

## RANDOM-CRACK SEALING BY FIBER REINFORCED METHOD

### 1. SCOPE OF WORK

a. The work covered by this section of the specification consists of furnishing all plant, labor, equipment and materials necessary to perform all operations in connection with the cleaning and sealing of construction and random cracks in bituminous concrete pavements, and vegetation removal and sterilization of cracks where necessary.

### 2. MATERIAL

a. Crack sealer shall be an asphalt-fiber compound designed especially for improving strength and performance of the parent asphalt sealant.

- (1) Asphalt Sealant shall be a grade PG 58-28 (formerly AC-10), PG 64-22 or PG 64-28 (formerly AC-20) with a penetration of 75-100.
- (2) Fiber reinforcing materials shall be short-length polyester fibers having the following properties.

Length----- 7 mm.  
 Diameter----- 0.0008 inch plus or minus 0.0001 inch  
 Specific Gravity----- 1.32 to 1.40  
 Melt Temperature----- 480 degrees F. minimum  
 Ignition Temperature--- 1000 degrees F. minimum  
 Tensile Strength----- 75,000 PSI plus or minus 5,000 PSI  
 Break Elongation----- 33% plus or minus 9%----They are fully drawn

b. Asphalt-Fiber compound shall be mixed at a rate of 6-8% fiber weight to weight of asphalt cement. This compound having the same chemical base provides compatibility and exhibits excellent bond strengths. The fiber functions to re-distribute high stress and strain concentrations that are imposed on the sealant by thermal sources, traffic loading, etc.

### 3. EQUIPMENT

a. Equipment used in the performance of the work required by this section of the specification shall be subject to the engineer and maintained in a satisfactory working condition at all times.

(1) Air Compressor: Air compressors shall be portable and capable of furnishing not less than 100 cubic feet of air per minute at not less than 90 lbs. per square inch pressure at the nozzle. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water.

(2) Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning highway and airfield pavements shall be used to remove debris, dirt, and dust from the cracks.

(3) Hand tools shall consist of brooms, shovels, metal bars with chisel shaped ends, and any other tools which may be satisfactorily used to accomplish this work.

(4) Melting Kettle: The unit used to melt the joint sealing compound shall be double boiler, indirect fired type. The space between the inner and outer shells shall be filled with a suitable heat transfer oil or substitute having a flash point of not less than 600 degrees F. The kettle shall be equipped with a satisfactory means of agitating the joint sealer at all times. This may be accomplished by continuous stirring with mechanically operated paddles and/or by a continuous circulating gear pump attached to the heating unit. The kettle must be equipped with thermostatic control calibrated between 200 degrees F. and 550 degrees F.

#### 4. PREPARATION OF CRACKS

(a) Debris Removal: All cracks shall be blown clean by high pressure air. All old material and other debris removed from the cracks shall be removed from pavement surface immediately by means of power sweepers or hand brooms or air brooms.

(b) Vegetation: When cracks show evidence of vegetation, it shall be removed and sterilized by use of Propane Torch unit generating 2000 degrees F. and 3000 foot/second velocity to eliminate all vegetation, dirt, moisture and seeds.

(c) General: No crack sealing material shall be applied in wet cracks or where frost, snow or ice is present nor when ambient temperature is below 25 degrees F.

#### 5. PREPARATION AND PLACEMENT OF SEALER

(a) Joint sealing material shall be heated and applied at a temperature specified by the manufacturer and approved by the engineer. Minimum application temperature shall be 320 degrees F.

(b) Sealer shall be delivered to the pavement surface through a pressure hose line and applicator shoe. The shoe width and overbanding area shall not exceed three inches (3") in diameter.. When traffic requires immediate use of the roadway, a boiler slag aggregate shall be broadcast over cracks to prevent sealer pickup.

#### 6. WORKMANSHIP

a. All workmanship shall be of the highest quality, and excess of spilled sealer shall be removed from the pavement by approved methods and discarded. Any workmanship determined to be below the high standards of the particular craft involved will not be accepted, and will be corrected and/or replaced as required by the engineer in charge.

#### 7. PERFORMANCE

- a. It is the intentions of the Public Agency not to award a contract for this work under this or any other proposal if the bidder cannot furnish satisfactory evidence that he has the ability and experience to perform this class of work and that he has sufficient capital and equipment to enable him to prosecute the work successfully and to complete it within the time named in the contract; and the Public Agency reserves the right to reject this or any other proposal or to award the contract as is deemed to be in the best interest of said Public Agency
- b. To ensure contractor's capabilities, the bidder shall provide with his bid evidence that at least two (2) of the company's crack sealing field supervisory personnel have completed AASHTO TSP2 training, and successfully passed the Crack Treatment certification exam administered by the National Center for Pavement Preservation (NCPPI). During completion of the work, contractor will be required to have at least one (1) AASHTO TSP2 Crack Treatment certified employee assigned to the job and present at all times when crack sealing work is being performed.
- c. Properly formulated and mixed asphalt fiber compound overbanding shall not expand beyond four inches (4") in width due to temperature or traffic compression after placement by contractor. Penalties will be imposed upon the contractor for expansion of the overbanding beyond four inches (4").
- d. The contractor must submit with his bid proposal a list of six (6) jobs which he has successfully completed, giving the name and the address of these projects so they can be investigated prior to the award of the contract.
- e. The Owner will require the contractor to successfully perform a 200 foot test strip in the field prior to commencing work under the contract.
- f. Manufacturer's certificate of material compliance will be furnished to the Owner certifying conformance to the above material specifications.

8. MEASUREMENT AND PAYMENT

a. Measurement for this bid unit shall be by the gallon and shall be the actual number of gallons of sealer applied to the pavement. Payment shall be at the unit price bid in the proposal and shall be complete payment for the entire item including furnishing, preparation and placing of materials, labor and equipment to be used on this project.

b. Expansion of the overband by traffic or weather will result in a penalty equivalent to the ratio of the expansion to the overband. (Example: A one inch (1'') expansion of a four inch (4'') overband will result in a 25% reduction in the number of gallons paid.)