

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 one-component, gun-grade, 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 (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 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 Manufacturers

- A. **Sikaflex-1a**, as manufactured by Sika Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071 is considered to conform to the requirements of this specification.

2.02 Materials

- A. Polyurethane sealant:
 - 1. The joint sealant shall be a one-component, gun grade, polyurethane-base material. It shall be applicable in horizontal, vertical, and overhead joints. The sealant shall cure under the influence of atmospheric moisture to form an elastomeric substance.
- 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 the engineer.

2.03 Performance Criteria

- A. Properties of the uncured polyurethane sealant:
 - 1. Initial Cure (Tack-Free Time): TT-S-00230C - 4 hours
Final Cure 4 – 7 days
 - 2. Consistency: non-sag
 - 3. Color: 7 architectural standard colors
- B. Properties of the cured polyurethane sealant:
 - 1. Tensile Properties (ASTM D-412) at 21 days
 - a. Tensile Stress: 175-psi min.(1.37 MPa)
 - b. Elongation at Break: 550%
 - c. Modulus of Elasticity

25%	35 psi (0.24 MPa)
50%	60 psi (0.41 MPa)
100%	85 psi (0.59 MPa)
 - 2. Shore A Hardness (ASTM D-2240) at 21 days: 40+/- 5
 - 3. Tear Strength (ASTM D-624) at 21 days: 55 lb./in.
 - 4. Adhesion in Peel (TT-S-00230C, ASTM C 794)
 - a. Concrete: 20-lb. min. - 0% Adhesion Loss
 - b. Aluminum: 20-lb. min. – 0% Adhesion Loss
 - c. Glass: 20-lb. min. – 0% Adhesion Loss
 - 5. Service Range: -40° to 170°F (-40° to 77 °C)
 - 6. The sealant shall conform to Federal Specification TT-S-00230C, Type II, Class A.
 - 7. The sealant shall conform to ASTM C-920, Type S, Grade NS, Class 35.
 - 8. The sealant must comply with ANSI Standard 61(NSF Approval) for use in contact with potable water.
 - 9. The sealant shall be non-staining.

Note: Tests were performed with material and curing conditions at 71°-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. Joints:

1. Placement Procedure: Prime substrate 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 the prepared joints when the joint is at the mid-point of its expansion and contraction cycle. Place the nozzle of the gun, either hand, 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 as stated in the manufacturer's printed literature.

B. Cracks:

1. For best performance sealant should be gunned into crack to a minimum of a 1/4" in depth. Place the nozzle of the gun, either hand, 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 manufacturer's 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.

SC-069

Sikaflex®-1a Crack Filler

Figure 1 - Surface Seal

1. Surface seal cracks up to a ¼" wide by gunning **Sikaflex-1a** into crack.
2. Tool as required to properly fill crack.

Note:

Prior to applying any coating, allow sealant to cure for 7 days.

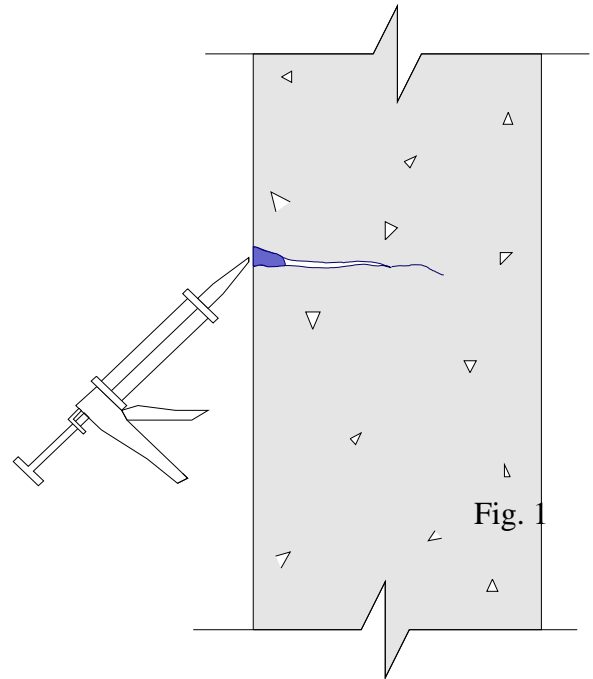
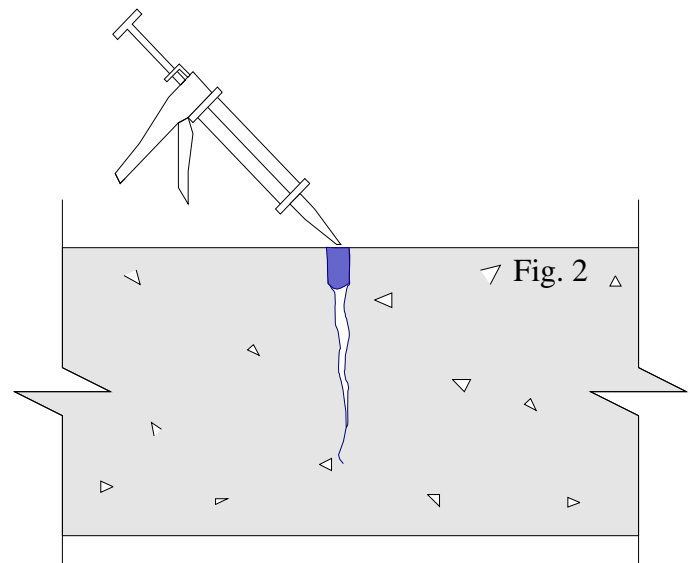


