

53.4 ASPHALT PAVEMENT CRACK SEALING

53.4.1 GENERAL

The Work consists of supplying crack sealant and sealing cracks in asphalt concrete pavement.

53.4.2 MATERIALS

The Contractor shall supply all materials necessary to complete the Work.

The Contractor shall have the option of using Cold Pour crack sealant conforming to the Department's Specification EC-101 or Hot Pour crack sealant conforming to the Department's Specification HC-200. Crack sealant shall only be obtained from manufacturers pre-qualified by the Department.

The Contractor shall provide the Engineer with the following information 5 days prior to commencing the Work:

- Name and mailing address of crack sealant supplier and manufacturer
- Name of crack sealant product to be supplied
- Written confirmation from the manufacturer that the crack sealant to be supplied meets all specified requirements along with test results that demonstrate that the product meets all specified requirements.

The Contractor shall verify that all crack sealant delivered and used in the Work is the type and grade ordered.

The Contractor shall supply the Engineer with the manufacturer's quality control test results, as identified in Table 53.4.2(A), for each batch of crack sealant. These test results shall be supplied at the time of delivery of each batch of crack sealant to the Work.

Table 53.4.2(A)

PRODUCT	QUALITY CONTROL TESTING REQUIREMENTS								
COLD POUR	<table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">a) Uniformity</td> <td style="text-align: right;">EC-101</td> </tr> <tr> <td>b) Viscosity</td> <td style="text-align: right;">ASTM D562</td> </tr> <tr> <td>c) Solids Content</td> <td style="text-align: right;">ASTM D244</td> </tr> <tr> <td>d) Rate of Curing (24 hour)</td> <td style="text-align: right;">EC-101</td> </tr> </table>	a) Uniformity	EC-101	b) Viscosity	ASTM D562	c) Solids Content	ASTM D244	d) Rate of Curing (24 hour)	EC-101
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HOT POUR	<table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">a) Softening Point</td> <td style="text-align: right;">ASTM D36</td> </tr> <tr> <td>b) Penetration @ 25°C</td> <td style="text-align: right;">ASTM D5</td> </tr> <tr> <td>c) Viscosity</td> <td style="text-align: right;">ASTM D2170</td> </tr> </table>	a) Softening Point	ASTM D36	b) Penetration @ 25°C	ASTM D5	c) Viscosity	ASTM D2170		
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b) Penetration @ 25°C	ASTM D5								
c) Viscosity	ASTM D2170								

When necessary, the Contractor shall supply one of the following blotting agents:

- screened sand with a maximum topsize of 2 mm
- cement
- flyash

The use of other products shall be subject to the approval of the Engineer.

53.4.3 EQUIPMENT

The Contractor shall supply all equipment necessary to complete the Work.

A melting kettle shall only be required when using a Hot Pour product. The melting kettle shall consist of a double jacketed oil bath kettle with continuous agitation equipment to prevent localized heating. The kettle must be equipped with two thermometers to show the temperature of the crack sealant and the temperature of the heat transfer oil.

Application equipment shall be capable of regulating the application of crack sealant directly to the road.

53.4.4 PROCEDURE

Traffic control shall be performed in accordance with Specification 55.1, Traffic Accommodation and Temporary Signing. Signing shall conform to drawings TEB 1.12, 1.16 and TEB 1.19 unless otherwise directed by the Engineer. The work area shall be a maximum of 3 kilometres in length.

All Work shall be performed during daylight hours only, unless adequate lighting exists which provides visibility of at least 700 metres and prior approval of the Engineer is obtained. No Work shall be performed when the visibility is less than 700 metres. No Work shall be performed during rain or snow or when the pavement surface or cracks are wet.

Crack sealant shall not be applied when the atmospheric temperature at the work site is below 0° Celsius.

All cracks within the entire width of the pavement surface, which are 5 mm and greater in width, shall be sealed.

Prior to the application of crack sealant, the Contractor shall ensure that the road surface adjacent to the cracks is clean.

Hot Pour crack sealant shall be heated to the temperature specified by the manufacturer. Overheating will not be permitted.

Crack sealant shall be applied within the manufacturer's specified temperature range. Crack sealant shall be applied so that the crack is flush filled immediately following application and a thin overband of sealant extends approximately 25 mm beyond the edges of the crack. Excess crack sealant shall be removed from the pavement surface immediately following application. Removal shall involve the use of a squeegee, starting from the centerline and proceeding to the shoulder.

Traffic shall be kept off sealed cracks until the crack sealant will not track under the action of traffic. At locations such as intersections where this is not practical, the Contractor shall prevent tracking by applying a blotting agent to the crack sealant.

Fuel, asphalt and any other spills shall be cleaned up to the satisfaction of the Engineer at the Contractor's expense.

53.4.5 ACCEPTANCE SAMPLING AND TESTING

53.4.5.1 Acceptance Sampling and Testing of Crack Sealant

All crack sealant supplied shall be subject to inspection, sampling and testing by the Engineer and the Contractor shall cooperate in the inspection and sampling process. The Contractor shall provide the Engineer with two representative samples of crack sealant material each day in accordance with ATT-42 for each Lot of production.

A Lot is defined as 1 day of production of crack sealing of at least 2 hours. If a day's production is less than 2 hours, it shall be added to the production of subsequent days until a minimum of 2 hours is obtained for the Lot. If the last day's production is less than 2 hours, it shall be added to the previous Lot.

The Engineer will determine the testing frequency for the crack sealant. When crack sealant does not conform to the specification limits, a unit price adjustment will be applied to each metre of crack sealed in the Lot in accordance with Table 53.4.7(A).

53.4.5.2 Appeal of Acceptance Test Results and Appeal Testing

The following procedures will apply for an appeal:

- Appeals will only be considered if the Contractor can demonstrate to the satisfaction of the Engineer that there is sufficient cause to support the appeal.
- Acceptance test results for any penalized Lot may be appealed only once.
- The Contractor shall serve notice of an appeal to the Engineer, in writing, within 24 hours of receipt of the test results.
- For an appeal of the materials characteristics testing, the Engineer will conduct a retest on the duplicate material sample for the Lot.
- The results of the original measurements will be averaged with the results of the new tests and the new averages shall form the basis for payment.

53.4.6 TIME TO COMPLETE

The Contractor shall complete the Work within 60 days of the issuance of the Work Order.

53.4.7 MEASUREMENT AND PAYMENT

Measurement will be in metres of the length of crack sealed.

Payment will be made at the unit price bid per metre for "Crack Sealing" subject to the unit price adjustments specified herein. This payment will be full compensation for cleaning the road surface adjacent to the cracks, supplying and applying the crack sealant, quality control, traffic accommodation and signing, and all labour, materials, equipment, tools and incidentals necessary to complete the Work.

Table 53.4.7(A)

LOT UNIT PRICE ADJUSTMENT

Solids (%)	Adjustment Factors (Percent of Bid Price)
59	0
58.9 to 54.0	5
53.9 to 49.0	10
< 49	15

The unit price applicable to each Lot quantity of "Crack Sealing" shall be as follows:

$$Lk = BP - (BP \times AF)$$

Where:

Lk is the Lot Unit Price per metre;

BP is the unit price bid per metre for "Crack Sealing"; and

AF is the Adjustment Factor for Solids (%).

53.4.8 WARRANTY

The warranty period for this Work shall be 20 days.