DIVISION 9 - FINISHES

Section 09900 Coatings

Part 1 - General

1.01 Summary

A. This specification describes the overlay of interior horizontal surfaces with an epoxy resin adhesive binder.

1.02 Quality Assurance

A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.

B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.

C. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

1.03 Delivery, Storage, and Handling

A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.

B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.

C. Condition the specified product as recommended by the manufacturer.

1.04 Job Conditions

A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40ºF (5ºC) and rising.

B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified material.

1.05 Submittals

A. Submit two copies of manufacturer's literature, to include: Product Data Sheets and appropriate Material Safety Data Sheets (MSDS).

1.06 Warranty

A. Provide a written warranty from the manufacturer against defects of materials for a period of one(1) year, beginning with date of substantial completion of the project.

Part 2 - Products

2.01 Manufacturer

A. Sikafloor 62, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, Ohio is considered to conform to the requirements of this specification.

2.02 Materials

A. Epoxy resin adhesive binder:

1. Component A shall be a modified epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
2. Component B shall be primarily a reaction product of a selected amine blend with an epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents, pigments, and accelerators.
3. The ratio of Component A: Component B shall be 1:1 by volume.
4. The material shall not contain asbestos.

B. Aggregate for the epoxy resin broadcast shall be an oven-dried, 20-40 gradation sand, as approved by the Engineer.

2.03 Performance Criteria

A. Properties of the mixed epoxy resin adhesive binder:

1. Pot Life: 35-40 minutes (60 gram mass)
2. Tack-Free Time to Touch (4-7 mil): Approximately 4 hours
3. Initial Viscosity (Brookfield Viscometer, Spindle #3; Speed 100): 2200-3400 cps
4. Color: gray, red, tan

B. Properties of the mixed neat epoxy resin adhesive binder:

1. Bond Strength (ASTM C-882) Hardened Concrete to Hardened Concrete
   a. 2 day (dry cure): 2,000 psi (13.79 MPa)
   b. 14 day (moist cure): 1,500 psi (10.34 MPa)
2. Water Absorption (ASTM D-570) at 7 days: 0.1 % max., 2 hour boil (24 hour immersion)
3. Elongation (ASTM D-638) at 14 days: 5%.
4. Abrasion Coefficient (ASTM D-968) at 14 days: 40 l /mil min.
5. Abrasion (Taber Abrader) at 14 days:
   a. Weight Loss: 0.7 gm max. (H-22 wheel; 1000 gm weight; 1000 cycles)
6. Adhesion (ASTM D-3359) at 14 days: Adhesion classification 4A min.
7. The epoxy resin adhesive binder shall be approved by the United States Department of Agriculture.

C. Properties of the epoxy resin broadcast (epoxy resin/aggregate* = 1/1.7 by volume):

1. Compressive Properties (ASTM D-695) at 28 days
   a. Compressive Strength: 9,000 psi (62 MPa)
   b. Modulus of Elasticity: 700,000 psi (4,826 MPa)
2. Tensile Properties (ASTM D-638) at 14 days
   a. Tensile Strength: 3,000 psi (21 MPa)
   b. Elongation at Break: 0.4%.

* Aggregate used shall conform to ASTM C-190.

3. Flexural Properties (ASTM D-790) at 14 days

    a. Flexural Strength (Modulus of Rupture): 5,000 psi (34.5 MPa)
    b. Tangent Modulus of Elasticity in Bending: 1.0x 10^6 psi

4. Abrasion (Taber Abrader) at 7 days:

    a. Weight Loss: 1.5 gm max. (H-22 wheel; 1000 gm weight; 1000 cycles)

    b. Weight Loss: 11.00 gm max. (H-22 wheel; 1000 gm weight; 8000 cycles)

Part 3 – Execution

3.01 Surface Preparation

A. Substrate must be clean, sound, and free of surface contaminants. Remove dust, laitance, grease, oils, curing compounds, form release agents and all foreign particles by mechanical means. Substrate shall be in accordance with ICRI Guideline No. 03732 for coatings.

