

**Z0004005 FIBER ASPHALT (LCDOT)**

Effective: January 21, 2022

**Description:** This item of work shall consist of cleaning and filling miscellaneous cracks including transverse, longitudinal, curblin, and edge joints using a fiber-modified asphalt binder.

**Materials:** The sealant shall consist of an asphalt binder and polypropylene fibers. The Sealant shall meet the requirements of the following:

- a. Asphalt Binder: The asphalt binder shall meet the requirements of Article 1032.05 of the "Standard Specifications" except that:

*The asphalt cement shall be limited to PG 64-22.*

- b. Fibers: Fibers shall be short cut polypropylene fibers meeting the properties listed below. The Contractor shall provide a certificate from the supplier showing that the fibers meet the required physical properties.

Property	Value
Length, in. (mm)	0.3 - 0.5 (8 - 12)
Denier	13 - 16
Crimps	None
Tensile Strength, min., psi (MPa)	40,000 (275)
Specific Gravity (typical)	0.91
Moisture Regain @ 70 °F (21 °C) and 65% RH (typical), %	0.1

- c. Percent Fibers. The sealant shall consist of a mixture of 8.0%, minimum byweight (mass), polypropylene fibers with liquid asphalt binder.
- d. Operating temperature in the kettle shall be between 255°F and 285°F (124°C and 141°C). The temperature shall never exceed 290°F (143°C) as the fibers will melt into the asphalt cement.

**Equipment:**

- (1) Air Compressor: The air compressor shall be capable of producing a minimum pressure of 100 psi (689 kPa) at the end of the discharge hose. The air stream shall discharge onto the pavement through an appropriate air lance. The tool lubricator shall be bypassed, and a filter installed on the discharge valve to keep water and oil out of the line.

- (2) Oil Kettle: The crack sealant shall be heated in an oil jacketed double wall kettle (minimum 350 Gal. (1350L) capacity) equipped with an agitator (reversing rotary auger action) and separate thermometers for the oil bath and mixing chamber. The unit shall also be equipped with a reversible hydraulic 2 in. (50 mm) hot asphalt pump and a recirculating pump to circulate the oil bath.

**Construction Requirements:** Any cracks, voids or joints less than 2" (50 mm) in width shall be filled and sealed as described hereafter. Any cracks and joints greater than 2" (50 mm) shall not be sealed without the approval of the Engineer. The Engineer will determine the extent that fine cracks are filled.

The crack fill membrane shall be applied only when the joints and cracks and adjacent pavement surfaces are dry and free of dirt, vegetation, debris and loose sealant. Physical routing of cracks to provide a square cut reservoir will generally not be required. If so, ordered by the Engineer, this work will be paid for according to Article 109.04 of the "Standard Specifications". All cracks and joints to be sealed shall be cleaned by air blasting, hand tools, wire wheel, and/or by other methods approved by the Engineer to remove all foreign material for proper bonding of the sealant. If air blasting is used to clean the cracks and joints, they shall be blown out with 90 psi (620 kPa) compressed air. The blowing out operations shall be kept close to the filling operations to prevent debris being carried back into the cracks before filling. A hot compressed air lance meeting the approval of the Engineer may be used to clean the cracks.

The sealing material shall be applied to form a water-proofing, stress absorbing membrane centered within 1 inch (25 mm) of the crack or joint. The mixture shall be installed under high pressure 100 psi (689 kPa) directly into and over the crack or joint. The crack shall be completely filled to its full depth and a membrane  $1/8 \pm 1/16$  inch (3 mm  $\pm$  1.5 mm) thick by 3 inch (75 mm) wide (nominal measurements) shall be formed on the surface of the pavement.

**The Contractor is strongly cautioned against the excessive use of crack fill material in either thickness or location. If the Engineer determines that the sealant is being improperly applied or wasted, then a quantity of 2 pounds of FIBER ASPHALT, per foot of errant sealant applied, shall be deducted from payments due the Contractor. Additionally, the Contractor shall be responsible, and will not be paid for, any material placed in excess of 103% of the historic application rates of 0.19 pounds per foot for roads designated as a Light application, 0.26 pounds per foot for Medium application and 0.35 pounds per foot for Heavy application.**

**XXXXX Roads**  
**will be considered a Heavy Application.**

Fill in above any roads designated for the Heavy Application – Delete this note from the specification.

