

PROJECT HEADER

SECTION 1006 – CONCRETE CURE SYSTEM

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. All concrete shall be cured by the method specified herein and curing shall begin immediately after completion of machine or hand finishing of the fresh concrete.
- C. Concrete curing product specified shall replace water-cure, fogging, blankets, membrane forming cure, plastic sheeting, or a combination of more than one of these methods.
- D. Single coat curing application for all cast-in-place; precast; slab on grade/above grade/below grade; vertical and horizontal concrete structures; and structural concrete.

1.2 RELATED SECTIONS

- A. 03300 - Cast-in-Place Concrete

1.3 SYSTEM DESCRIPTION

- A. Concrete Curing Material
 - 1. Shall meet or exceed the performance requirements of Compressive Strength Acceptance for 7-day water-cure method – all concrete classifications.
 - 2. Shall mitigate cure-related/plastic-shrinkage cracking when compared to water-cure method – all classifications of concrete.
 - 3. Shall be compatible with approved admixtures, form-release compounds, patching compounds, joint sealants, paints and surface treatments – all classifications of concrete.
 - 4. Shall be GREENGUARD Children and Schools Certified
- B. Fire / Safety / Habitability Criteria:
 - 1. Flammability: Provide non-combustible materials.
 - 2. Air Quality Compliance: Product shall be GREENGUARD Children & Schools indoor air quality certified.

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3. Storage: Product shall require no special containment, handling, or identification markings.

1.4 SUBMITTALS

A. Product Data:

1. Submit product data, including manufacturer's product data sheets for specified products.
2. Shall provide certified independent laboratory test reports verifying all claimed ASTM, AASHTO and related results upon request.

B. Shop Drawings:

Submit shop drawings indicating areas to receive curing.

C. Quality Assurance Submittals:

Submit the Manufacturer's written Instructions and installation procedure.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Manufacturer shall furnish written proof of operations as a formulator of specialty concrete curing/treatments for at least 10 years.
2. Product shall be manufactured to ensure product quality and consistency.
3. EPA – US Environmental Protection Agency: Product as supplied must be certified to contain no VOC's.

1.6 PRE-INSTALLATION MEETING

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

1.7 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.

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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 100° F.

PART 2 – PRODUCTS

2.1 SPECIALTY CONCRETE CURE

A. Contract documents are based on “LITHIUM CURE” 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 Engineer, may be provided.

2.2 SOURCE QUALITY

- A. Source Quality: Obtain curing material from a single source manufacturer.
- B. Product performance requirements shall conform to requirements specified herein. Certified independent laboratory test reports are required to verify test data.

2.3 MATERIALS

- A. Concrete cure shall be a clear or pigmented, water-based, non-toxic formulation containing no VOC's providing properties and test results in full compliance with the following:
1. Internal Permeability - Performance shall meet or exceed 7-day water-cure cores tested in accordance with AASHTO T277/ASTM C1202 standards.
 2. Compressive Strength - Results shall meet or exceed the ADOT 7-day water cured method acceptance criteria. Test shall be conducted in accordance with AASHTO T24/ASTM C-39 and/or BS 1881-116 standards .
 3. Initial Surface Absorption Tests BS 1881- 5 – Performance results shall fall within 10% of the 7-day concrete water-cured specimens..

PART 3 – EXECUTION

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3.1 PROJECT CONDITIONS

- A. The concrete shall be placed in accordance with normally accepted standards and guidelines of Specifications.
- B. All appropriate rough and/or final finishing work must be complete prior to the application of concrete cure material
- C. Surface texturing and/or tining and subsequent clean up shall be completed
 - 1. prior to the application of the curing product

3.2 EXAMINATION

- A. Site verification of conditions: Verify concrete substrate conditions are acceptable for product installation in accordance with manufacturer's instructions.
 - 1. Verify that all work is complete to the point where the cure application may properly commence.
 - 2. Verify that work described in this section may proceed in strict accordance with design requirements.
 - 3. Verify concrete finish is within cure material manufacturer's acceptable range.
 - 4. In the event of discrepancy, immediately notify the Engineer. Do not proceed with application in area of discrepancy until all such discrepancies have been fully resolved.

3.3 CONCRETE FINISHING PROTECTION AND CURING

- A. Protect freshly placed concrete from premature drying and excessive hot temperatures. Comply with Engineer's requirements for hot weather protection during curing.
- B. Evaporation Control: In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations.
- C. Begin curing after finishing and texturing the concrete is complete.

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D. Curing Method: Cure concrete as follows

1. Apply cure material uniformly in continuous operation by power spray or roller according to manufacturer's directions.
2. Apply to all horizontal and exposed vertical surfaces.
3. For formed concrete surfaces, apply immediately upon removal of forms.
4. Maintain continuity of cure application.
5. Repair any damage incurred during curing period.

E. Curing application shall comply with manufacturer's instructions and recommendations.

F. Clean all equipment by rinsing with water.

3.4 CONCRETE CURING

A. Concrete cure material shall be applied to the concrete within 15 minutes after surface texturing operations and before any drying shrinkage or craze cracks begin to appear.

B. Concrete cure material shall be applied in one application totaling not less than one gallon per 200 - 300 square feet. The curing compound container shall be equipped with a calibrated sight glass for verification of quantities used.

C. The concrete cure material shall be applied progressively, following the surface finishing operation.

3.5 PROTECTION

A. The contractor shall 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