

**DIVISION 9 – FINISHES
Section 09600 – Floor Finishes**

Part 1 - General

1.01 Summary

- A. This specification describes the application of a waterproofing, slip resistant, wearing surface using a low modulus epoxy binder and selected aggregate.

1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001/9002 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 40°F (5°C) 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 coating.

1.05 Submittals

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheet, 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 Manufacturers

- A. Sikadur 22, Lo-Mod, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, Ohio 43302 is considered to conform to the requirements of this specification and has performed satisfactorily for overlaying for a minimum of ten years.
- B. Any materials required for repair prior to installation of the broadcast wearing surface shall be manufactured by the same supplier of the proposed epoxy broadcast system

2.02 Materials

- A. Epoxy resin adhesive binder shall be a two component, 100% solids.
 - 1. Component A shall be a modified epoxy resin of the diglycidylether bisphenol A or 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 containing suitable viscosity control agents and accelerators.
 - 3. The ratio of component A to component B shall be one to one (1:1) by volume.
- B. Broadcast aggregate shall be a clean, oven dried quartz sand with a minimum gradation listed in the table below and a minimum hardness of 6 per the Moh's scale.

Mesh	16	20	30	40	50	70
%	0-5	35-50	40-55	3.0-8.0	>1	>7.5

2.03 Performance Criteria

- A. Properties of the mixed epoxy resin adhesive binder:
 - 1. Pot Life: 30 minutes (200 gram mass)
 - 2. Tack-Free Time to Touch (4-7 mil)

40°F	73°F	90°F
21 hrs.	4 hrs.	2 hrs.
 - 3. Initial Viscosity (Brookfield Viscometer, Spindle #3; Speed 100): 2,500 cps.
 - 4. Color: clear, amber
- B. Properties of the mixed neat epoxy resin adhesive binder:
 - 1. Compressive Properties (ASTM D-695) at 28 days
 - a. Compressive Strength: 8,200 psi (56.5 MPa)
 - b. Compressive Modulus: 166,000 psi (1,145 MPa)
 - 2. Tensile Properties (ASTM D-638) at 14 days
 - a. Tensile Strength: 5,900 psi (41MPa)
 - b. Elongation at Break: 30.0 % min.
 - c. Modulus of Elasticity: 190,000 psi (1,310 MPa)
 - 3. Flexural Properties (ASTM D-790) at 14 days
 - a. Flexural Strength (Modulus of Rupture): 6,800 psi (47 MPa)
 - b. Tangent Modulus of Elasticity in Bending: 270,000 psi (1,910 MPa)
 - 4. Shear Strength (ASTM D-732) at 14 days: 5,400 psi (37.2 MPa)
 - 5. Total Water Absorption (ASTM D-570) at 7 days: 0.23%. (2 hour boil)

6. Bond Strength (ASTM C-882) Hardened Concrete to Hardened Concrete
 - a. 2 day (dry cure): 1,100 psi (7.5 MPa)
 - b. 14 day (moist cure): 1,600 psi (11.0 MPa)
 7. Deflection Temperature (ASTM D-648) at 14 days: 111F (fiber stress loading = 66 psi)
 8. The epoxy resin adhesive binder shall conform to ASTM C-881 and AASHTO M235-90.
 9. 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* = 1/2.25 by volume):
1. Compressive Properties (ASTM D-695) at 28 days
 - a. Compressive Strength: 7,850 psi (54.1 MPa)
 - b. Compressive Modulus: 600,000 psi
 2. Tensile Properties (ASTM D-638) at 14 days
 - a. Tensile Strength: 2,200 psi (15.2 MPa)
 - b. Elongation at Break: 1.1%
 - c. Modulus of Elasticity: 478,000 psi (3,240 MPa)
 3. Flexural Properties (ASTM D-790) at 14 days
 - a. Flexural Strength (Modulus of Rupture): 4,300 psi (29.7 MPa)
 - b. Tangent Modulus of Elasticity in Bending: 900,000 psi (6,205 MPa)
 4. Shear Strength (ASTM D-732) at 14 days: 3,300 psi (22.7 MPa)
 5. Deflection Temperature (ASTM D-648) at 14 days: 111F min. (fiber stress loading = 66 psi)
 6. Abrasion (Taber Abrader) at 14 days:
 - a. Weight Loss: 1.85 gm max. (H-22 wheel; 1000 gm weight; 1000 cycles)

* Aggregate used shall conform to ASTM C-190.

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