

SECTION 32 01 17.61
ASPHALT PAVEMENT CRACK SEALING

PART 1 GENERAL

1.1 DESCRIPTION

This work consists of sealing cracks in existing asphalt pavement.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D5078	(2016) Standard Specification for Crack Filler, Hot-Applied, for Asphalt Concrete and Portland Cement Concrete Pavements
ASTM D6690	(2015) Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
ASTM D789	(2015) Determination of Relative Viscosity and Moisture Content of Polyamide (PA)

1.3 DELIVERY, STORAGE, AND HANDLING

Inspect materials delivered to the job site for defects; unload, and store them with a minimum of handling to avoid damage. Provide storage facilities at the job site to protect materials from weather and maintain them at the temperatures recommended by the manufacturer.

1.4 EQUIPMENT, TOOLS, AND MACHINES

Equipment, tools, and machines used in performance of the work are subject to approval by the Contracting Officer. Maintain in a satisfactory working condition at all times.

1.4.1 Sandblasting Equipment

Include in the sandblasting equipment an air compressor, hose, and long-wearing venturi-type nozzle of proper size, shape and opening. Use a nozzle with a maximum opening not exceeding 1/4 inch. Use air compressors that are portable and capable of furnishing not less than 150 cfm and

maintaining a line pressure of not less than 90 psi at the nozzle while in use. Demonstrate compressor capability under job conditions before approval. Equip the compressor with traps that will maintain the compressed air free of oil and water. Use nozzle with an adjustable guide that will hold the nozzle aligned with the crack about 1 inch above the pavement surface. Adjust the height, angle of inclination and the size of the nozzle as necessary to secure satisfactory results.

1.4.2 Waterblasting Equipment

Include with the waterblasting equipment a trailer-mounted water tank, pumps, high-pressure hose, wand with safety release cutoff control, nozzle, and auxiliary water resupply equipment. Use water tank and auxiliary resupply equipment with sufficient capacity to permit continuous operations. Use hoses, wands, and nozzles capable of cleaning the crack faces and the pavement surface on both sides of the crack for a width of at least 1/2 inch beyond the crack. Use pump with a mounted pressure gauge that shows the pressure in psi at which the equipment is operating at all times. Limit the pressure so that the sides of the crack are not damaged during the cleaning operation.

1.4.3 Hot-Compressed Air Lance

A lance capable of providing clean, oil-free compressed air at a volume of 100 cubic feet per minute at a pressure of 120 pounds per square inch and at a temperature of 2000 degrees F.

1.4.4 Squeegee

A hand-held squeegee for ensuring that the crack is filled to the existing surface.

1.4.5 Hand Tools

Hand tools may be used, when approved, for removing defective sealant from cracks and repairing or cleaning the crack faces.

1.4.6 Crack Sealing Equipment

Provide unit applicators, used for heating and installing the hot-poured crack sealant materials, that are mobile and equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the crack to be filled; positive

temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. Allow the sealant to circulate through the delivery hose and return to the inner kettle when not in use, due to the applicator unit design. A crack sealant applicator wand attached to a heated hose that is attached to a heated sealant chamber.

1.5 ENVIRONMENTAL REQUIREMENTS

Apply the materials only when the ambient air temperature and the pavement temperature within the joint wall are at least 50 degrees F and rising. Do not apply sealant if moisture is observed in the crack.

PART 2 PRODUCTS

2.1 SEALANTS

Provide sealants conforming to ASTM D6690, Type II.

2.2 FILLER

Provide fillers conforming to ASTM D5078, hot-applied, pourable, self-adhesive mastic composed of composed of highly modified polymer asphalt binder and durable lightweight construction aggregate such as Crafco PolyPatch or approved equal.

PART 3 EXECUTION

3.1 PREPARATION OF CRACKS

Immediately before the installation of the crack sealant, thoroughly dry and clean the cracks to remove oxidized pavement, loose aggregate and foreign debris. Prepare cracks as follows:

3.1.1 Cracks

3.1.1.1 Hairline Cracks

Cracks that are less than 1/4 inch wide do not need to be sealed.

