

SPRAYABLE, CRYSTALLINE ENHANCED, HI-BUILD RESURFACING MORTAR

DESCRIPTION

SURFIX™ HI-BUILD performs as a sprayable, cement-based, one-component crystalline enhanced repair mortar for resurfacing and waterproofing concrete and masonry substrates. SURFIX™ HI-BUILD is ideally suited for horizontal, vertical and overhead repair applications.

RECOMMENDED FOR

- ▶ Restoring a wide range of damaged concrete structures
- ▶ Above or below grade, vertical and overhead concrete substrates where aggregate coverage has been lost
- ▶ Correcting concrete substrate irregularities of forms or unconsolidated concrete
- ▶ Use in conjunction with the PENETRON® Crystalline Waterproofing System to stop leaks and rebuild surfaces
- ▶ Rehabilitation of Water and Wastewater Treatment Plants, reservoirs and water containment structures, tunnels, bridges and other civil structures, marine structures manholes & concrete vaults, concrete pipes

ADVANTAGES

- ▶ Use for both interior and exterior applications
- ▶ Can be applied overhead and vertically without the use of forming aides
- ▶ Can be applied in lifts 6-51 mm (1/4-2")
- ▶ One-component, only add water
- ▶ Bonds tenaciously to cement-based substrates
- ▶ Working time is approximately 45 minutes
- ▶ Suitable for low-velocity wet spray or hand-trowel applications
- ▶ Enhanced with crystalline waterproofing, protection and durability technology
- ▶ Fiber-reinforced

TECHNICAL CHARACTERISTICS

Time Period	Compressive Strength (ASTM C-109)	Bond Strength (ASTM C-882)	Flexural Strength (ASTM C-348)
7 days	37,9 MPa (5500 psi)	17,9 MPa (2600 psi)	10,3 MPa (1500 psi)
28 days	56,9 MPa (8250 psi)	23,4 MPa (3400 psi)	-

Cooler temperatures, inadequate ventilation and higher humidity can extend drying times. All data derive from tests under laboratory conditions; field conditions may yield slightly different results.

DIRECTIONS FOR USE

Surface Preparation: SURFIX™ HI-BUILD should be stored at 4°C (40°F) to 27°C (80°F) for 24 hours prior to installation. The surface and adjoining area must be clean, sound, and free from dirt, loose particles, dust, waxes, plastics, curing compounds, grease, paint, efflorescence, and any foreign materials that will inhibit a tenacious bond. If applicable, completely expose and clean all reinforcing steel, ensuring a minimum clearance of 19 mm (3/4") behind it. Perform in accordance with ICRI Technical Guideline No. 310.1R-2008 (formerly No. 03730). For best results, repair area edges should be saw-cut to a minimum depth of 6 mm (1/4"). Mechanically prepare all surfaces to a minimum CSP (Concrete Surface Profile) 5. Refer to ICRI Guideline No. 310.2R-2013, "Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays and Concrete Repair."

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Never use acid, chemical cleaners or mastic removers on any surface to which a PENETRON® product will be applied.

Surfaces should be SSD (Surface Saturated Dry) prior to and maintained during application

Mixing: SURFIX™ HI-BUILD requires 4,0 – 4,5 L (4,25-4,75 qt) of clean water per 22,7 kg (50 lb) of powder. Mix only the amount of material that can be placed within 35 minutes. Pour the required amount of potable water into a clean mixing container, then add the measured amount of SURFIX™ HI-BUILD while continuing to mix and blend thoroughly for 1-2 minutes to a lump free, putty-like consistency. Small amounts of material can be mixed using a hand trowel. For larger amounts, use a 1/2" drill (400-600 rpm) and paddle.

NOTE: SURFIX™ HI-BUILD is ready to use with the addition of water. DO NOT add any materials or additives to the mixture other than those described above.

APPLICATION:

Immediately apply the fresh mortar onto the entire surface, forcing SURFIX™ HI-BUILD firmly into the previously prepared area to ensure full contact with all bonding surfaces. When spraying, use low-velocity wet-spray equipment capable of mixing, pumping, and applying the SURFIX™ HI-BUILD within the recommended water-addition range. Spray velocity must be sufficient to ensure proper compaction. Slightly overfill the area. After the initial set, use a trowel to finish SURFIX™ HI-BUILD to the desired final profile, shaping the patch from the center towards the bond edge at the existing surfaces. A mist of water may be applied for final finishing.

In deeper areas, additional lifts can be made after the original patch has reached its initial set. Score and roughen the original lift layer to improve bond between applications. SURFIX™ HI-BUILD can be placed in lifts up to 51 mm (2") on vertical and for overhead applications by holding the mortar in place until the initial set has occurred.

For applications receiving a coating, float SURFIX™ HI-BUILD with a wood or plastic float. For a brush finish, use a stiff-bristled broom or mason's brush, or for a smooth finish, use a steel trowel to close the surface.

