

ITEM 423 CRACK SEALING, HOT APPLIED

- 423.01 Description**
- 423.02 Materials**
- 423.03 Equipment**
- 423.04 Weather Limitations**
- 423.05 Preparation**
- 423.06 Mixing Type II and III**
- 423.07 Application of Sealant**
- 423.08 Opening to Traffic**
- 423.09 Method of Measurement**
- 423.10 Basis of Payment**

423.01 Description. This work consists of preparing and sealing pavement cracks with a hot applied crack sealant.

423.02 Materials. Furnish hot applied crack sealant, of the type specified, conforming to:

Type I.....	705.04
Type II.....	702.17.B
Type III.....	702.17.C
Type IV.....	702.17.D

Obtain the Laboratory’s approval of Type I crack sealant before shipping to the project. Obtain approval of other crack sealants according to 702.17.

423.03 Equipment. Equipment used in the performance of this work is subject to the Engineer’s approval and to the requirements of 108.05.

For Type I crack sealant, heat the sealant in a kettle or melter constructed as a double boiler, with the space between the inner and outer shells filled with oil or other heat-transfer fluid. Use a kettle or melter with positive temperature control of the oil bath, and provide a mixing vat, mechanical agitation, and recirculating pumps. Do not apply direct heat to the sealant.

For Types II, III, and IV crack sealants, heat the sealant in a kettle or melter constructed as a double boiler, with the space between the inner and outer shells filled with oil or other heat-transfer fluid. Use a kettle or melter with separate thermometers for the oil bath and mixing vat. Equip the kettle with a full sweep type agitator. Also, equip the kettle with a 2-inch (50 mm) minimum recirculating pump to provide circulation of the materials when not applying the crack sealant. Do not apply direct heat to the sealant.

For Types I and IV crack sealants, use a mechanical applicator wand capable of continuously feeding the sealant through nozzles shaped to penetrate the cracks. A positive sealant flow shutoff mechanism is required. Ensure that the wand produces a band according to the tolerances of 423.07.

For Types II and III crack sealants, use a mechanical applicator wand head capable of placing the crack sealant according to the tolerances of 423.07 while filling the cracks. A positive sealant flow shutoff mechanism is required.

Use portable air compressors capable of furnishing at least 100 pounds per square inch (690 kPa) of air pressure at the nozzle. Use compressors equipped with traps that maintain the compressed air free of oil and water.

Use water cleaning equipment capable of delivering water at 2000 pounds per square inch (14 MPa) of pressure from a nozzle to the crack being cleaned.

Use a propane lance unit capable of producing a blast of hot air that operates at 1000 °F (538 °C) and a gas velocity of 2000 feet per second (600 m/s).

Use mechanical and power driven routing and sawing equipment capable of following close to the path of cracks and of widening the cracks to the required dimension without causing excessive spalling or damage to the adjacent pavement. For sawing equipment, use diamond saw blades with a diameter of 8 inches (200 mm) or less.

423.04 Weather Limitations. Do not seal cracks if the surface is visibly damp or the temperature is below 45 °F (7 °C).

423.05 Preparation. The Engineer will designate the location of the cracks to be sealed.

If routing is specified, rout cracks with an opening less than 3/4 inch (19 mm) to provide a sealant reservoir with a nominal size of 3/4 inch (19 mm) wide by 1 inch (25 mm) deep.

If sawing is specified, saw all cracks to 3/4 to 7/8 inch (19 to 22 mm) wide and 7/8 to 1 inch (22 to 25 mm) deep. Use hand tools or a lightweight chipping hammer to remove all slivers of asphalt concrete less than 1 inch (25 mm) wide remaining along the crack after sawing. Immediately before sealing, sandblast both faces of the sawed crack to remove all contamination and to texture the faces. If the crack below the sealant reservoir is greater than 3/8 inch (10 mm) wide, insert a backer rod into the crack to form the bottom of the reservoir at the proper depth.

Before applying the hot sealant, clean cracks by an approved method or methods to remove dust, dirt, moisture, vegetation, and other foreign material. Keep the cracks clean and dry until all sealing operations are completed.

423.06 Mixing Type II and III. Use weigh tickets in determining the specified proportion of fiber to blend into the binder. Add fibers to the binder, and mix thoroughly in the kettle. Do not allow the temperature of the sealant in the field application to exceed the safe heating temperature recommended by the manufacturer. Do not heat Type III crack sealant greater than 295 °F (146 °C).

423.07 Application of Sealant. Perform the crack sealing operation within 250 feet (76 m) of the cleaning operation.

Seal only cracks that are wide enough to permit entry of sealant. Seal tightly closed cracks [less than 1/4-inch (6 mm) wide] only if they show signs of raveling or spalling. Do not seal cracks greater than 1-inch (25 mm) wide, and do not seal spalls or cavities greater than 4 inches (100 mm) wide, unless otherwise directed.

For Types I and IV crack sealants, fill the entire crack reservoir with the sealant from the bottom up to approximately 1/16 inch (2 mm) above the pavement surface.

423.08

Immediately scrape the filled cracks with a V-shaped or U-shaped squeegee, or similar hand tool, to smooth the overfill. This may require more than one application of sealant. The Engineer will not accept the work if the band of sealant on the pavement surface is greater than 2 inches (50 mm) wide.

For Types II and III crack sealants, place the sealant such that it fills the cracks with a band of sealant within 2 to 4 inches (50 to 100 mm) wide. The Engineer will not accept the work if the thickness on the pavement is greater than 3/16 inches (5 mm).

423.08 Opening to Traffic. Do not allow traffic on the sealant until it has cured and the possibility of tracking no longer exists. However, if the Engineer determines it is necessary to allow traffic to pass over the sealant before adequate curing, dust portland cement or other approved material over sealed cracks to eliminate pickup or tracking.

423.09 Method of Measurement. The City will measure Crack Sealing, of the type specified, by the number of pounds (kilograms) of hot applied sealant in place, completed, and accepted.

423.10 Basis of Payment. The City will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
423	Pound (Kilogram)/ Square Yard (Square Meter)	Crack Sealing, Type I
423	Pound (Kilogram) Square Yard (Square Meter)	Crack Sealing with Routing, Type I
423	Pound (Kilogram) Square Yard (Square Meter)	Crack Sealing with Sawing, Type I
423	Pound (Kilogram) Square Yard (Square Meter)	Crack Sealing, Type II
423	Pound (Kilogram) Square Yard (Square Meter)	Crack Sealing, Type III
423	Pound (Kilogram) Square Yard (Square Meter)	Crack Sealing, Type II or III
423	Pound (Kilogram) Square Yard (Square Meter)	Crack Sealing, Type IV