

# Helix Vertical Mix

## 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

Helix Vertical Mix is a polymer modified, cementitious wall render that can produce a decorative textured or hand carved finish on a number of surfaces. Helix Vertical Mix can be installed from ½ inch (1.27cm) to 2 ½ inch (6.35 cm) thickness and can be used for interior or exterior residential, commercial, municipal and industrial construction. Helix Vertical Mix is perfect for 3D carving applications for large custom rock features. Most all textures stamps and vertical stamping tools can be used with Helix Vertical Mix. It has a high compressive strength, and with minimal maintenance can be left exposed to outdoor elements without problems. Helix Vertical Mix is compatible with all Helix integral and post coloring systems. Helix Vertical Mix can be installed over a waterproof membrane system to provide a composition waterproof and crack-resistant decorative rock or wall structure. Helix Vertical Mix can be applied over concrete walls, ceramic tile, cement block, OSB/Plywood with tar paper and metal lath, insulated concrete forms or almost any other structurally sound, tightly adhered and properly prepared substrate. Keep in mind that a high moisture vapor transmission condition can affect stain coloration, sealer characteristics and long-term bond strength. Testing of moisture drive and assessment of the substrate integrity prior to the installation of Helix Vertical Mix is a necessity.

### Product Benefits

- Light Weight Concrete Mix
- Ability to create large custom Rock Structures
- Available in standard and custom colors
- Accepts most any topical coloration system
- Relatively low maintenance cost
- Interior and exterior applications
- Polymer-modified: self-curing and superior adhesion
- High compressive strength
- Provides for fast-track construction option

### Pre-Application

1. Substrate, new or old, must be cleaned of all grease, paint, sealers and all loose material. In particular, be sure to remove all grease, oil, silicone coatings or any other material on substrate that will prevent adhesion.
2. Mechanical sand blasting, grinding, power scarifying or high-pressure washing typically achieves sufficient concrete profile. Always check the substrate for contaminants, alkalinity and moisture emissivity. Test and record the surface alkalinity and moisture emissivity. Note: Although Helix Vertical Mix is resistant to water, excessive moisture vapor transmission (MVT) can increase alkalinity at the bond line and promote delamination. Always monitor and record MVT conditions on grade and below grade surfaces.

NOTE: When applying Helix Vertical Mix over rough concrete walls with deep pop-outs or precast walls with deep texture, prefill deep depressions with a rough pass to provide for reduced surface variation and material shrinkage. A non shrink high strength repair mortar will best suit this requirement.

### Mixing

CORRECT MIXING OF Helix Vertical Mix IS ABSOLUTELY ESSENTIAL TO THE PROPER FUNCTIONING OF THE MATERIAL.

1. Open Helix Vertical Mix bag, generally opening multiple bag to one time to allow product to be mixed quickly.
2. Add 1 gallon of water into clean empty bucket for mixing.
3. If coloring the base material add tint into water and mix with drill in water until tint is evenly dispersed.
4. Begin to add Vertical Mix powder into water and tint mixing with high speed drill as powder is being added into the water.

5. Continue to mix the two materials together – never reverse the procedure and attempt to add the liquid into the powder.
6. After the material has been mixed free of any obvious lumps, continue to mix for at least two more minutes with the “Jiffy” blade submerged in the mix and held at an angle. These two minutes of final mixing are essential to eliminate dry pockets of unmixed material, which could produce pinholes and white efflorescence in the finished work.
7. Apply Helix Vertical Mix immediately upon completion of mixing. Working time of material is about 30-60 minutes, depending on temperature and humidity (high temperature and low humidity reduce working time). Mix no more material than can be applied in that time.
8. Helix Vertical Mix can be mixed in a low speed mortar mixer following the same mixing ratios and sequences. Do not mix less than 60% of the mortar mixers maximum volume capacity. Note: Helix Vertical Mix bonds tenaciously to tools and equipment. Wash equipment quickly and often after each use.

### Application

Helix Vertical Mix is easy to install, virtually odorless and environmentally safe. It requires no special training for installation by a crew experienced in the application of materials and is easily handled by a handyman or mason. It sets rapidly, can be applied over damp (not wet) surfaces and can be installed at temperatures as low as 50 °F (10° C)

#### STEP ONE – Scratch Coat

A scratch coat application is recommended to assure proper adhesion and to begin to provide texture and profile to the vertical structure. We recommend using a standard high strength fast setting repair mortar. For optimum performance modify the repair mortar with 2 lb. of 1/2" glass fiber. Mix to a thick paste consistency and apply to a 1/4" - 1/2" thickness. Rake or notch trowel to provide a "scratch surface". Allow to cure fully before applying the Vertical Mix.

If water proofing or moisture protection is required, apply Helix Epoxy Bonder between the base wall and scratch coat. Helix Epoxy Bonder is a two-component water-based epoxy mixed one part “A” to one part “B” by volume or weight. Mix using a jiffy type mixer for two minutes. Once the bonder is mixed thoroughly, roll on a prepared surface using a ½ -to ¾-inch nap roller. There should not be any standing puddles as consistent coverage is required. When the material clears out and becomes tacky ( 2 - 4 hours) apply the scratch coat into the bonder surface. Another option is to broadcast 90 mesh sand into the bonder to rejection, then allow 24 hours to fully cure.

#### STEP TWO – Helix Vertical Mix Carve Coat

1. After scratch coat has thoroughly dried the carve coat can now be applied. Dampen scratch coat surface with water by sponging or fine mist sprayer.
2. Apply carve coat by hand, trowel, hopper gun, or mortar pump. It is important to work the Body coat into the notches left behind from the scratch coat.
3. Once the body coat is worked into the base coat, V-Imprint can be applied to the desired thickness up to 3 inches.
4. Use a round flexible pool trowel to smooth the material do the desired finish. Various types of tools can be used to achieve the desired texture.