NOTE: The minimum ambient and surface temperatures should be 4°C (40°F) at the time of application. Hot weather and conditions above 27°C (80°F) will reduce working time and accelerate the set, while cold temperatures below 16°C (60°F) will have a retarding effect.

CURING:

Cure in accordance with ACI-308R. Protect the patch from rapid curing caused by high temperatures, wind, low humidity and direct sun by covering it with wet burlap or plastic for up to 24 hours. A water-based curing compound can also be used.

NOTE: Do not apply to frozen or frost-covered areas.

Contact PENETRON HELLAS S.A. Technical Support for additional information.

SPECIAL CONSIDERATIONS

For typical larger applications, use a forced-action mixer and a low-velocity pump with air pressure injected at the spray

nozzle. For small applications use a mixing container, a mixing paddle, a heavy-duty drill and hand trowels. Contact PENETRON HELLAS S.A. Technical Support for additional information on equipment and application tools.

Clean all tools and equipment with water immediately after use, prior to material hardening.

Application temperature ranges between 4°- 35°C (40°-95°F)

NOTE: Above 29°C (85°F), use ACI Hot-Weather Application Guidelines.

SURFIX™ HI-BUILD dries to a light gray color. Variations in the final color can occur due to changes in temperature, humidity and other jobsite conditions.

Working time at 21°C (70°F) is 35-50 minutes.

PENETRON HELLAS S.A. recommends installing a test area, ensuring the suitability of SURFIX™ HI-BUILD for its intended use.

The substrate must have a minimum direct tensile bond test reading of 1 MPa (150 psi) per ASTM C1583-04.

PENETRON HELLAS S.A. recommends that, when our products are used in any application or as part of any system that includes other manufacturers' products, the installer and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any installation. Written documentation of the tests performed shall be satisfactory to the design professional and installer. Test results must include the means and methods of application, products used, project-specific conditions being addressed, and standardized tests performed for each proposed system or variation.

APPROXIMATE COVERAGE (22.7 kg bag)

0,01 m³ (0,42 ft³) or approximately 0.47 m² (5 ft²) at 25 mm (1") thickness.

STORAGE / SHELF LIFE

12 months from the date of manufacture when unopened bags are properly stored in a cool, dry place, unexposed to moisture and sunlight.

PACKAGING

22.7 kg (50 lb) bags.

SAFE HANDLING INFORMATION

This product contains Portland cement and is highly alkaline. The use of rubber gloves, goggles and other appropriate protective gear during mixing and application is recommended. Avoid contact with the eyes and skin. In case of eye contact, rinse immediately with plenty of water and seek medical advice. For further information please refer to Safety Data Sheet. PENETRON HELLAS S.A. has recently updated Safety Data Sheet on the safe use of PENETRON® products. Each Safety Data Sheet contains

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health and safety information for the protection of your employees and your customers.

CERTIFICATION



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1085-CPR-0588

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SURFIX HI BUILD

Products and systems for structural and non-structural
protection and repair of concrete structures

Compressive strength: Class R4 (≥ 45 MPa)

Chloride ion content: $< 0.05\%$ by mass

Adhesive bond: ≥ 2 MPa

Restrained shrinkage, expanding: ≥ 2 MPa

Resistance to Carbonation: Passes

Corrosion behaviour: Deemed to have no corrosive effect

Elastic modulus: NPD

Thermal compatibility: NPD

Reaction to fire: NPD

Dangerous substances: NPD

WARRANTY – DISCLAIMER

PENETRON HELLAS S.A. warrants that its products are manufactured under certified ISO Standard procedures, are of excellent quality and shall be free from material defects and contain all components in their proper proportion. Should any of the products be proven defective, the liability of PENETRON HELLAS S.A. shall be limited to the replacement of the material proven to be defective, provided that the standard application procedures have been met and the suitability of the product for the particular application has been proven. PENETRON HELLAS S.A. makes no warranty as to merchantability or fitness for a particular purpose. The user, after contacting the distributor of the product, shall determine the suitability of the product for their intended use and assume all risks and liability in connection therewith. While every care has been taken, the information provided in this product data sheet forms no part of any contract. All recommendations, technical data and test data contained in this product data sheet are based upon the results of controlled laboratory tests or on actual field tests. However, PENETRON HELLAS S.A. makes no warranty of any kind, concerning these data. In any case, these data are given in good faith based on PENETRON HELLAS S.A. experience up to the date of publication of this sheet. Due to variances in the storage, handling and applications of the materials, PENETRON HELLAS S.A. accepts no liability for the results obtained. It is suggested that potential users try small applications to determine the suitability of each individual product for their specific requirements. Users should always refer to the most recent edition of the product data sheet. PENETRON HELLAS S.A. may specifically differentiate its versions of the product data sheet compared with those of PENETRON INTERNATIONAL LTD or respective PENETRON companies worldwide. These changes are due to text formatting, different application weathering and procedures or different product names and aim at optimal consumer information.