 solution of Muriatic acid and water to remove alkali deposits or loose particles on the surface. After any acid etching procedure, always neutralize the surface with an alkaline soap and water rinse. Grinding, shot blasting or power scarifying are also acceptable methods. CAUTION: remove acid residue in accordance with handling practice and in compliance with general regulations. Fill major depressions or cavities in concrete or deck coating with an appropriate repair mortar.
3. Concrete decks should have a control joint system worked out to meet all known deck-stress concentration points. Microtopping 1K can be applied to wood sub floor or decks, as long as the deflection is controlled to inhibit cracking. For application to

wood substrates, prepare the floor similar to application of floor tile. Use of cement board or a reinforced mortar bed is recommended. Do not apply Microtopping 1K directly to wood surfaces.

4. 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 system according to the kit instructions. In the case of existing joints or saw cuts, new joints or saw cuts must be placed through full depth through Microtopping 1K directly over the existing joints or saw cuts.

### Mixing Application

NOTE: Mix material to desired consistency.

Base Coat: Approximately 1 to 1.5 gallons of water per bag

Finish Coat: Approximately 2 to 2.5 gallons of water per bag

1. Measure clean, cool potable water into a 5-gallon bucket. Larger mixing containers can be used for multiple bag batches.
2. If coloring Microtopping 1K on site – add one Microtopping 1K Liquid tint Pack to each container of water and mix thoroughly.
3. Start mixing the water with an electric mixer. Gradually add 1 bag of Microtopping 1K Base Coat into the mixing container. Never reverse the procedure and attempt to pour the liquid into the powder.
4. After the material has been mixed free of any obvious lumps, continue to mix for at least two more minutes. You will observe that the mix gradually loses its grainy look and develops a creamy appearance. Work the mixer or a trowel along the sides and bottom of the mixing container to assure no dry powder clumps remain.
5. Apply Concrete Bonder diluted 1:1 with water as a primer at a rate of 300 – 400 sq./ft. per gallon to the surface with a 3/8 inch nap roller, or soft bristle broom. Do not apply to a point where surfaces are shiny wet—only damp. Use an inexpensive brush to apply bond coat material in corners and cove the material up at walls. Nonporous surfaces such as metal, tile, etc., as well as higher traffic floors may require the use of Helix Epoxy primer. Consult ChemSystems for additional details.
6. Apply Microtopping 1K immediately upon completion of mixing. Working time of material at 70 °F (21 °C - 24 °C) is about 30 - 45 minutes. Mix no more material than can be applied in that time. Discard any material that starts to set up in the mixing container. Do not attempt to re-temper material. Keep material stirred to avoid aggregate settling in container during use.
7. Trowel or squeegee the first coat over the concrete for best results. Be sure to work the material into porous concrete surfaces. To produce a smoother, flatter surface on concrete that has surface irregularities, pits, and voids, troweling is recommended. On large areas, it is recommended to squeegee the first coat of material for fastest production. Cure time for the first coat is 2-4 hours or until no material comes up when you press your foot down on the deck and swivel it under weight.
8. Once the first coat is dry, apply the second coat following steps 1 – 7 above. The second coat is designed to provide a uniform, slip-resistant, decorative finish where desired. A variety of functional or decorative texture finishes may be applied, including, but not limited to smooth, knock down, broom, or float finish.
9. If a smooth finish is desired, similar to hard trowel concrete, a third coat, utilizing Microtopping 1K Finish, can be applied. The same mixing and

application guidelines as noted above for the Microtopping 1K Base should be followed for the “un-sanded” Finish material. For a knock down finish, apply either base or finish through a hopper gun. Spray to desired drop size, and once material stiffens knock down with a trowel.

