

**Item No. 313S**  
**Cleaning and/or Sealing**  
**Joints and Cracks (Asphaltic Concrete)**

**313S.1 Description**

This item shall govern the cleaning and/or sealing of joints and cracks that are 1/16 inch (1.5 mm) or greater in asphaltic concrete pavement in conformity to the lines, grades and details indicated on the Drawings or as established by the Engineer or designated representative.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text, the inch-pound units are given preference followed by SI units shown within parentheses.

**313S.2 Submittals**

The submittal requirements of this specification item include:

- A. Sealant Type (Polymer Modified Emulsion, Rubber-Asphalt or Self-Leveling Low Silicone) and method of application (crack sealing, joint sealing, squeegee, etc),
- B. Manufacturer certification that the product to be supplied meets or exceeds the specification requirements,
- C. Manufacturer recommended procedures for preparation, dispensing, application, curing etc of the sealant, and
- D. Listing of the equipment proposed for the Work.

**313S.3 Materials**

Joints and/or cracks shall be sealed with the materials indicated on the Drawings. The materials shall meet the requirements shown below:

Material	Specification	Recommended Use
Polymer Modified Emulsion	301S; Subarticle 301S.3.1.1	Fine Cracks 1/16 to 1/8 in (1.5 to 3 mm)
Rubber-Asphalt Crack Sealing Compound	301S; Subarticle 301S.3.1.2	Cracks: >1/8 inches (> 3.2 mm)
Self-Leveling Low Modulus Silicon	Class 5, TxDot DMS-6310	Joints

Fine aggregate used to cover the crack-sealing compound shall meet with the approval of the Engineer or designated representative.

The sealing compound shall be delivered in the manufacturer's original sealed containers. Each container shall be legibly marked with the name of the manufacturer, the trade name of the sealer, the manufacturer's batch number or lot, the pouring temperature, and the safe heating temperature.

### **313S.4 Equipment**

Equipment, tools and machinery necessary for proper prosecution of the Work shall be on the project and shall be approved by the Engineer or designated representative prior to the initiation of the joint and crack cleaning and sealing operations

### **313S.5 Heating and Application Equipment**

#### **A. Polymer Emulsified Emulsion**

Polymer Emulsified Emulsion may be heated in a conventional asphalt distributor or in an asphalt heater equipped with an agitator to insure that the emulsified asphalt is circulated during the heating process and achieves a uniform temperature rise. Temperature gauges shall be provided at strategic locations to enable the operator to accurately control the temperature of the emulsion to avoid overheating the material. The unit shall be equipped with a gear-driven asphalt pump with adequate pressure to dispense the emulsion in joints and cracks.

#### **B. Rubber-Asphalt Crack Sealing Compound**

The sealant shall be heated in a double jacketed heater using a heat transfer oil so that no direct flame comes in contact with the shell of the vessel containing the sealing compound. The heater reservoir shall be equipped with an agitator to insure that the sealing compound is circulated during the heating process to achieve a uniform temperature rise and to maintain the desired temperature. Accurate temperature gauges and positive temperature controls shall be provided to monitor the temperature of the vessel contents and prevent overheating the material. The heater shall be equipped with a gear-driven asphalt pump with adequate pressure to dispense the rubber-asphalt crack sealing compound.

#### **C. Self-Leveling Low Modulus Silicone**

The sealant shall be prepared and dispensed using the manufacturer's recommended equipment.

### **313S.6 Joint and Crack Cleaning Equipment**

All equipment used in cleaning joints and cracks shall be capable of delivering a sufficient volume of filtered air, free of oil, water or other contaminants, to insure the removal of all loose debris from the joints or cracks to be sealed.

When specified on the Drawings, joints shall be routed. The router shall be of sufficient size to rout the joints to the widths and depths shown on the Drawings.

### **313S.7 Construction Methods**

The bonding surface of cracks and joints shall be cleaned of infiltrated material with compressed air or other methods approved by the Engineer or designated representative to a depth at least twice the joint or crack width. When routing of the joints is indicated on the Drawings, the joints shall be routed and blown clean with filtered compressed air. All material removed from joints and cracks shall be removed from the paved surface of the roadway.

No sealing of any joints or cracks shall be done when the joints or cracks are damp, unless drying of the joints and cracks with compressed air can be demonstrated and meets with the approval of the Engineer or designated representative.

The joint or crack sealing material shall be applied using a pressure nozzle. Polymer modified emulsion and rubber- asphalt crack sealing compound shall penetrate and completely fill each crack and/or joint. All cracks and/or joints filled with these materials shall be squeegeed. The amount of sealing compound used shall be limited so that after the squeegee has been applied, the finished band shall be no more than 1-1/2 inches (38 mm) wide and shall not exceed a depth of 1/8 in. (3.2 mm) above the pavement surface.