#### STEP THREE – Helix Vertical Mix Carve Coat

1. Using conventional texture mats or vertical stamping tools, carefully begin to texture or imprint the wall using Helix Liquid Release Advantage.
2. Select tools that are designed for vertical applications.
3. Imprinting Helix Vertical Mix is different than conventional concrete. The smaller aggregates require less aggressive manipulation; therefore, gentle pressing is necessary.
4. When lifting the stamps, gradually pull from both edges to relieve suction between the surface and the tool. Use imprinting tools fitted with handles, floppies, or other tools designed for ease in handling.
5. Using specially designed edging tools, chisels, and grout touch-up wheels. These assist in cleaning and defining all edges to achieve a professional finish profile.

## STEP FIVE – DETAIL WORK

1. After the material has cured, detail any imprinting imperfections using grinders, chisels or scraping tools. This is typically overnight and should be done prior to sealing or staining.
2. Honor all joints and use a full depth cut of at least 1-1/2 inches for all expansion or control joints to minimize reflective cracking.
3. Wash the surface and inspect for color consistency and needed repairs. For shrink-crack repair, sift off the heavy silica sand from the Helix Vertical Mix powder and mix the remaining silica-free material with water to creating a slurry paste. Use a sponge to squeeze the paste material into the desired areas for repair. Let the paste dry briefly and dust surrounding around the crack clean with a dry cloth.
4. Use an air blower to remove debris and dry the surface.

resins. The resins are pre-measured to the correct ratios. Scrape all of the hardener from the container into the resin.

- Do not turn mixing vessels upside down to drain on the flooring surface. Unmixed resin from the side may produce soft or uncured spots on the flooring surface.
- Keep the unfinished surface clean. Do not track dirt, grease, or any other contaminants onto the unfinished flooring surface. Any contaminants could affect the aesthetics of the finished flooring.
- Good ventilation must be provided during application, particularly in confined spaces when using two-component polymer resins (urethane or epoxy classes).
- Always obtain, read and observe Manufacturer's Safety Data Sheets (MSDS) before handling materials. Become familiar with the products on paper before you open the cans.
- Always obtain and read the application specification prior to doing work.
- This application is not designed to bridge cracks, working joints, dynamic cracks, or expansion joints.

## Coverage Rate and Drying Times

Coverage rates may vary depending on thickness, texture, application method, and other local conditions.

40 lb. bag covers:

8 - 12 sqft. @ 1/2" thick

4 - 6 sqft. @ 1" thick

2 - 3 sqft. @ 1.5" thick

## Package Sizes and Colors

Vertical Mix powder is available in natural gray color and is packaged in 40 lb. bags. Integral color tint packs are available based on the Helix Integral Color selection chart.

## STEP SIX – STAINING OR PRE-SEALING

For antiquing, staining, and coloration treatments such as Helix stains, tints or color washes, follow the appropriate application guidelines. Make sure to select sealers best suited for the application, use, maintenance and exposure.

**NOTE:** There are a number of dyes, stains, acrylics and universal pigments, dry powder pigments and other materials that can be implemented to achieve desired expressions of color and design. Use UV stable colorants and consult ChemSystems when selecting color materials other than those specifically manufactured for application with Vertical Mix.

## STEP SEVEN – CLEAR SEALER

Apply selected sealer by sprayer, brush or roller. Make sure to select sealers best suited for the application, traffic, use, maintenance and exposure. Both penetrating and film forming sealers are applicable.

## Surface Protection and Maintenance

Maintenance will vary depending on a number of factors including UV exposure, geographic location and weather conditions. For instance, interior applications will require a different routine maintenance program than exterior products. Residential applications typically require less cleaning and maintenance than commercial and municipal projects. When Helix Vertical Mix is installed as a water feature a yearly consultation is recommended to ensure the protective sealer is in good condition. Consult the applicable sealer maintenance guidelines for appropriate maintenance procedures.

## Limitations and Precautions

- For proper workability, materials must be stored and mixed at a temperature of 50 - 90 °F (18-26°C).
- The substrate temperature should be between 55 -90 °F. A warm substrate decreases the material's pot life and can cause mixes to be sticky. A cooler substrate will retard the cure and may cause a blush in some sealers. Never apply Helix Vertical Mix to substrates below 50 °F.
- All concrete curing agents, sealers and hardeners must be removed from the wall prior to application. Preparation using sand blasting or aggressive grinding is recommended.
- When mixing two component polymer resin materials, be sure to use all of the provided

## Technical Data

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

Compressive Strength.....ASTM C-109 (2" x 2" cubes): 4,219 psi

Indentation Characteristics..... (Steadily Applied Load) MIL-D-134, Para. 4.7.4.2.1  
(2,000 lbs. on 1" steel ram imposed for 30 min.): 2.26%

Adhesion.....MIL-D-3134, Para. 4.7.14  
(Shear from steel plate after 96 hours): 305 psi

Water Absorption.....MIL-D-3134 3.41%

Tensile Strength.....ASTM C-190 925 psi

Flexural Strength .....ASTM C-580 2,415 psi

Impact Resistance.....(Gardner Impact Tester)

No chipping, cracking, or delamination and not more than 0.014"

## Warranty

Helix Vertical Mix 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. Contact ChemSystems, Inc. for additional information.



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[www.helixcolorsystems.com](http://www.helixcolorsystems.com)

ChemSystems, Inc. 10101 Genard Road, Houston, TX 77041  
P: 800.545.9827 • F: 713.329.9065 • [www.chemsystemsinc.net](http://www.chemsystemsinc.net)

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