

## 878 - CRACK SEALING

### 878.1 DESCRIPTION

Seal joints and cracks using a single-component, petroleum based, pavement crack and joint sealant to prevent water penetration.

### 878.2 MATERIALS

The sealant shall comply with ASTM D6690 Type II as follows:

<u>Test</u>	<u>Specification Limits</u>
Cone Penetration at 25° C (77° F)(ASTM D5329)	90 max
Softening Point (ASTM D36)	80° C (176° F) minimum
Bond (non-immersed) at -29°C (-20° F), 50% extension (ASTM D5329)	Pass 3 cycles
Resilience (ASTM D5329)	60% minimum
Asphalt Compatibility (ASTM D5329)	Pass

Additionally, material shall meet the following standards:

<u>Test</u>	<u>Specification Limits</u>
Application Temperature Range (ASTM D5167)	193-204° C (380-400° F)
Maximum Heating Test (ASTM D6690)	204° C (400° F)

### 878.3 CONSTRUCTION REQUIREMENTS

#### a. Kettle Operation

The kettle shall be thoroughly cleaned and all diluents removed before adding sealant. Diluent lines shall be disconnected to prevent contamination. Screens and strainers shall be removed to prevent clogging.

The kettle shall be loaded with the sealant in a solid form. The maximum heating temperature of the sealant shall not exceed 400°F. Do not maintain the maximum heating temperature for prolonged periods of time as this could cause the material to gel in the equipment or fail in the joints.

Attach the applicator to the hose and heat it by recirculating the sealant through the kettle until sealant is melted. Adjust the pump and applicator wand valves until the desired flow exits the applicator head.

#### b. Preparation of Pavement Surface

Cracks between 1/4 inch and 1 inch and joints (including curb line and patchwork of all widths) that are visibly open up to 1 inch shall be filled as directed by the Project Engineer. The sealant shall be applied only when the joints and cracks and adjacent pavement surfaces are dry and free of dirt, vegetation, debris and loose sealant by blasting with dry, oil-free compressed air. Backpack blowers shall not be allowed. The crack shall be free of any standing water and any moisture along the sidewalls of the crack as evidenced by a darker color than the adjacent pavement. Pavement cracks to be sealed or filled shall be cleaned and dried within 10 minutes of the application of the sealant. Hot air blasting may be used to assist preparation of cracks.

#### c. Crack Sealing Operation

The sealant shall be applied in a one-step operation in which a hot (380°F-400°F) sealant is placed directly into and over the joint or crack.

Following preparation, the sealant shall be applied by centering the applicator head over the crack or joint. Apply a steady, downward pressure on the wand and move the applicator head along the crack or joint at a rate that satisfies the specified sealant width. Sealant should be applied to a slightly overfilled condition and then leveled with a squeegee or sealing shoe to produce a band that is flush with the pavement and 2 to 4 inches wide that is centered over the crack. Block Cracked asphalt shall be sealed. Alligator Cracked asphalt shall not be sealed.

#### **d. Traffic**

Traffic shall not be permitted over sealed cracks, until the sealant is tack free and until debris from traffic does not embed into the sealant. If excessive tracking and/or pick up of the material by traffic occur the Project Engineer may require the Contractor to use a suitable method to reduce or eliminate the problem. This work shall be subsidiary to other bid items. The following method may be used:

1. Wetting the in-place sealant with water by using a truck mounted tank with a garden hose attachment. Liquid soap may be added to the water to further reduce tracking.

#### **e. Weather Limitation**

All pavement temperatures shall be 40°F and rising before asphalt sealant is applied to the surface. Pavement temperatures of 85°F or higher, the contractor shall take the necessary precaution to prevent the material from tracking by vehicular traffic by performing one of the following methods:

1. By coating the area with sand.
2. By spraying the area with soap and water.
3. Other methods approved by the Project Engineer.

#### **f. Weighing Material**

The contractor shall be required to furnish all packaging labels to show the type and weight of material used to the Project Inspector.

#### **g. Demonstration, Test Strip**

Before beginning the work, the Contractor will be required to demonstrate, to the satisfaction of the Project Engineer, his competence in applying a waterproofing sealant in accordance with this specification. Any equivalent alternate approved materials shall have a passed performance record given to the city with locations and dates.

#### **h. Sampling and Testing**

A Testing Laboratory selected by the City shall perform all sampling and testing deemed necessary by the Project Engineer. The City shall pay the costs of all such tests, showing compliance with the Specifications. However, in the event that any test indicates non-compliance with the Specifications, additional testing will be paid for by the Contractor to determine acceptability of the material or methods.

#### **i. Superintendent**

The primary Contractor shall be responsible for all coordination between all phases of construction. The primary Contractor shall coordinate the activities and scheduling of all operations in accordance with the approved schedule. All unsupervised work shall be unacceptable by the Project Engineer. Any superintendent, authorized superintendent, or other representative of the primary contractor not adequately or competently supervising all operations for, and in connection with the work being performed in accordance to the specifications, shall terminate operations as directed by the Project Engineer, until such time as an adequate and competent superintendent, as determined by the Project Engineer, has been provided by the Contractor. Termination of any operation shall not relieve the Contractor's obligation on the time to complete

the work. The Contractor shall have no claim for an extension of time equivalent to the time of termination. A Contractor shall have no claim to the City of any expenses caused by the terminations.

**j. Delayed Work Orders/Winter Shutdown**

The City may delay work orders until such time as seasonable weather conditions will allow proper progress. No charge shall be made by the City or the Contractor for delays arising from the issuance of such delayed work orders other than provided in the General Conditions.

**k. Schedule Of Quantities**

The City reserves the right to delete and/or add to the unit quantities. Work authorized and completed shall be paid for at the unit price bid. The City reserves the right to adjust either quantities and/or delete sections of proposed work accordingly to adhere to the budget.

**878.4 MEASUREMENT**

The completed work shall be measured by the pound as described in the Bid under each bid item that is satisfactorily completed by the Contractor. Areas where crack seal fails, is removed, or is determined to be unsatisfactorily completed as a result of the Contractor's methods will be rejected by the Inspector or Engineer. The rejected area will be measured and the quantity of crack sealing for payment will be reduced by the average application rate on a per square yard basis. The Contractor and Project Inspector should verify and document the agreed upon quantity of material satisfactorily completed at the end of each day of work.

At monthly intervals, beginning one month after the Notice to Proceed, the Contractor shall submit to the Project Engineer an accurate record of the work completed. The Contractor's requested payment quantity will be verified by packing labels that have been delivered to the Project Inspector. Requests for quantities above the amount for which the Inspector has accumulated packing labels, minus any rejected areas, will not be considered without supplemental documentation verifying the additional amount.

**878.5 PAYMENT**

Payment shall be made at the contract unit price bid per pound for "Crack Sealing". This shall be full compensation for furnishing all materials, and for all preparation and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the work in accordance with the Specifications.