3.1.1.2 Small Cracks

For cracks that are 1/4 to 3/4 inch wide, sandblast or waterblast, and clean and dry using compressed air.

3.1.1.3 Medium Cracks

Sandblast or waterblast cracks that are 3/4 to 2 inches wide and clean and dry using compressed air. Fill flush to 1/4 inches below the existing surface with an approved filler.

3.1.1.4 Large Cracks

Repair cracks that are greater than 2 inches wide using pothole repair techniques instead of sealing.

3.1.2 Existing Sealant Removal

Cut loose the in-place sealant from both crack faces and to a depth shown on the drawings using a concrete saw or hand tools. Remove sealant to a depth sufficient to accommodate any backer rod material that is required to maintain the depth of new sealant to be installed. Prior to further cleaning operations, remove all old loose sealant remaining in the crack opening by blowing with compressed air.

3.1.3 Sandblasting and Waterblasting

Sandblast or waterblast clean the crack faces and the pavement surfaces extending a minimum of 1/2 inch from the crack edges. Use a multiple-pass technique until the surfaces are free of dust, dirt, old sealant residue, or foreign debris that might prevent the sealant material from bonding to the asphalt pavement. After final cleaning and immediately prior to sealing, blow out the cracks with compressed air and leave them completely free of debris and water. Ensure that blasting does not damage the pavement.

3.1.4 Rate of Progress of Crack Preparation

Limit the stages of crack preparation, to only that linear footage that can be sealed during the same day.

3.2 PREPARATION OF SEALANT

Do not heat hot-poured sealants in excess of the safe heating temperature recommended by the manufacturer, as shown on the sealant containers. Withdraw and waste sealant that has been overheated or subjected to application temperatures for over 4 hours or that has remained in the applicator at the end of the day's operation.

3.3 INSTALLATION OF SEALANT

Submit manufacturer's instructions 7 calendar days prior to the use of the material on the project. Installation of the material will not be allowed until the instructions are received.

3.3.1 Time of Application

Seal cracks immediately following final cleaning and drying of the crack walls. Place sealant only when cracks are dry. Reclean cracks that cannot be sealed under the conditions specified, or when rain interrupts sealing operations, and allow to dry or dry by mechanical means prior to installing the sealant.

3.3.2 Sealing the Crack

Immediately preceding, but not more than 50 feet ahead of the crack sealing operations, perform a final cleaning and drying with compressed air. Fill the cracks from the bottom of reservoir up to 1/4 inch below the pavement surface. Remove excess or spilled sealant from the pavement by approved methods and discard it. Install the sealant in a manner which prevents the formation of voids and entrapped air. Several passes with the applicator wand may be necessary to obtain the specified sealant depth from the pavement surface. Do not use gravity methods or pouring pots to install the sealant material. Do not permit traffic over newly sealed pavement until authorized by the Contracting Officer's Representative. Check cracks frequently to ensure that the newly installed sealant is cured to a tack-free condition within 3 hours. Immediately notify the Contracting Officer of the location of any sealant that has not cured to a tack-free condition within 3 hours.

3.4 CRACK SEALANT INSTALLATION TEST SECTION

Prior to the cleaning and sealing of the cracks for the entire project, construct a test section at least 200 feet long using the specified materials and approved equipment to demonstrate the proposed sealing of all cracks of the project. Following the completion of the test section and before any other crack is sealed, inspect the test section to determine that the materials and installation meet the requirements specified. If materials or installation do not meet requirements, remove the materials and reclean and reseal the cracks at no cost to the Government. When the test section meets the requirements, it may be incorporated into the permanent work and paid for at the contract unit price per linear foot for sealing items scheduled. Seal all other cracks

in the manner approved and successfully completed for sealing the test section.

3.5 CLEANUP

Upon completion of the project, remove unused materials from the site and leave the pavement in a clean condition.

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