At the time of placement of the mixture, the surfaces to be sealed shall be clean and dry, and the ambient temperature shall be above 40°F (4°C), and less than 85°F (29°C). If work is in progress and the ambient temperature reaches 85°F (29°C), the work must stop. The sealant must cure before being opened to traffic. Traffic shall not be allowed on the sealant until it is properly cured. The sealant shall be dusted with a fine sand, according to the special provision for Blotter Aggregate contained herein, if the ambient temperature is greater than 75°F (24°C), and it is necessary to open the road immediately. When the sealant is applied to a parking area, fine sand is to be immediately dusted over seals, and completed with a water wetted steel roller.

The sealant material shall be placed with special care such that the material does not touch or cover any manhole, appurtenance frame, lid and/or any thermoplastic pavement markings. The Contractor shall immediately remove any misplaced sealant and clean the frame or replace any pavement markings damaged at the Contractor's sole expense. Repairs shall be to the complete satisfaction of the Engineer. Should the Contractor choose not to repair the damage, then the Engineer may order the work to be done by others, the cost of such work to be deducted from payments due the Contractor.

The Contractor shall obtain a weight certification each day and shall submit the documentation to the Engineer by the end of each day. The Contractor shall perform a yield check each day, comparing the results to the estimated amount of sealant provided in these specifications. The Contractor shall submit the results of the yield check to the Engineer at the end of each day. Work shall not begin each day until all weight certifications and the yield check for the previous day's work have been submitted to the Engineer.

A technical representative from the fiber manufacturer shall be available for initial filling work. Any suggestions or recommendations shall be submitted to the Engineer for approval.

**Method of Measurement:** Filling of cracks will be measured for payment in pounds of sealant used. The quantity of sealant used will be determined by daily weight certification of the kettle. The fine sand used for dusting will be measured separately according to the special provision for BLOTTER AGGREGATE.

**Basis of Payment:** FIBER ASPHALT will be paid for at the contract unit price per pound. *The unit price shall include furnishing, hauling, preparing, and placing the crack sealing materials; the preparation of cracks and joints; the cleanup and disposal of surplus materials, and the labor, equipment, tools and incidentals necessary to complete this work as specified. The fine sand used for dusting will be paid for separately according to the special provision for BLOTTER AGGREGATE.*

## **LR400300 BLOTTER AGGREGATE**

**Description:** This work shall consist of furnishing and placing fine aggregate material on a freshly micro-surfaced roadway or joint sealant.

**Materials:** The aggregate shall meet the requirements of Article 1003.03 of the "Standard Specifications" except that:

*The aggregate gradation shall be limited to FA6.*

**General:** The Contractor shall apply a dusting coat of Blotter Aggregate where directed by the Engineer to control tracking of the micro-surfacing material or joint sealant if either are slow to cure. The Contractor is cautioned on the excessive use of Blotter Aggregate. The Contractor shall, if directed by the Engineer, sweep off and remove any remaining Blotter Aggregate from the roadway when the micro-surfacing material or joint sealant no longer tracks off of the pavement.

**Method of Measurement:** Blotter Aggregate will be measured for payment in tons according to Article 311.08(b) of the "Standard Specifications". The following excess moisture content correction will apply to Blotter Aggregate:

When the unit of measurement for the aggregate is tons, the aggregate may be weighed in trucks or freight cars. The Contractor shall furnish or arrange for the use of scales of a type approved by the Engineer. If, at the time the aggregate is weighed, it contains more than six (6) percent of absorbed and free moisture by weight, a deduction for the amount of moisture in excess of this amount will be made in determining the pay quantity. Any aggregate that has been stockpiled will be weighed at the time it is incorporated into the work.

**Basis of Payment:** This work will be paid for at the contract unit price per ton for BLOTTER AGGREGATE. The unit price shall include all equipment, materials and labor required to furnish, weigh, and place the aggregate.