Figure 2 - Notch & Seal

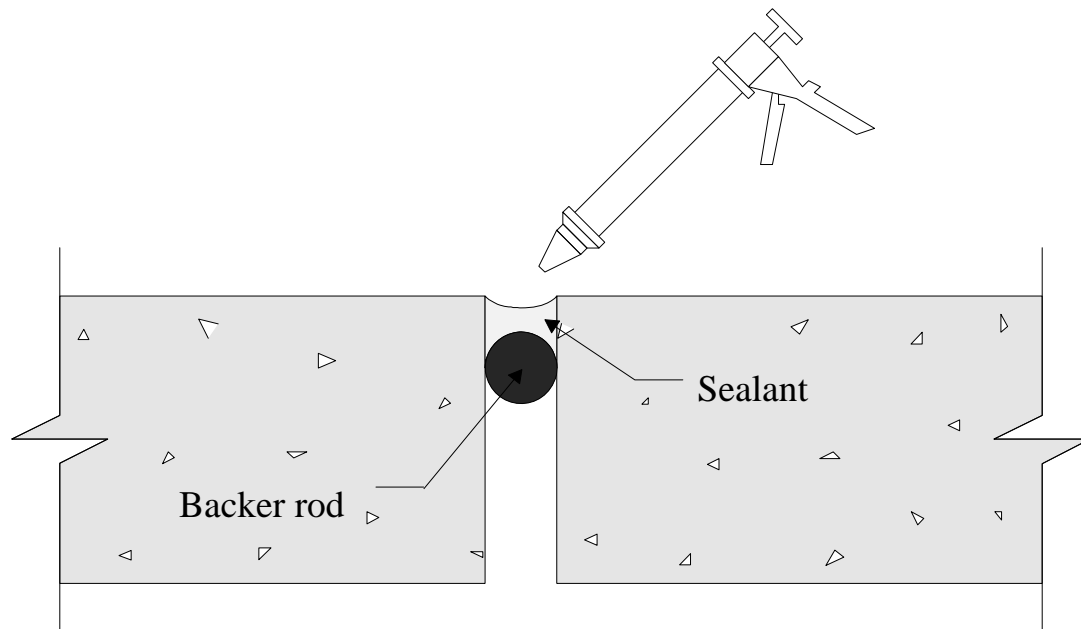
1. Gun **Sikaflex-1a** into prepared crack to a minimum depth of ¼".
2. Tool as required to properly fill crack.



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

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Sikaflex®-1a Expansion Joint Filler



1. Install appropriate backer material to prevent three-sided adhesion and to control sealant depth.
2. **Sikaflex-1a** should be gunned into joint at mid-point of designed expansion and contraction cycle.
3. Tool as required to properly fill joints.

Note: **Sikaflex-1a** is designed for all types of joints where sealant will not exceed ½" in depth. Proper joint design is 2:1 width to depth ratio.

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