

SECTION 211 - JOINT/CRACK SEALING

1. SCOPE

The work shall consist of furnishing all labor, equipment and materials to apply joint/crack sealant in accordance with the latest version of Section 835 of the Kansas Department of Transportation (KDOT) Standard Specifications and as amended herein.

2. DESCRIPTION

This work shall consist of the application of a hot-pumped joint/crack sealant to include the cleaning, drying and sealing of joints and cracks(including transverse edge joints) 1/4 inch in width or greater in asphalt pavements or as directed by the Engineer.

3. MATERIALS

The joint/crack sealant shall consist of a single component, hot applied, petroleum based product such as:

- RoadSaver 34518, manufactured by CRAFCO, Inc. of Halls, TN;
- Deery 180, manufactured by Deery American, Grand Junction, CO;
- D-5078 Class B, manufactured by Right Pointe Company, DeKalb, IL;
- Dura-Fill 320, manufactured by P&T Products, Inc., Sandusky, OH;
- or an approved equal.

The material is to be heated and applied as recommended by the manufacturer. Provide documentation to the Inspector including Product Data Sheet, Material Data Safety Sheet and manufacturer's recommended installation instructions.

4. MANUFACTURER'S REPRESENTATIVE

Notify the sealant manufacturer's technical representative of the starting date of the initial installation. In the presence of the Inspector and manufacturer's technical representative, demonstrate competence in applying sealants. This requirement will be waived for experienced Contractor's crews. Submit waiver request, along with a list of joint sealant crews successfully completed joint and crack sealing projects, to the Engineer for consideration.

5. PREPARATION OF SURFACE

All joints and cracks to be sealed shall be heat lanced to remove all foreign materials and moisture which would prevent bonding between the sealant and the faces of the joints and cracks. Contaminants on the surface adjacent to the joints and cracks shall also be removed. Do not burn the pavement (indicated by smoke) with the heat lance. Heat lancing may be deemed unnecessary by the Inspector if pavement is sufficiently dry.

Loose pavement material shall be removed prior to sealant installation. The joints and cracks shall be inspected and approved by the Inspector prior to placing the crack sealant material. Final joint and crack cleaning will be the same day of the sealing operation except as otherwise approved by the Inspector. Foreign materials shall be removed to a depth of two times the width of the joint or crack to be sealed or as directed by the inspector.

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Contractor shall control dust from the cleaning operation. Measures shall be taken to prevent damage to adjacent property from the cleaning operation. Debris that results from the cleaning operation shall be removed from the streets and adjacent properties.

6. EQUIPMENT

All equipment, tools, and machines used in the performance of this work shall be maintained in satisfactory working order at all times.

The heat lance shall conform to requirements recommended by the manufacturer of the sealant product being installed. It shall be equipped for safe operation to protect its operators and other workers from injury. It shall also be equipped to gauge its distance from the pavement surface to allow for proper heating and to prevent overheating of pavement surface. The Contractor shall provide the Inspector with a copy of the sealant manufacturer's recommended specifications and operating procedures for the heat lance that will be used.

The joint sealing machine shall be capable of production of crack filling mixes. The machine shall be capable of applying the product at a high pressure (100 psi) through one or more applicator wands. The asphalt material is to be heated indirectly by a heating oil chamber. Automatic temperature controls and an automatic safety shut-off system shall be used. The equipment must be capable of circulating the heating oil. The unit shall be equipped with all lights necessary for safe and legal operation on public roads.

Dial-type temperature gauges shall be mounted so as to allow monitoring of the temperature of the product in the tank and the heating oil. The tank shall be insulated. The mixing shall be accomplished by a paddle-type agitator. Direction of rotation and speed of the auger or paddles are to be controlled hydraulically.

7. MAINTENANCE OF TRAFFIC/PUBLIC SAFETY

Prior to the start of work, the contractor shall submit a traffic control plan to be approved by the Engineer.

Closing of streets for this work shall be at the discretion of the Engineer and coordinated to result in the least practicable delay and inconvenience to traffic.

Unless otherwise directed, all roads shall have one lane of traffic open in each direction at all times. The lanes being sealed shall be closed and guarded until cured. In the case of a full street closure, the contractor must door hang and/or notify residents or businesses that are inconvenienced by the construction.

