

## 503-R-749 SOY METHYL ESTER-POLYSTYRENE PENETRATING SEALER

(Adopted 12-17-21)

The Standard Specifications are revised as follows:

SECTION 101, BEGIN LINE 131, INSERT AS FOLLOWS:

*SME soy methyl ester*

SECTION 503, AFTER LINE 20, INSERT AS FOLLOWS:

*SME-PS Penetrating Sealer .....906.02(a)6*

SECTION 503, BEGIN LINE 125, DELETE AS FOLLOWS:

**1. Terminal Joint, Type PCCP**

Terminal joint, type PCCP, shall consist of a sleeper slab, polyethylene bond breaker, pre-compressed foam joint, and ~~jointed reinforced concrete pavement, JRCP,~~ transition slabs. The polyethylene bond breaker shall be an approved polyethylene sheeting having a thickness of 6 mils or greater. The portion of the sleeper slab on which the polyethylene bond breaker is to be placed shall be finished to a smooth trowel finish. The pre-compressed foam joint shall be in accordance with 724 and as shown on the plans. The concrete and placement for JRCP transition slabs shall be in accordance with 502 and as shown on the plans. Steel reinforcement shall be epoxy coated and placed in accordance with 703. The metal chairs, spacers, clips, wire, or other mechanical means used for fastening or holding reinforcement in place shall be epoxy coated.

SECTION 503, BEGIN LINE 251, DELETE AND INSERT AS FOLLOWS:

**503.05 Sealing Cracks and Joints**

All joints and cracks in the PCCP shall be cleaned and sealed ~~with hot poured joint sealant~~ in accordance with the sealant manufacturer's recommendations *and this specification. Where there is a conflict, this specification shall govern.* ~~Water blasting shall not~~ may be applied under pressure ~~which may damage the concrete~~ in a manner that results in no damage to the concrete. All cracks and joints shall be *cleaned and* sealed prior to discontinuing work for the winter.

*Sealing and filling operations shall not be conducted on a wet surface, when the ambient temperature is below 40°F, or when other unsuitable conditions exist, unless approved by the Engineer. If precipitation occurs within 6 h of application, the SME-PS application shall be repeated in affected areas after precipitation has ended and the joint has dried. Joints may be dried with compressed air prior to re-application of the SME-PS penetrating sealer.*

*When hot poured joint sealant is specified, it shall be used to fill the joint within 1/4 in. below the surface. A distributor in accordance with 409.03 shall be used with an indirect-heat double boiler kettle and mechanical agitator. The hot poured joint sealant shall be placed utilizing a "V" shaped wand tip, to allow the penetration of the material into the joints. Backer rod shall not be used.*

**(a) Cracks**

*Cracks shall be sealed with hot poured joint sealant.*

**(b) Joints**

*The concrete surrounding the joint shall be a minimum of 14 days old prior to surface preparation.*

*The joint shall be cleaned to remove all foreign matter from the entire length, width, and depth of the joint. Joints shall be cleaned and dried with compressed air. Air compressors shall be equipped with an oil water separator and shall be capable of producing a minimum air pressure of 100 psi. Joints shall be cleaned with clean compressed air as frequently as necessary for final cleaning and to facilitate drying. A heat lance may be used to accelerate drying as approved by the Engineer. The joint shall be completely clean and dry prior to application of the SME-PS penetrating sealer.*

*SME-PS penetrating sealer shall be applied to the vertical faces of joints using a low-pressure sprayer at the manufacturer’s specified application rate. A small reservoir of sealant shall be created at the bottom of the joint so that sealant can be absorbed into the joint over the following hours. An additional sealing pass shall be applied to the surface extending a minimum of 3 in. on either side of the joint.*

*A minimum of seven days after applying the SME-PS penetrating sealer, the joint shall be cleaned with compressed air to remove all foreign matter. Hot poured joint sealant shall then be used to fill the joint.*

SECTION 503, BEGIN LINE 278, DELETE AND INSERT AS FOLLOWS:

**503.07 Method of Measurement**

D-1 contraction joints, expansion joint with load transfer, and terminal joints will be measured by the linear foot as measured along the centerline of the joint. The sleeper slab, reinforcing bars, bond breaker, *and* sealants for the terminal joint will not be measured. When required, removal of an existing terminal joint or sleeper slab will not be measured.

JRCP will be measured by the square yard of the thickness specified. Reinforcing bars, the metal chairs, spacers, clips, wire, or other mechanical means used for fastening or holding reinforcement in place in the JRCP will not be measured.

~~Pre-compressed foam joints will not be measured.~~

Retrofitted tie bars will be measured by the number of units installed.