10. After final coat has been applied, allow to cure (24) hours before staining or sealing. ChemSystems always recommends to install a minimum 4’ by 4’ test area or job site mock up for owner approval of acceptable color, texture, finish adhesion and any other critical requirements prior to proceeding with the installation. Verify that the most current versions of product technical data sheets (PTDS), material safety data sheets (MSDS), and installation guidelines (IG) are being utilized for project submittals and application reference. Protect materials at all times from excessive heat and cold. Regularly check wet film thickness with mil gauge and monitor product consumption to ensure correct application thicknesses are obtained. The proper application of this product is the sole responsibility of the installer. Job site visits by CSI representatives are only for the purpose of making recommendations. Measure surface and ambient temperatures to ensure that material is only applied when temperatures are 50 °F (4.5 °C) and rising during placement and cure time.

### Stain and Dye Application (Optional)

- Once desired finish is achieved, material should be left to cure for 24 hours prior to staining.
- Microtopping 1K may not produce colors representative of the stain color charts. The combination of polymers and cement in Microtopping 1K may cause stains to react differently.
- Always test or sample stains in an inconspicuous area to assure desired color effects are achieved. Sanding the top finish coat with a 100 to 150-grit sanding screen may allow better stain penetration and adhesion, as well as better sealer adhesion.

### Surface Protection and Maintenance

- CSI offers a full range of high-end sealer systems to ensure the long lasting protection and enhanced color of the final project. The interior system consists of two coats of a durable base coat sealer, followed by three coats of a special high-solids top coat maintenance sealer. The exterior system consists of two thin coats of a durable base coat sealer. CSI offers multiple Helix Sealers ranging from gloss to matte, water-based to solvent based, and thin to thick build. Contact ChemSystems for specific sealer recommendations.
- Allow Microtopping 1K to fully cure before sealing, minimum 24 hours. Sanding the top finish coat with a 100- to 150-grit sanding screen may allow better adhesion of the sealer. After sufficient curing, if water gets on the surface before sealing, a white film can result. While this film won’t affect the bond or durability, the film should be cleaned off before sealing with a mild acid or detergent.
- All decorative concrete installations should be maintained on a routine basis with the use of CSI Sealers and 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, UV light exposure, geographical location and weather conditions. Resealing will be required periodically, depending on the amount of foot traffic. As with any 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

### Limitations and Precautions

- Microtopping 1K will stick to almost everything and is much easier to clean off when it is still wet. Once cured, sanding, grinding or chipping may be required to remove unwanted material.

- Microtopping 1K can be diluted with water if a “thinner mix” is desired. Excessive thinning may weaken the material. Holding water back from the mix will help produce a thicker material if desired.
- If Microtopping 1K has started to set up, do not attempt to remix.
- When masking off for protection or grout lines, use duct tape or filament tape for best results. Remove while material is still wet for best results.
- When applying Microtopping 1K in full sun, on a hot day, or in high winds, expect greatly reduced working time. Set extending admixtures can be used to extend the working life of the material.
- Do not apply Microtopping 1K at temperatures below 50 °F or when such temperatures may be expected during its drying and curing time. Using hot water or set accelerators will speed the set time.
- Microtopping 1K is never recommended for application over joints, moving or working cracks, cracks greater than 1/16”, or any untreated or unprepared surfaces.

### Shelf Life and Storage

Microtopping 1K products have a shelf life of one year. Microtopping 1K Powders should be stored indoors and away from moisture.

### Coverage Rate and Drying Times

Actual coverage may vary depending on surface, application method, and other local conditions.

- Microtopping 1K Sanded Base- 1 bag yields approx. 200 – 250 sq/ft
- Microtopping 1K Smooth Finish - 1 bag yields approx. 400- 500 sq/ft
- Microtopping 1K Powder is available in 50 lb. bags

### Technical Data

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

Working Life.....	30-60 minutes (temperature dependent)
Recoat Time.....	1-4 hours or when dry
Open to Traffic.....	12 – 24 hours
Adhesion ASTM C-882, Type 1.....	515 psi
Tensile Strength ASTM C190.....	450 psi
Compressive Strength ASTM C109.....	2,440 psi
Water Vapor Permeability ASTM E96.....	1.96 perms/in
Freeze-Thaw Resistance – 50 Cycles .....	no scaling/peeling/flaking
Potable Water Compatibility .....	NSF/ANSI Compliant

### Product Handling

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

### Warranty

Microtopping 1K 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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