

SECTION 03 XX XX

Concrete Sealer

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. Zero VOC penetrating sealer/waterproofing for exterior applications. These products shall be used in applications where protection against water penetration, chloride intrusion, efflorescence, and staining from oil, and chemicals is desired. For exterior applications on vehicle pavements where permanent protection from freeze thaw cycles and permanent salt guard protection is desired.
- C. Single source product selection for suspended, on or below-grade concrete floor slabs that are not to receive moisture sensitive floor covering. (For moisture sensitive flooring see **Curing Agent, Moisture Emission Reducing** specification)

1.2 RELATED SECTIONS

- A. Division 03: Cast-in-Place Concrete
- B. Division 03: Curing Agent, Water Cure Equivalent Type
- C. Division 07: Damp proofing/waterproofing

1.3 REFERENCES

- A. American Concrete Institute (ACI)
 - 1. 201.2R Guide to Durable Concrete
 - 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

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D. ASTM International (ASTM)

1. ASTM C666 - Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
2. ASTM C672 - Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals.
3. ASTM C882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear.
4. Resin Systems Used With Concrete By Slant Shear.
5. ASTM C944 - Standard Test Method for Abrasion Resistance of Concrete or Mortar Surfaces by the Rotating-Cutter Method.
6. ASTM C-1028 - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method

1.4 SYSTEM DESCRIPTION

A. Penetrating Sealer/Waterproofing Agent:

1. Shall contain zero (0) VOC's.
2. Shall not to leave a film or coating on the concrete surface. Will not interfere with the bonding or performance line markings or paints.
3. Shall be UL 2818 Gold - GREENGUARD Certified.

B. Fire / Safety / Habitability Criteria:

1. Flammability: Provide water-based materials.
2. Hazard Rating: Materials used shall comply with local and federal VOC criteria.

C. Air Quality Compliance:

1. Shall be listed as Super-Compliant by the South Coast Air Quality Management District.
2. Shall exceed SCAQMD Rule 1113

D. Warranty:

1. Provide system warranty for specific system term (5,10, or 20 year) based on application.

1.5 SUBMITTALS

A. Product Data:

1. Submit manufacturer's printed descriptions of materials, components, and systems; performance criteria; use limitations; preparation instructions and recommendations; storage and handling requirements and recommendations; and installation methods.
2. Submit all appropriate HPD or SDS sheets.

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3. Shall provide certified independent laboratory test reports verifying all claimed ASTM and related test results.
- B. Shop Drawings:
1. Submit shop drawings indicating system application schedule.
 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.

1.6 QUALITY ASSURANCE

- A. Single Source Control: Obtain concrete curing agents, finishing aids, sealers, waterproofing and hardeners 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/Specification basis of design shall be manufactured by SINAK Corporation and distributed exclusively through authorized agents to ensure product quality and consistency.
 3. Manufacturer shall provide field service representation or real time video support inclusive with no additional expense to the client
 4. Manufacturer shall provide documentation of completed successful projects performed during this period.
 5. EPA – US Environmental Protection Agency: Product as supplied must be certified contain no VOC's.
 6. Product manufacturer shall maintain product liability insurance of not less than 5 million dollars per occurrence.
- E. General Contractor is to coordinate slab installation and finish to be compatible with the specified flooring products or finishes in Division 9 where applicable.

1.7 PRE-INSTALLATION MEETING

- A. A pre-installation meeting shall be held to verify project requirements, substrate conditions, manufacturer's installation instructions and subsequent flooring requirements are verified.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Ordering: Shall comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

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- 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. Provide a copy of the manufacturers' warranty and conditions. Warranty shall cover labor and materials for damages from water, freeze/thaw, salt, acid rain, and from surface deterioration from ultraviolet exposure.

PART 2 – PRODUCTS

2.1 SINAK CONCRETE SEALER

- A. Contract documents are based on products manufactured by SINAK Corporation, San Diego, CA, (800-523-3147). Products by other manufacturers that meet or exceed the following requirements and are approved equivalent by the Architect and Structural Engineer, may be provided.

