

SPECIAL CRACK SEALING USING ASPHALT REPAIR MASTIC

June 1, 2017

1. **GENERAL:** The work consists of filling and sealing wide cracks and joints in PCC and asphalt pavement, especially, but not exclusively, at pavement joints that have become several inches wide. The cracks and joints typically exceed one inch in width. The mastic material consists of a polymer-modified asphalt material containing mineral fillers and other reinforcing agents as specified below.
2. **MATERIALS:**
 - a. **Asphalt Repair Mastic:** Ensure that Asphalt Repair Mastic is composed of a polymer-modified asphalt material and/or resin, select aggregates, synthetic rubber polymers and other modifiers. Ensure that the mastic is listed on SCDOT QPL 102, Asphalt Repair Mastic, prior to use and meets all specification limits listed in Table 1 below.

Table 1: Asphalt repair mastic			
Material	Physical Properties	Test	Specification Limits
Asphalt Repair Mastic	Shelf Life	-	2 years
	Pot Life	-	12 hours max
	VOC, g/l	-	0
Asphalt Binder	Cone Penetration, @ 77°F	D5329	60 mm max
	Cone Penetration, @ 122°F	D5329	120 mm max
	Softening Point (R&B)	D36	195° F min
Aggregate	Aggregate, Factory Blended in Compound	D5444	5/8in sieve – 100% Passing
Mix Design	Tensile Adhesion, @ 15 psi	D5329 (modified ¹)	0.5 in. min – elongation
	Impact Testing 5/8 in. dart 2 in. diameter 1 in. thick specimen	D2794 (6 ft-lb @ 20° F)	No cracking, chipping or separation
	Flexibility	D 5329 (modified ²)	No Cracking or Loss of Aggregate Adhesion

Modified Testing Notes:

¹ The specimen for tensile adhesion is 3 in. long x 2 in. wide x 1.5 in. thick.² The specimen is 6" x 4" at 20mm thickness. The test is run at 77°F and bent over 1 in. mandrel to 180°F over 10 sec.

The materials must come ready to use in prepackaged blocks or bags and not altered in any other manner other than preheating in the field. Products packaged with the aggregates separately must be in premeasured packages so there will be no need to

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weigh and measure the dosages in the field. The materials are manufactured to be heated in an oil jacketed kettle as approved by the mastic manufacturer and applied hot in the field to ensure all visible cracks are filled, sealed, and level with the existing surface in order to not let water further penetrate into the existing asphalt or concrete pavement. Prior to product use, provide for the Resident Engineer's acceptance the appropriate Safety Data Sheets (SDS) and certification that the supplied product is the same as listed on the QPL. Materials must be clearly labeled on all product packaging.

- b. Primer: If recommended by the manufacturer, use primer or surface conditioner of the type and rate recommended by the manufacturer.
 - c. Stone Topping: If required, ensure that stone topping is of the type and gradation recommended by the sealant manufacturer.
3. EQUIPMENT: Supply all melters, spreaders, milling machines, brushes, air lances, heaters, saws, and any other incidental equipment necessary to perform the work.
4. APPLICATION: Provide a copy of the manufacturer's appropriate cleaning, sealing, priming, and topping application procedures to the Resident Engineer prior to beginning the work. Apply the material in accordance with the manufacturer's recommendations. Prior to material placement, ensure that all cracks and joints are clean, dry, and free of old filler, sealer, sand, and any other foreign material and appropriately shaped as per the manufacturer's installation instructions.

Cleaning methods may be any combination of sawing, tooling, air blasting, water blasting, or abrasive blasting. However, any cleaning method that causes spalling or other damage to the surrounding pavement or underlying pavement is not acceptable.

Once placed, ensure that the top of the seated crack or joint is flush with the surrounding surface and topped with a suitable fine aggregate to provide an acceptable surface if recommended by the Resident Engineer.

5. METHOD OF MEASUREMENT: Special Crack Sealing, complete and accepted, will be measured in pounds of material used.
6. BASIS OF PAYMENT: The quantities, determined as provided above, will be paid for by the contract unit price per pound of crack sealing. Payment will be full compensation for furnishing, hauling, and placing all materials and for all labor, equipment, tools, and incidentals necessary to complete the work described in this special provision.

Item No.	Pay Item	Unit
5051950	Special Crack Sealing	pounds