*Pre-compressed foam joints, joint fillers, and joint sealants will not be measured.*

SECTION 507, AFTER LINE 15, INSERT AS FOLLOWS:

*SME-PS Penetrating Sealer .....906.02(a)6*

SECTION 507, BEGIN LINE 65, DELETE AND INSERT AS FOLLOWS:

**507.04 Joints**

Sealing and filling operations shall not be conducted on a wet surface, when the ambient temperature is below 40°F, or when other unsuitable conditions exist, unless approved by the Engineer. *The concrete surrounding the joint shall be a minimum of 14 days old prior to surface preparation.*

*If precipitation occurs within 6 h of application, the SME-PS application shall be repeated in affected areas after precipitation has ended and the joint has dried. Joints may be dried with compressed air prior to re-application of the SME-PS penetrating sealer.*

**~~(a) Sawing, Cleaning and Sealing~~**

~~Joints in PCCP shall be sawed, cleaned, sealed and sealed when specified filled. Cleaning shall include removal of old sealant, backer rod, and other debris remaining in the joint. No sawing or routing shall be performed. Water may be applied under pressure in a manner to which no damage to the concrete occurs. Joints shall be cleaned and dried with compressed air. Air compressors shall be equipped with an oil water separator and shall be capable of producing a minimum air pressure of 100 psi. Water blasting shall not be applied under pressure which may damage the concrete. The existing joints shall be sawed to the width and depth as shown on the plans. Slurry or saw residue remaining in the slot shall be immediately flushed with water. Traffic may be allowed on the PCCP for up to seven calendar days after the saw cutting prior to sealing. Joints shall be cleaned with compressed air as frequently as necessary for final cleaning and to facilitate drying. A heat lance may be used to accelerate drying as approved by the Engineer. The joint shall be completely clean and dry prior to application of the SME-PS penetrating sealer.~~

Joints shall be sealed with joint sealing materials in accordance with the sealant manufacturer's recommendations *and this specification. Where there is a conflict, this specification shall govern.* Transverse joints and longitudinal joints shall be sealed with hot poured joint sealant, silicone sealant or preformed elastomeric joint sealant SME-PS penetrating sealer in accordance with 503.05(b). ~~Longitudinal joints shall be sealed with hot poured joint sealant or silicone sealants.~~

*A minimum of seven days after applying the SME-PS penetrating sealer, SME-PS penetrating sealer, the joint shall be cleaned with compressed air to remove all foreign matter. Hot poured joint sealant shall then be installed in accordance with 503.05.*

Application of asphalt materials shall be completed without covering existing pavement markings. When traffic is to be maintained within the limits of the section, temporary traffic control measures in accordance with 801 shall be used. Treated areas shall not be opened to traffic until the asphalt material has set *and does not track or otherwise pull out of the joint.*

**~~(b) Cleaning and Filling~~**

~~Joints in PCCP shall be cleaned and filled when specified. Cleaning shall include removal of old sealant and backer rod. Air compressors shall be capable of producing a minimum air pressure of 100 psi. Water blasting shall not be utilized.~~

~~Joints shall be filled with hot poured joint sealant in accordance with the manufacturer's recommendations within 1/4 in. below the surface. A distributor in accordance with 409.03 shall be used with an indirect heat double boiler kettle and mechanical agitator. The hot poured joint sealant shall be placed utilizing a "V" shaped wand tip, to allow the penetration of the materials into the joints.~~

SECTION 507, BEGIN LINE 185, INSERT AS FOLLOWS:

Temporary traffic control measures for routing, sealing, or filling of cracks or

sawing, sealing, or filling of joints, and profiling will be measured in accordance with 801.17.

SECTION 507, BEGIN LINE 172, INSERT AS FOLLOWS:

The cost of temporary traffic control measures for routing, sealing, or filling of cracks or joints, and profiling will be paid for in accordance with 801.18.

SECTION 906, AFTER LINE 98, INSERT AS FOLLOWS:

**6. SME-PS Penetrating Sealer**

*SME-PS penetrating sealer shall start from pure SME and then be mixed with polystyrene, PS. The resulting SME-PS penetrating sealer shall be in accordance with the following:*

<i>Active Ingredients</i>	<i>Method</i>	<i>Requirements</i>
<i>SME, by mass of total solids</i>	---	95% - 98%
<i>PS, by mass of total solids</i>	---	2% - 5%
<i>Viscosity @ 23°C</i>	<i>ASTM D445</i>	7.000 cP - 10.00 cP

*The SME-PS PCC sealer shall be delivered to the jobsite in unopened containers with the manufacturer's numbered seal intact.*

*A Type B certification in accordance with 916 shall be provided for the SME-PS penetrating sealer. The limits of the test values listed above shall be provided on the certification. In addition, the certification shall also include a statement from the manufacturer that before mixing with polystyrene, the starting point is a pure SME.*

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