

SECTION 033xxx

Curing Agent, Moisture Emission Reducing

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Work includes labor, materials, appliances, tools, equipment, facilities, transportation, and services necessary for and incidental to performing operations in connection with furnishing, delivery, and installation of the work of this Section, complete as shown on the drawings and/or specified herein.
- B. Non-reactive, inorganic, Zero VOC Moisture Emission Reducing System that shall replace water-cure, blankets, membrane forming cure, and plastic sheeting.
- C. Single application moisture vapor emission and alkalinity mitigation application for suspended, on or below-grade concrete floor slabs that are to receive all-types of floor covering and or roofing materials

1.2 RELATED SECTIONS

- A. 033000 - Cast-in-Place Concrete
- B. 071000 - Dampproofing and Waterproofing
- C. 075000 - Membrane Roofing
- D. 093000 - Tiling
- E. 096000 - Flooring
- F. 099000 - Painting and Coating

1.3 REFERENCES

- A. American Concrete Institute (ACI)
 - 1. 301 – Structural Concrete for Buildings
 - 2. 302.1R-15 Guide for Concrete Floor Slab Construction
- B. Health Product Declaration Collaborative (HPD)
 - 1. HPD v.2.2
- C. USGBC LEED 4
 - 1. EQ Credit 1.0, 4.1 and 4.3
 - 2. EQ Credit 10, 3.1
 - 3. MR Credit 5.1 and 5.2
- D. ASTM International (ASTM)
 - 1. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

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2. ASTM C156 - Standard Test Method for Water Loss [from a Mortar Specimen] Through Liquid Membrane-Forming Curing Compounds for Concrete
3. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete (Section 6)
4. ASTM C1202-93 – Standard Test Method for Electrical Indication of Concrete’s Ability to Resist Chloride Ion Penetration
5. ASTM E96 - Standard Test Method of Water Vapor Transmission of Materials
6. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Chloride

1.4 SYSTEM DESCRIPTION

- A. Concrete Curing Agent, Moisture Emission Reducing System:
 1. Shall exceed the performance of 28-day water-cured quality concrete per ASTM C-39, ASTM C-1202.
 2. Shall reduce or eliminate cure-related cracking.
 3. Shall not to leave a film or coating on the concrete surface.
 4. Will not interfere with the bonding or performance of all floor covering adhesives and or roofing assemblies.
 5. Shall be compatible with all bond-breakers, patching compounds, leveling products, and joint sealants.
 6. Shall be UL 2818 Gold Certified -GREENGUARD
 7. Shall have a ASTM E-96 rating of <1.0 g/m²
- B. Moisture Emission and Alkalinity Control
 1. Shall protect all types of floor coverings and surface treatments from failure by reducing moisture and alkalinity originating from the concrete. Protection must include moisture, moisture vapor, hydrostatic pressure, and alkalinity as well as assurance of adhesive bond.
- C. Fire / Safety / Habitability Criteria:
 1. Flammability: Provide water-based materials.
 2. Hazard Rating: Materials used shall comply with local and federal VOC criteria.
 3. Air Quality Compliance:
 - a. Product shall be UL 2818 Gold Certified - GREENGUARD
 - b. Shall be listed as Super-Compliant by the South Coast Air Quality Management District
 - c. Shall exceed SCAQMD Rule 1113.

1.5 SUBMITTALS

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- A. Product Data: Submit product data, including manufacturer's product data sheets for specified products.
 - 1. Shall provide certified independent laboratory test reports verifying all claimed ASTM and related results.
- B. Shop Drawings:
 - 1. Submit shop drawings indicating warranted area.
 - 2. (optional) Photo documentation of application.
- C. Quality Assurance Submittals: Submit the following:
 - 1. Qualifications: Submit manufacturer and installer's qualifications specified herein.
 - 2. Manufacturer's Instructions: Manufacturer's installation procedure.
- D. Closeout Submittals: Submit the following:
 - 1. Warranty:

1.6 QUALITY ASSURANCE

- A. Single Source Control: Obtain concrete curing and vapor emission and alkalinity control treatment materials from a single source.
- B. Manufacturer Qualifications: Manufacturer shall provide the following:
 - 1. Manufacturer shall furnish written proof of operations as a formulator of specialty concrete treatments for at least 20 years.
 - 2. Product shall be manufactured by SINAK Corporation and distributed exclusively through authorized agents to ensure product quality and consistency.
 - 3. Manufacturer shall provide documentation of completed successful projects performed during this period.
 - 4. EPA – US Environmental Protection Agency: Product as supplied must be certified contain no VOC's.
- C. Contractor Qualifications:
 - 1. Contractor experienced in performing work of this section who has specialized in the installation of similar work for no less than 5 years.
 - a. Contractor: Company must be approved by SINAK Corporation for the warranted application of VC-5.
 - b. Contractor Foreman: Individual specializing in applying specified system and shall be manufacturer trained and certified for the application of the specified product.
- D. Contractor Licensing:
 - 1. Applicator shall provide upon request a valid contractor's license issued for either C-33 or C-8 in the State in which this work will be accomplished.

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1.7 PRE-INSTALLATION MEETING

- A. A pre-installation meeting shall be held to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturers warranty requirements.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Ordering: Shall comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels attached.
- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
 - 1. Store materials in a dry, secure area.
 - 2. Maintain minimum temperature of 40° F and maximum temperature of 85° F.