Self-leveling low modulus silicone joint sealing compound shall be applied so that it penetrates the joint and fills so that the top of the sealant shall be 1/4 to 3/8 inch (6.4 to 9.5 mm) below the pavement surface.

When directed by the Engineer or designated representative, a light coating of fine aggregate shall be applied to the cracks and joints before opening to traffic to prevent tracking.

When the number of cracks is so great that crack sealing in the manner described previously is impractical, the area shall be squeegee sealed. Areas to be squeegee sealed shall be indicated on the Drawings or established by the Engineer or designated representative. When all cracks in the area have been cleaned, the crack sealing material shall be applied and the excess shall be squeegeed over the area between the cracks. All polymer modified emulsion or hot poured rubber squeegee sealed areas shall be covered immediately after application with a light coating of fine aggregate.

### **313S.8 Measurement**

Accepted work performed under this item shall be included in the unit price bid for other pay items and will not be measured and paid for unless a separate pay item is provided in the contract documents.

If a pay item is included in the contract documents, acceptable work for "Polymer Modified Emulsion", "Rubber Asphalt Joint and Crack Sealer" or "Self-leveling Low Modulus Silicone" shall be measured by the linear foot (meter: 1 meter equals 3.281 feet) of cracks sealed.

If a pay item is included in the contract documents, acceptable work for "Polymer Modified Emulsion", "Rubber Asphalt Joint and Crack Sealer" or "Self-leveling Low Modulus Silicone" shall be measured by the pound (kilograms: 1 kilogram equals 2.205 pounds) of crack sealer used.

If a pay item is included in the contract documents, acceptable work for Squeegee seal with "Polymer Modified Emulsion" or "Rubber Asphalt Joint and Crack Sealer" shall be measured by the square yard (square meter: 1 square meter equals 1.196 square yards) of surface area sealed. The square yard (square meter) calculations will be based on neat dimensions of the sealed area

**313S.9 Payment**

When included as a pay item in the contract documents, the work performed and materials furnished as provided by this item and measured in accordance with Article 313S.8, "Measurement", will be paid for at the appropriate unit bid price bid. The unit bid prices shall include full compensation for cleaning and, if necessary, routing the crack/joint; furnishing, heating, hauling, and placing the crack sealer; all freight involved and all manipulations, labor, tools, equipment and incidentals necessary to complete the work.

Payment, when included as a contract pay item, will be made under:

- Pay Item No. 313S-A:** Polymer Modified Emulsion Joint and Crack Sealer  
Per Lineal Foot.
- Pay Item No. 313S-B:** Rubber Asphalt Joint and Crack Sealer  
Per Lineal Foot.
- Pay Item No. 313S-C:** Self-leveling Low Modulus Silicone joint and Crack Sealer  
Per Lineal Foot.
- Pay Item No. 313S-D:** Polymer Modified Emulsion Joint and Crack Sealer  
Per Pound of Sealer Used
- Pay Item No. 313S-E:** Rubber Asphalt Joint and Crack Sealer  
Per Pound of Sealer Used.
- Pay Item No. 313S-F:** Self-leveling Low Modulus Silicone joint and Crack Sealer  
Per Pound of Sealer Used.
- Pay Item No. 313S-G:** Polymer Modified Emulsion Squeegee Sealing  
Per square yard.
- Pay Item No. 313S-H:** Rubber Asphalt Squeegee Sealing  
Per square yard.

**End**

<b><i>SPECIFIC</i></b> Cross Reference Materials
Item No. 313S, "Cleaning and/or Sealing Joints and Cracks (Asphaltic Concrete)"

City of Austin Standard Specifications

<u>Designation</u>	<u>Description</u>
Item No. 301S	Asphalts, Oils and Emulsions

Texas Department of Transportation: Departmental Materials Specifications

<u>Designation</u>	<u>Description</u>
DMS 6310	Joint Sealants and Seals

<b><i>RELATED</i></b> Cross Reference Materials
Item No. 313S, "Cleaning and/or Sealing Joints and Cracks (Asphaltic Concrete)"

City of Austin Standard Specifications

<u>Designation</u>	<u>Description</u>
Item No. 413S	Cleaning and/or Sealing Joints and Cracks (Portland Cement Concrete)

Texas Department of Transportation: Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges

<u>Designation</u>	<u>Description</u>
Item No. 300	Asphalts, Oils and Emulsions
Item No. 352	Cleaning and/or Sealing Joints and Cracks (Asphaltic Concrete)
Item No. 433	Joint Sealants and Fillers
Item No. 438	Cleaning and/or Sealing Joints and Cracks (Portland Cement Concrete)