

STATE

OF

TENNESSEE

(Rev. 2-19-96)

January 1, 2015

SPECIAL PROVISION

REGARDING

REPAIR OF BRIDGE DECK CRACKS

Description. This work shall consist of the cleaning and repairing of all visible bridge deck cracks in accordance with these specifications, the Standard Specifications, 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 listed on the Department's approved products list and 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)

The contractor shall have a qualified representative on site to provide expert assistance to the Contractor 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 20 liters (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. The contractor shall plan and prosecute his operations in such a manner as to protect persons and vehicles from injury or damage.

The concrete surface temperature shall not be less than 10°C (50° F) and not more than 38°C (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 one liter per 16 linear meters (one (1) gallon per 200 linear feet) or as directed by the Engineer. Large cracks (wider than 0.75 mm (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.

If applying to the total deck surface on a square meter (square yard) basis, the deck surface shall be flooded with resin, allowing penetration into the concrete and filling of all cracks. The rate of application of promoted/initiated resin shall be approximately 2.2 square meters per liter (10 square yards per gallon), the exact rate shall be determined by the Engineer. Excess material shall be redistributed by squeegee or brooms within 10 minutes after application. The entire treated area of the bridge deck shall have sand broadcast by mechanical means to effect a uniform coverage of 0.14 to 0.16 kilograms per square meter (0.25 to 0.30 pounds per square yard).

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

Measurement and Payment. Bridge Deck Sealing shall be measured and paid for at the contract unit price per square meter (square yard) which price shall be full compensation for all labor, materials (except sealant), equipment, surface preparation and incidentals required for the satisfactory completion of the work.

Bridge Deck Crack Sealing shall be measured and paid for at the contract unit price per linear meter (linear foot) which price shall be full compensation for all labor, materials (except sealant), equipment, surface preparation and incidentals required for the satisfactory completion of the work.

Sealant shall be measured and paid for at the contract unit price per liter (gallon) which price shall be full compensation for furnishing the sealant material for individual crack sealing or sealing of areas by flooding.