**S T A T E**                    **O F**                    **T E N N E S S E E**

(Rev. 2-8-21)                                              January 1, 2021

## SPECIAL PROVISION

## REGARDING

## REPAIR OF BRIDGE DECK CRACKS

### Description

This work consists of the cleaning and repairing of visible bridge deck cracks in accordance with the contract plans or as directed by the Engineer. Cracks shall be repaired using a High Molecular Weight Methacrylate (HMWM).

### Materials

The material used for treating cracks shall be a low viscosity, non-fuming, high molecular weight methacrylate resin conforming to the following:

| Physical Property | Requirement |
|---|---|
| Viscosity | 25 cps, maximum (Brookfield RVT with UL adaptor, 50 RPM at 25°C (77°F)) |
| Density | 0.9 kg/L (7.5 lbs/gal), minimum, at 25°C (77°F) |
| Flash Point | 82°C (180°F), minimum |
| Vapor Pressure | 1.0 mm Hg, maximum at 25°C (77°F) |
| Gel Time | 20 minutes minimum at application temperature |
| Tack Free Time | 6 hours maximum |
| Bond Strength | 10.3 MPa (1500 psi) minimum (ASTM C 882) |

A qualified representative shall be on site to provide expert assistance on storage, mixing, application, clean-up and disposal of materials.

The promoter and initiator, if supplied separately, shall not contact each other directly. Containers of promoters and initiators shall not be stored together in a manner that will allow leakage or spillage from one to contact the containers or material of the other.

The quantity of resin mixed with promoter and initiator shall be limited to 5 gallons at a time for manual application. A significant increase in viscosity shall be cause for rejection. The mixed resin shall be applied within 10 minutes after complete mixing.

A Material Safety Data Sheet (MSDS) shall be furnished for the HMWM resin promoter and initiator to be used. A certification showing conformance to these specifications shall be provided with each batch of resin.

Aggregate materials shall consist of clean, dry, fine grained sand as per resin manufacturer specifications.

## Surface Preparation

Preparation of the concrete bridge deck surface shall consist of air blasting all visible cracks with oil free compressed air using sufficient air pressure to remove all loose or objectionable material from the cracks and bridge deck surface as approved by the Engineer  The surface cracks shall be visually dry before treatment with HMWM is allowed to begin.

## Application of HMWM

Plan and prosecute the operations in such a manner as to protect persons and vehicles from injury or damage. If required, perform the Work prior to any mechanical grooving.

The concrete surface temperature shall not be less than 50° F and not more than 100° F at the time of resin application.

In applying to individual cracks on a linear foot basis the resin shall be applied at an average rate of 1 gallon per 200 linear feet or as directed by the Engineer. Large cracks (wider than 0.03 inches) should be pre-filled with sand before applying resin. Each crack shall be treated with resin by ponding the resin over the crack and allowing gravity to feed the material into the crack. The resin shall be ponded over each crack for 5-10 minutes. The ponding procedure shall be repeated until each crack is sealed. Excess resin shall be cleaned up.

Traffic shall not be permitted on the treated bridge deck until the treated cracks are tack free (non-oily).

## Method of Measurement

The Department will measure, complete in place, Bridge Deck Crack Sealing by the linear foot

The Department will measure Sealant by the gallon of sealant material used for bridge deck crack sealing.

**Basis of Payment**

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

| Item No. | Description | Unit |
|---|---|---|
| 617-02 | BRIDGE DECK CRACK SEALING | LINEAR FEET |
| 617-05 | SEALANT (DESCRIPTION) | GALLON |

Such payment will be full compensation for all work specified including labor, materials, equipment, tools, surface preparation and incidentals to complete the work.