

STATE

OF

TENNESSEE

(Rev. 12-13-16)

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January 1, 2021

SPECIAL PROVISION

REGARDING

HOT APPLIED FIBER REINFORCED POLYMER PATCHING MATERIAL

Description

This work consists of furnishing, installing, all labor, material, and equipment necessary to repair spalled areas, potholes, joints, and large cracks (> 1 inch wide) on concrete pavements using a Hot Applied Fiber Reinforced Polymer Patching Material, bulking aggregates, and surface coarse aggregates as specified below.

Definitions

For the purposes of this specification, the following definitions apply:

- Binder - the thermal setting material that is the basis of the patching material, and to which any fillers, fibers, or other components are added.
- Patching material - the binder and other additives, mixed together, and in the form that will be applied to the patch, and shall not include bulking aggregate or final surface aggregate.
- Bulking aggregate - additional aggregate applied to the patch after the patching material has been applied for patches greater than 1 inch deep, and shall not include final surface aggregate.
- Final Surface Aggregate - aggregate applied to the surface of the patch to provide friction and protection

Material

Provide a hot applied patching material consisting of a combination of resin binder, polymers, graded fillers, aggregates, fibers, and rubber that once heated provides an impermeable, void less solid mass at ambient temperatures. Formulate the patching material according to climatic conditions to provide a durable pavement repair with good fluidity at process temperature, low temperature flexibility, and ambient temperature flow resistance.

The patching material shall be a product on the Department's Qualified Products List 13, Section B: QPL.13.010 - Elastomeric Patching Material Hot Applied. The material used shall be gray in color.

Bulking Aggregate

Provide **single sized** bulking aggregate consisting of a crushed, double washed, and dried granite. The size shall be from 5/8 to 7/8 inches determined through sieve analysis and shall not include any final surface aggregate.

Final Surface Aggregate

Final surface aggregate shall be crushed; double washed, and dried granite or Bauxite. The size shall meet the following gradation:

No. 4 Sieve Size	100% Passing
No. 16 Sieve Size	5% max Passing

Equipment

Provide all necessary equipment for satisfactory completion of the work including restoration of the site. Application equipment shall be certified by the material manufacturer.

Construction Requirements

1. Place the patching material installation to encompass the damaged or spalled areas as shown on the plans, or as directed by the engineer, with adjustments to the depth and width of the repairs as directed.
2. Saw cut around or mill the repair area and remove all loose and damaged pavements.
3. Remove material from the repair area to a depth and width which will allow proper seating of the patching material. (Minimum $\frac{3}{4}$ inch depth)
4. Remove all loose and damaged material from the repair area, either by saw cutting around the area and using a jackhammer to remove material, or by using a milling machine, as directed.
5. Remove material from the repair area to a depth and width necessary to provide sound pavement that will allow proper seating of the patching material.
6. If using a jackhammer, use an approved jackhammer capable of performing the required removal of the existing material without further damaging the surrounding pavement. Use a jackhammer no larger than 30 pounds unless approved by the Engineer.
7. Thoroughly clean and dry substrate faces using a hot-compressed air lance.
8. Prime the area using a primer determined by the manufacturer.
9. Allow the primer to completely dry before applying patching materials.
10. Mix and heat the patching material to 300°F – 360°F on site in a mixing unit equipped with electronically controlled thermostats in accordance with the manufacture's requirements.
11. Heat the bulking and final surface aggregates to ensure no moisture is present using a wheelbarrow or other approved container that will withstand the heat applied.
12. Apply the patching material to the repair area. If the repair area is deeper than 1 in., add bulking aggregate at a rate of 20%–40% by volume after placing the patching material.
13. Install additional patching material and bulking aggregate in 1 – 2 1/2 inch lifts until the repair is 1/2 inch or less below the existing pavement
14. The final lift shall be $\frac{3}{4}$ to 1 inch depending on the manufacture's requirements. Apply a final coat of the heated patching material to level the repair area.

15. Dress the surface of the patch with heated final surface aggregate. Perform this operation while the patch is still hot.
16. Sweep the area and remove all debris from the site.
17. Do not allow traffic over the material until after it has cooled to the point that it does not permanently deform under pressure, as recommended by the manufacturer, or as directed.

Traffic Control

Traffic control shall be completed in accordance with the plans and/or contract documents. All traffic control operations shall apply with the MUTCD at a minimum. Any changes must be approved by the engineer.

Method of Measurement

The Department will measure hot applied fiber reinforced polymer patching material by the pound of resin binder used, including primer, resin binder, bulking aggregate, and final surface aggregate.

Basis of Payment

The Department will pay for accepted quantities, complete in place, at the contract price as follows:

Item No.	Description	Unit
502-03.05	HOT APPLIED FIBER-POLYMER PATCHING MATERIAL	POUND

Such payment for the pound measurement of resin binder used shall be full compensation for primer, resin binder, bulking aggregate, final surface aggregate, labor, equipment, saw cutting, milling, removal and disposal of existing pavement material, and all incidental work and material.