3.02 Mixing & Application

A. Mixing the epoxy resin adhesive binder:

1. To minimize color differences, blend two complete Component B's together. Use only one of the blended Component B's to mix with a Component A. After the first Component B has been used, blend the second Component B with a new Component B and repeat the above procedure for the entire application.

2. Premix each component. Proportion equal parts by volume of Component A and Component B into a clean, dry mixing pail. Mix thoroughly for 3 minutes min. with a jiffy paddle on a low-speed (400-600 rpm) drill. Mix only that quantity of material that can be used within its pot life (25-40 minutes at 73 F).

B. Placement Procedure: Prime the prepared substrate with the mixed epoxy resin adhesive binder with brushes, rollers, or brooms. Do not over prime or puddle. Coverage should be 300 sq ft/gal min.

C. Apply the epoxy resin adhesive with a $^3/_{16}$ in. x $^3/_{16}$ in. notched squeegee while the primer is still tacky. Allow the binder to self-level, and then slowly broadcast an oven-dried sand in such a manner that the sand drops vertically into the binder. Broadcast lightly making several passes, allowing the binder to bleed through the sand before the next pass. Cover completely with sand before the binder becomes tack-free. Estimate oven-dried sand quantity required to broadcast to excess at 2 lbs./sq. ft. Remove excess aggregate when the broadcast overlay has reached sufficient cure as to not be damaged.

D. Top coat the surface with the epoxy resin adhesive using a roller or flat rubber squeegee. Do not apply the top coat too heavy as to lose the slip resistant surface texture. Coverage will typically be 160 sq ft/gal. When applying the top coat, never stop the application until the entire surface has been sealed, if possible. If impossible, always discontinue at an edge, corner, or joint. Never let a previously coated film dry, always top coat into a wet film. Always apply the top coat at a 45° angle to an edge, corner, or joint.

E. Adhere to all limitations and cautions for the epoxy resin adhesive binder in the manufacturers current printed literature.

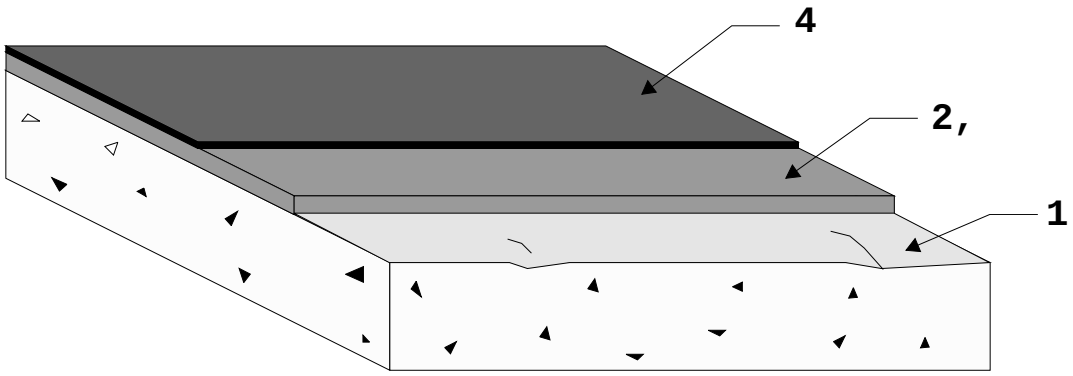
3.03 Cleaning

A. The uncured epoxy resin adhesive can be cleaned from tools with an approved solvent. The cured epoxy resin adhesive can only be removed mechanically.

B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

Note: Tests above were performed with material and curing conditions at 71-75 F and 45-55% relative humidity.

SC-031 Sikagard 62 Broadcast Overlay



1. Using a roller prime prepared substrate with neat Sikagard 62, (4-7 mils).

2. Apply binder coat (50 mils) with a $^{3}/_{16}$" x $^{3}/_{16}$" notched rubber squeegee while primer is still wet. Allow the binder to self-level.

3. Slowly broadcast an oven-dried sand into the binder, making several passes, allow the binder to bleed through the sand before making the next pass, cover completely.

4. After broadcast has reached sufficient cure, remove excess sand. Top coat with neat Sikagard 62 using a roller or flat squeegee.

Concrete Restoration Systems by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071

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