

DIVISION 3 – CONCRETE
Section – 03930 Concrete Rehabilitation

Part 1 – General

1.01 Summary

- A. This specification describes the grouting of cracks / sealing of concrete by topical treatment with a high molecular weight methacrylate resin.

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 35°F (2°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 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. **Sika Pronto 19 TF**, as manufactured by Sika Corporation, is considered to conform to the requirements of this specification.

2.02 Materials

- A. High Molecular Weight Methacrylate Crack Healer/ Penetrating Sealer:
 - 1. Component “A” shall be a non-toxic, modified-methacrylate monomer with low odor.
 - 2. Component “B” shall be an organic catalyst.
 - 3. The modified-methacrylate resin shall be supplied in a factory proportioned 2-component units.

2.03 Performance Criteria

- A. Typical Properties of the mixed high molecular weight modified-methacrylate resin:
 - 1. Pot life: 15 minutes
 - 2. Traffic Time: 3 hours max.
 - 3. Color: dark purple liquid, light amber after cure
- B. Typical Properties of the mixed cured high molecular weight modified-methacrylate resin:
 - 1. Compressive Properties (ASTM D-695)
 - Compressive Strength:
 - a. 1 hour – 1,000 psi (6.8 Mpa)
 - b. 2 hour – 2,300 psi (15.8 Mpa)
 - c. 1 day - 2,900 psi (20.0 Mpa)
 - d. 7 days - 3,100 psi (21.3 Mpa)
 - 2. Flexural Properties: (ASTM D-790) at 1 day
 - a. Flexural Strength (Modulus of Rupture): 2,500 psi min (17.2 MPa)
 - 3. Bond Strength (ASTM C-882) Hardened Concrete to Hardened Concrete
 - a. 2 days (dry cure): 2,100 psi min (14.4 MPa)
 - b. 14 days (moist cure): 2,300 psi min (15.8 MPa)
 - 4. The material shall not produce a vapor barrier.

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

Part 3 – Execution

3.01 Surface Preparation

- A. **Gravity Feed Cracks:** The cracks and adjacent substrate must be clean, sound, and free of surface moisture or frost. Prior to product application, blow cracks out with oil-free compressed air. Where accessibility to the underside of the slab is available, seal all visible cracks with an epoxy resin adhesive paste or portland cement-based quicksetting compound to act as a dam to hold the liquid high-molecular-weight methacrylate until cured.
- B. **Sealer:** All substrates to be sealed must be clean, sound, and free of surface moisture and frost. Remove dust, laitance, grease, curing compounds, waxes, impregnations, foreign particles and other bond inhibiting materials from the surface by mechanical means i.e. sandblasting, (CSP 3 as per ICRI Guidelines) as approved by Engineer.

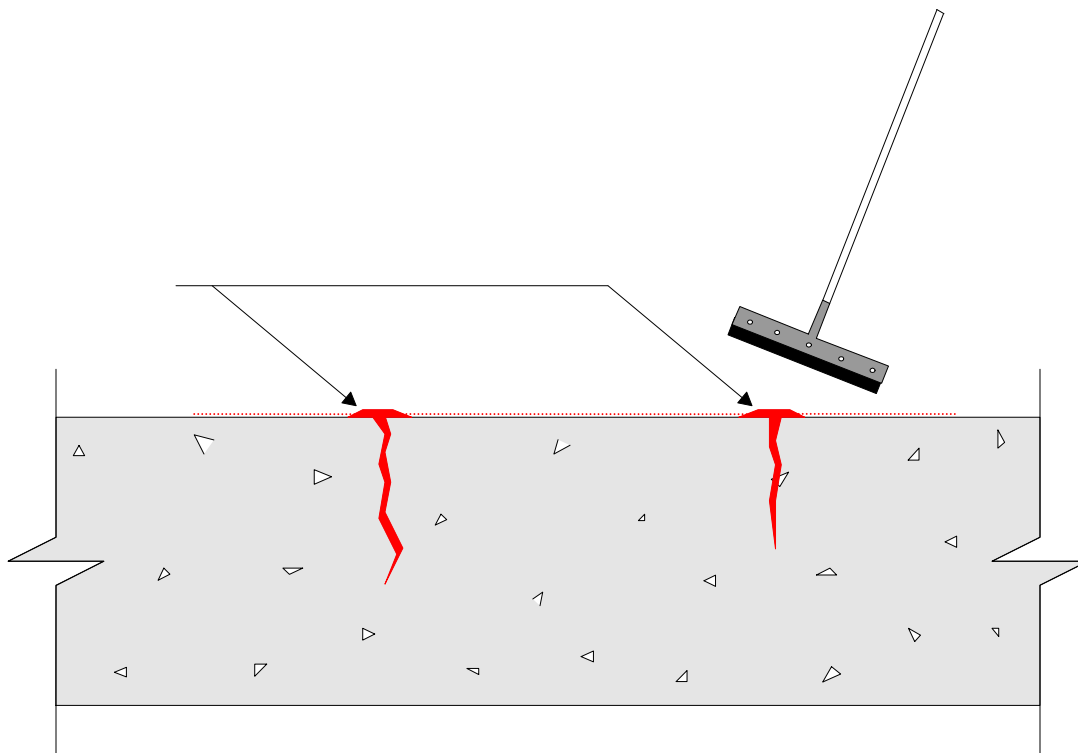
3.02 Mixing and Application

- A. Mixing the high molecular weight methacrylate resin: Empty the entire contents of Component “B” container into the Component “A” container. Mix thoroughly for 3 minutes with a jiffy paddle on a low speed (400-600 rpm) drill.
- B. Placement Procedures: Cracks- Prior to the application, large cracks (>1/8 in. wide) should be pre-filled with dry sand. Pour mixed high molecular weight modified methacrylate resin over visible cracks. Allow material to pond over cracks for 5- 10 minutes. Repeat the ponding procedure until the cracks are sealed. Care should be taken not to allow the material to stiffen in these ponded areas. Spread the material out over the substrate before it sets. When accessible, seal cracks from underside to prevent leakage.
- C. Placement Procedure: Sealer- Commence sealing the entire prepared surface. Pour the mixed high molecular weight methacrylate resin onto the substrate. Spread material using rubber squeegees and rollers. Allow material to penetrate into fine cracks and pores of the substrate. Continue applying until the fine cracks and the surface is sealed. The appearance of the surface should be wet looking with no visible surface film.
- D. Wait at least 20 minutes, then cover the treated area with a light broadcast of a dry 8/20 or similar sand as approved by the Engineer. Distribute the sand evenly over the entire surface at a rate of 15 to 20 lbs. per 100 sq.ft.. Allow the material to cure (at least 3 hours at 73F) before the removal of any loose sand and then open to traffic.
- E. Adhere to all limitations and cautions for the high molecular weight resin in the manufacturers current printed literature.

3.03 Cleaning

- A. The uncured high molecular weight resin can be cleaned from tools with an approved solvent. The cured resin can only be removed mechanically.
- B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

SC-010 Sika Pronto 19 TF Crack Healer/Surface Sealer



1. Spread neat SikaPronto 19 TF with flat squeegee or roller allowing to pond over cracked areas.
2. Let material penetrate into cracks and surrounding substrate.
3. Remove excess leaving no visible surface film.

Note: For cracks greater than $\frac{1}{8}$ " wide, fill crack with oven-dried sand before applying SikaPronto 19 TF. Prior to filling seal underside of slab, when accessible, to prevent leakage.

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