1.9 WARRANTY

- A. Written non-prorated warranty shall cover failure of finish flooring installation due to moisture, moisture vapor, hydrostatic pressure and alkalinity emanating from or through the concrete for a period of (20) years from the date of substantial completion. Warranty to include the cost of removal of failed materials and replacement of sealer and new flooring materials.
- B. Written warranty conditioned upon proper concrete design and placement as detailed in the SINAK warranty.
- C. Warranty shall remain in effect should the surface of the concrete be damaged (up to ¼" deep) during construction or should mechanical preparation (shot blasting or grinding up to ¼" deep) be done prior to installation of flooring or coatings.

PART 2 – PRODUCTS

2.1 SPECIALTY CONCRETE CURE, MOISTURE EMISSION AND ALKALINITY CONTROL SYSTEM

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- A. Contract documents are based on “VC-5” manufactured by SINAK, 4901 Morena Blvd. Suite 505, San Diego, CA. 92117 (800/523-3147) www.sinak.com
- B. Products by other manufacturers that meet or exceed the follow requirements and are pre-approved equivalent by Architect, may be provided.

2.2 SOURCE QUALITY

- A. Source Quality: Obtain curing, moisture emission reducing and alkalinity control products from a single source manufacturer.
- B. Product performance requirements shall conform to requirements specified herein. Certified independent laboratory test certificates are required to verify test data.

2.3 MATERIALS

- A. SINAK Finishing Aid: Friction-reducing formula certified by the manufacturer to not interfere with curing agents, compounds, and floor finishes and to not affect water-to-cement ratio of the cement paste. Product to be UL GREENGUARD Gold certified and contain zero (0) VOCs.
- B. SINAK VC-5™ is a penetrating, clear, water-based, non-toxic material containing no VOC's providing properties and test results in full compliance with the following:
 - 1. ASTM C1202 (Internal Permeability) shall be equal to a 28-day water cure after 28 days.
 - 2. ASTM C-39 (BS 1881) results shall be equal to a 28-day continuous water soak cured concrete samples.
 - 3. Initial Surface Absorption Tests BS 1881: Part 5 – Performance shall be equal to 7 day-water cured concrete samples.
 - 4. ASTM C-309 Section 6 (Water Retention) – Passed
 - 5. ASTM E-96 (Water Vapor Transmission) 0.8 g/m²

PART 3 – EXECUTION

3.1 PROJECT CONDITIONS

- A. The concrete shall be placed in accordance with normally accepted standards and guidelines by American Concrete Institute (ACI) 302. Water/cement ratio is recommended to be .45 but must be no greater than 0.50 as verified by transit-mix delivery slips certifying contents of the pour.
- B. Site verification of conditions: Verify concrete substrate conditions are acceptable for product installation in accordance with manufacturer's instructions.

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1. Prior to work in this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 2. Verify that work in this section may be installed in strict accordance with the original design, all pertinent codes and regulations and all pertinent portions of the referenced standards.
 3. Verify that the under-slab vapor barrier is in compliance with ACI 302 1R-15, fig 5.2.3.2 for slabs to receive flooring. Place concrete directly over barrier.
 4. Verify concrete finish is within material manufacturer's acceptable range.
 5. In the event of discrepancy, immediately notify the Architect. Do not proceed with application in area of discrepancy until all such discrepancies have been fully resolved.
- C. The addition of waterproofing admixtures is not recommended.

3.2 EXAMINATION

- A. All finishing work must be complete and the surface firm enough to support foot traffic without leaving marks prior to the application of treatment.
- B. Soff-Cut operation and subsequent clean up may be completed prior to or after the application of the product.

3.3 INSTALLATION

- A. Curing Agent, Moisture Reducing System application shall comply with manufacturer's instructions and recommendations.
- B. VC-5™ application may begin after the concrete bleed water has disappeared and as soon as the concrete surface is firm enough to tolerate foot traffic without damaging the substrate.
- C. Apply a small test section to ensure there is uniform absorption of VC-5™.
- D. Installation should be continuous. If rain should occur at anytime during process; see "Interrupted Applications" at the end of the Product Information Sheet.
- E. Apply VC-5™ in two (2) *LIGHT*, even coats, barley wetting the surface with an airless or low-pressure sprayer. Apply the second coat perpendicular to the first

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coat to create a cross-hatched pattern. DO NOT apply VC-5™ in heavy coats or allow puddles to form.

- F. Coverage Rates: Total two-coat completed coverage rate is 300 square feet per gallon for smooth-toweled concrete.
 - 1. Apply the 1st coat of VC-5 continuously in one direction (e.g., north to south), uniformly wetting the surface (600 sq ft per gal).
 - 2. Verify the first coat has dried to the touch before beginning the 2nd coat.
 - 3. Apply 2nd coat perpendicular to the 1st coat (e.g., east to west) to create a crosshatch pattern (600 sq ft per gal).
- G. Rates may vary due to substrate and environmental conditions.
- H. Immediately after the first coat is dry apply a second coat. (NOTE: “Dry” means having returned to original color.) Drying time will vary from 10 to 30 minutes depending on temperature and environment.
- I. Clean all equipment by rinsing with water.

3.4 PROTECTION

- A. Be responsible for protection of work area until owner’s acceptance. Owner shall be responsible for reasonable care and maintenance of the installed treatment upon completion.
- B. Provide safe storage of product before and during application. Product that freezes shall be discarded.
- C. Be responsible to protect adjacent construction materials, glass, and metals which may be stained by overspray.

3.5 TESTING

- A. The use of SINAK VC-5 eliminates the need for moisture or RH testing. SINAK does not require testing for warranty issuance.

END OF SECTION