

**DIVISION 3 - CONCRETE
Section 03930 - Control Joint Sealers**

Part 1 - General

1.01 Summary

- A. This specification describes the sealing of saw-cut, control, and construction joints in concrete with a semi-rigid flexible epoxy resin adhesive sealant.

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 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 sealant.

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. **Sikadur 51 NS**, as manufactured by Sika Corporation, 1682 Williamsport Road, Marion, OH, 43302 is considered to conform to the requirements of this specification.

2.02 Materials

- A. Epoxy control joint resin:
1. Component "A" shall be modified isocyanate prepolymer, with ether and blocked urethane groups containing suitable viscosity control agents and pigments. It shall not contain butyl glycidl 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 2:1 volume.
 4. The material shall not contain asbestos.

2.03 Performance Criteria

- A. Properties of the mixed epoxy resin adhesive sealant:

Sikadur 51 NS:

1. Potlife: 1 hr. to 1.5 hr. (1 gallon mass)
2. Consistency: Non-sag
3. Color: Concrete Gray
4. Tack-Free Time: 7- 8 hours

- B. Properties of the cured epoxy resin adhesive sealant:

Sikadur 51 NS:

1. Tensile Properties (ASTM D-638) at 14 days
 - a. Tensile Strength: 650 psi (4.4 MPa)
 - b. Tensile Elongation at break: 80%
 - c. Modulus of Elasticity: 1,800 psi (12.3 MPa)

| Tensile stress at % elongation | |
|--------------------------------|-------------------|
| 2.5% Elongation | 50 psi (0.33 MPa) |
| 5 % Elongation | 90 psi (0.6 MPa) |
| 10% Elongation | 160 psi (1.1 MPa) |
2. Shore D Hardness (ASTM D-2240) at 28 days:
 - a. 75-80 (Shore A)
 - b. 30-40 (Shore D)
3. Tear Strength (ASTM D-624) at 14 days
 - a. Tear Strength 110 lb./in.
4. Bond Strength (ASTM C-307 Modified)
Hardened Concrete to Hardened Concrete
 - a. 2 days (dry cure) Bond Strength 800 psi (5.5MPa)
 - b. 14 days (moist cure) Bond Strength 450 psi (3.1 MPa)
5. Shear Strength (ASTM D-732)
 - a. 14 days 800 psi (5.5 Mpa)

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, sound and free of surface contaminants. It may be dry or damp, but free of standing water. Remove 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 epoxy resin adhesive: Premix each component. Portion 2 part of Component “A” to 1 part of Component “B” by volume into a clean, dry mixing pail. Mix thoroughly for 3 minutes with a jiffy paddle on a low-speed (400-600 rpm) drill. Mix only the quantity of material that can be used within its pot life.
- B. 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 epoxy construction/control joint resin application.
- C. Placement Procedure:
1. Non-sag consistency: Load directly into bulk chaulking guns or use a follower plate loading system or tool into joints by hand. Avoid overlapping of the sealant to eliminate entrapment of air. Tool as required.
- D. Adhere to all limitations and cautions for the epoxy resin adhesive sealant as stated in the manufacturer's printed literature.

3.03 Cleaning

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

SC-072 Sikadur 51 NS

Construction / Control Joints

Figure 1 - Sikadur 51 NS (non-sag)

- 1. Gun or tool mixed Sikadur 51 NS into the prepared joint.
- 2. Avoid overlapping of the sealant to eliminate entrapment of air.
- 3. Tool as required to properly fill joint.

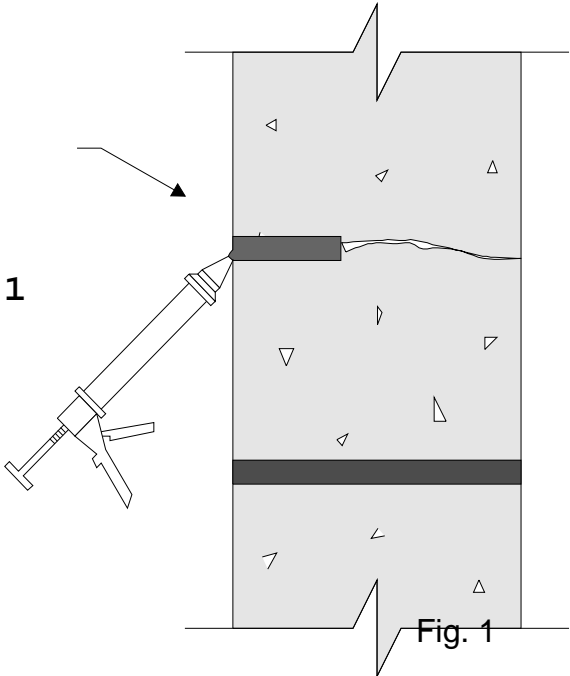
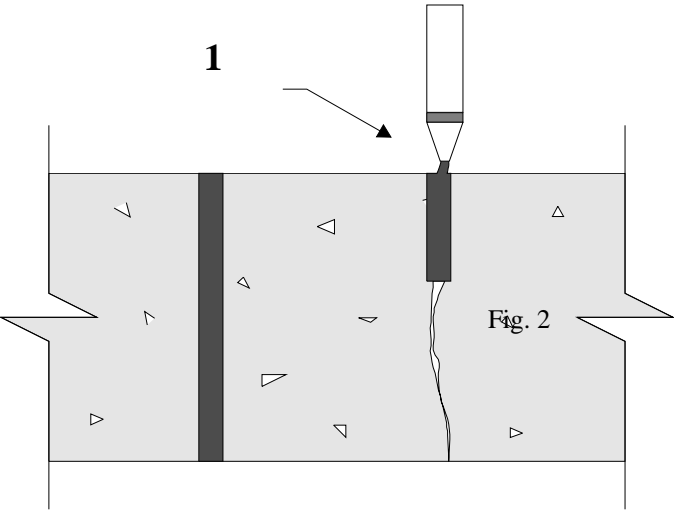


Figure 2 - Sikadur 51 NS

- 1. Gun or tool Sikadur 51 NS into prepared joint.
- 2. Tool as required to properly fill joint.



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