



DIVISION 7 - THERMAL AND MOISTURE PROTECTION
Section 07900 Joint Sealers
Elastomeric and non-Elastomeric sealant

Part 1 - General

1.01 Summary

- A. This specification describes the sealing of joints and cracks with a two-component, non-sag, elastomeric polyurethane sealant.

1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001:2008 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 (4°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 Safety Data Sheets (SDS).

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. **Sikaflex®-2c NS EZ Mix+**, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, OH 43302 is considered to conform to the requirements of this specification.

2.02 Materials

- A. Polyurethane sealant:
 - 1. The joint sealant shall be a two-component, non-sag polyurethane-base material. It shall be applicable in horizontal, vertical, and overhead joints. The sealant shall be principally a chemical cure to form an elastomeric substance. The color shall be introduced through a "Color-pak" system or be pretinted from the manufacturer.
- B. Any primers, as required, recommended by the manufacturer of the specified product, approved by the engineer.
- C. Backer rod or bond breaker tape as approved by engineer.

2.03 Performance Criteria

- 1. Tensile Properties (ASTM D-412) at 14 days
 - a. Tensile Strength at break: 100 psi, min.
 - b. Tensile Elongation: 800%, min.
- 2. Shore A Hardness (ASTM D-2240) at 14 days: 25 +/-5
- 3. Tear Strength (ASTM D-624) at 14 days: 30 lbs./in, min.
- 4. Adhesion in Peel (TT-S-00227E, ASTM C-794) at 21 days
 - a. Concrete: 20 lbf, min. - 0% Adhesion Loss
- 5. Service Temperature Range: -40°F to 170°F (-40°C to 77°C)
- 6. Application Temperature Range 40°F to 100°F (4°C to 38°C)
- 6. The sealant shall conform to Federal Specification TT-S-00227E, Type I and II, Class A.
- 7. The sealant shall conform to ASTM C-920, Type M, NS, Class 50.
- 8. The sealant shall be capable of ±50% of the average joint width when tested in accordance to the durability bond test of Federal Specification TT-S-00227E and ASTM C-719.
- 9. The sealant shall be non-staining.
- 10. Final Cure: 3 days max. (up to 8 days at the lower end of application temperature range)

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

Part 3 - Execution

3.01 Surface Preparation

- A. The joint and adjacent substrate must be clean, dry, sound and free of surface contaminants. Remove all traces of the old sealant, dust, laitance, grease, oils, curing compounds, form release agents and foreign particles by mechanical means, i.e. – sandblasting, etc., as approved by the engineer. Blow joint free of dust using compressed air line equipped with an oil trap.

3.02 Mixing and Application

- A. Mixing of the polyurethane sealant: Pour out entire contents of Component B into pail of Component A. Add entire contents of Color-pak into pail and mix with low-speed drill (400-600 rpm) and approved paddle. Mix for 3-5 minutes to achieve a uniform color and consistency. Avoid entrapment of air during mixing.
- B. Joints:
 - 1. Prime all substrates as required based upon the recommendations of the manufacturer of the specified product, when field testing indicates need, and when the joints will be subject to immersion after cure, as approved by the Engineer.
 - 2. Install approved backer rod or bond breaker tape in all joints subject to thermal movement to prevent three-sided bonding and to set the depth of the sealant at a maximum of 1/2 in., measured at the center point of the joint width. Approval of the backer rod or bond breaker tape shall be made by the Engineer.
 - 3. Joints shall be masked to prevent discoloration or application on unwanted areas, as directed by the Engineer. If masking tape is used, it shall not be removed before tooling, yet must be removed before the initial cure of the sealant. Do not apply the masking tape until just prior to the sealant application.
 - 4. Install sealant into prepared joints when the joint is at mid-point of its expansion and contraction cycle. Load the sealant into a caulking gun. Place the nozzle of the gun, either hand or air or electric powered, into the bottom of the joint and fill entire joint. Keep the tip of the nozzle in the sealant, continue with a steady flow of sealant preceeding the nozzle to avoid air entrapment. Avoid overlapping the sealant to eliminate the entrapment of air. Tool, as required, to properly fill the joint.
 - 5. Adhere to all limitations and cautions for the polyurethane sealant in the manufacturer's printed literature.
- B. Cracks
 - 1. For best performance, sealant should be gunned into crack to a minimum of 1/4" in depth. Place the nozzle of the gun, either hand or air or electric powered, into the bottom of the crack and fill entire crack. Keep the tip of the nozzle in the sealant, continue with a steady flow of sealant preceeding the nozzle to avoid air entrapment. Avoid overlapping the sealant to eliminate the entrapment of air. Tool as required to properly fill the crack.
 - 2. Adhere to all limitations and cautions for the polyurethane sealant as stated in the manufacturers printed literature.

3.03 Cleaning

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

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