- 1. Sealer SG: for exterior textured or broom finished slabs or open surface profiled concrete and pavements. For application in vehicle traffic areas for permanent freeze thaw protection.

NOTE: On new construction project and to accelerate schedules, consideration of SINAK curing agents is recommended.

- 2. (New Concrete Pavement) Finishing Aid: Only SINAK Finishing Aid for use during placement and finishing operations is allowed. Addition of water on the surface for finishing is not allowed.
- 3. (New Concrete Pavements) LithiumCure 1000: for exterior textured or broom finished slabs or open surface profiled concrete and pavements.

2.2 SOURCE QUALITY

- A. Source Quality: Obtain curing, finishing, sealing, waterproofing, and hardening products from a single source manufacturer.

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- 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 Sealer SG is formulated to waterproof, protect, and preserve concrete in the harshest environments. Concrete treated with Sealer SG is permanently protected against water penetration, deicing agents, chloride intrusion (salts), efflorescence, and freeze - thaw conditions. Sealer SG protects against foreign contaminants and improves abrasion resistance. Product performance characteristics:
 1. ASTM C1028: Dry; 24% improvement, Wet; 36% improvement
 2. ASTM C672: Zero (0) weight loss
 3. ASTM C882: min 4 times increase in tensile.
 4. Pull Test: Epoxy; no failure at bond line
 5. AASHTO T-161/ASTM C666: less than 1% dilation at 300 cycles

(Optional cure recommendation)

- B. SINAK LithiumCure 1000 is a penetrating curing agent, water cure equivalent type, material intended for use on exterior open surface concrete. It is a non-toxic material containing zero VOC's providing properties and test results in full compliance with the following:
 1. ASTM C39: results shall be equal to or exceeding 28-day continuous water soak cured concrete results.
 2. ASTM C1202 (Internal Permeability): shall be equal to a 28-day water cure.
 3. Initial Surface Absorption Tests BS 1881: Part 5 – Performance shall be equal to 28 day-water cured concrete samples.
 4. ASTM C156: Less than .38 km/m² in 72 hr.
 5. ASTM C666: decrease of mass 13% with Total dilation of less than 1% after 300 cycles
 6. ASTM C672: Visual scale 0.
 7. Arkansas DOT/FHWA test: 19-40% less cracking than the 7-day water cure/C-309 treated surfaces in comparison
 8. Availability in Type 1 or 2, Class A.
 9. NSF/ANSI 61: Passed
 10. NSF 327: Passed

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.
- B. Site verification of conditions: Verify concrete substrate conditions are acceptable for product installation in accordance with manufacturer's instructions.
 - 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 concrete finish is within material manufacturer's acceptable range.
 - 4. 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.

3.2 EXAMINATION

- A. All finishing work must be complete, and the curing process finished prior to application.

3.3 INSTALLATION

- A. Sealer application shall comply with manufacturer's written instructions and recommendations.
 - a. SINAK Sealer SG application may begin any time five days after concrete placement when cured with a SINAK curing agent.
 - b. Installation should be continuous. If rain should occur at any time during process; see "Interrupted Applications" at the end of the Product Information Sheet.
 - c. Apply Sealer SG should be done in two light, back to back coats. Apply material to slab edges and into the joints first then immediately apply to the surface of the concrete wetting the surface with an airless or low-pressure sprayer. DO NOT allow sealer to puddle.
 - d. Coverage Rates:

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- i. Two coat coverage over existing concrete surfaces is 150-200 square feet per gallon.
- ii. Two coat coverage for Sealer SG over SINAK cured substrate is 250-300 square feet per gallon.
- iii. Rates may vary due to substrate and environmental conditions.
- iv. Coverage rates for existing concrete will vary. Consult the manufacture's data sheet for recommendations.

B. 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.

END OF SECTION