Sufficient flagmen, warning signs, flashing arrow panels (truck mounted or stand-alone), and barricades shall be provided by the Contractor to properly control traffic and to prevent traffic from traveling in the freshly applied materials. The Contractor shall repair any damage to the uncured sealant/membrane surface at no additional cost to the City.

All vehicles shall be equipped with properly functioning flashing lights to indicate construction in progress. If the distance between the beginning of the operation and the uncured

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sealant exceeds 200 feet, then additional flagmen shall be required. Any worker within the work zone shall be required to wear a minimum class II garment conforming to Occupational Safety and Health Administration requirements.

Barricades and barricading, flashing arrow panels, signs and other warning devices will be in accordance with the Federal Highway Administration "Manual on Uniform Traffic Control Devices" provisions for "Traffic Controls for Street and Highway Construction and Maintenance Operations." Flashing arrow panels shall be required for all operations.

8. MIXING AND APPLYING MATERIAL

The material shall be heated, agitated and installed according to the manufacturers recommended heating times, temperatures and procedures. If the temperature of the material is allowed to exceed the temperatures and heating times recommended by the manufacturer, then that material is unacceptable and must not be incorporated into the project.

The sealant/membrane shall be placed on all roadway cracks 0.25" to 1.5" wide. Cracks shall be completely filled to full depth with the finished sealant surface level (flush) with the pavement surface. The sealant/membrane shall be installed in a one-step extrusion process with the overlay membrane 2" to 3" wide and shall be centered over the joint or crack utilizing an applicator designed for such results.

Before the street is opened to traffic, a straight edge will be laid across the sealed cracks to determine that the finished sealant surface is level in relation to the pavement surface within a 1/16 inch tolerance. Crack sealant that is found to outside the acceptable tolerance shall be removed and the crack shall be re-sealed properly before the contractor is allowed to continue sealing more streets.

Traffic shall not be allowed under normal conditions on the sealant until it has cured and the possibility of tracking does not exist. If traffic is allowed on the pavement prior to proper curing, contractor shall dust with fine aggregate or spray with a liquid soap/water mixture to prevent pick up of the sealant. The Engineer will determine, in conjunction with the Contractor, when this condition exists.

Contractor shall clean up all excess material from the pavement and other adjacent surfaces.

9. SURFACE RESTORATION

Pavements that receive a substantial amount of crack seal material may lose their skid resistance. The contractor shall lightly sand cracks less than two feet apart to increase skid resistance.

The sand shall be type FA-A from a KDOT pre-qualified non-reactive siliceous source per the latest version of Section 1116 of the KDOT Standard Specifications or other pavement suitable fine aggregate as approved by the Inspector.

The sand shall be applied to the crack seal material while the material is hot directly

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following application of the material to achieve embedment of the sand in the material. Sand coverage shall be approximately 10% of the material surface or as directed by the Inspector. Provided sand coverage is generally as directed, no clean up of excess material will be required. The need for clean up of excess material will be determined by the Inspector prior to opening the road to traffic.

Crack seal material shall not bleed into adjacent cracks, causing large patches of pavement covered by crack seal material. Contractor shall consult with the inspector and engineer prior to placing crack seal in areas where this could occur. Corrections required for failing to comply with this provision shall be at the contractor's expense.

10. STREET SWEEPING

Following curing of the crack seal material, each concrete street shall be swept with a rotary power broom or vacuum sweeper free of debris, which shall be removed and disposed of legally. Street shall generally be left with the same or less debris as before the crack seal operation.

11. QUALITY CONTROL

The Contractor shall bear the responsibility for product quality and installation quality. Operations and procedures, which are considered by the manufacturer's technical representative as being detrimental to the effectiveness of the sealant, will not be permitted.

12. WEATHER LIMITATIONS

No material shall be applied unless the atmospheric temperature is 40° F or 32° F and rising along with pavement being warmed to 40°F (4°C) or higher with a Hot Air Lance. No material shall be applied while the surface is wet or when the impending weather conditions are such that proper curing may not be obtained.

13. MEASUREMENT AND PAYMENT

Payment shall be made on the amount of completed and accepted work measured in-place at the contract unit price bid per pound for "Crack & Joint Sealing" and per square yard for "Street Sweeping." Measurements for payment of crack and joint sealing shall be based upon total weight of material applied and not upon the area or length of individual joints/cracks actually sealed.