

SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO SPECIAL PROVISIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED:

1. Need a faster curing emulsion as the liquid asphalt sealant
2. Identify the HMA mixtures for which the adhesive and liquid asphalt sealant would apply
3. Need a method of measurement and pay item for liquid asphalt sealant

PROPOSED SOLUTION:

1. Using on-site tack coat materials has been a goal to achieve. A recent trial involving AE-NT material on a non-state job proved the concept could work.

The AE-F material is applied at 0.06 gallon/sys; this material is a SS-1h asphalt emulsion with a minimum residue content of 27% after dilution with water. The concept would be to use SS-1h (minimum residue content of 57%) or AE-NT (minimum residue content of 50%) undiluted asphalt emulsions. The application rates would be adjusted to account for the higher residue contents; the application rates for undiluted SS-1h or AE-NT asphalt emulsions would be 0.03 gallons/sys to assure equivalent residue content achieved with AE-F material.

2. The adhesive would apply to the top course of all dense graded intermediate mixtures; the adhesive would apply to all dense graded 4.75 mm, 9.5 mm and 12.5 mm surface mixtures in addition to all 9.5 mm and 12.5 mm SMA surface mixtures.

The liquid asphalt sealant would apply to all dense graded 9.5 mm and 12.5 mm surface mixtures only.

3. Establish linear foot as the method of measurement and create a pay-item for liquid asphalt sealant.

APPLICABLE STANDARD SPECIFICATIONS: 401 and 410

APPLICABLE STANDARD DRAWINGS:

APPLICABLE DESIGN MANUAL SECTION:

APPLICABLE SECTION OF GIFE:

APPLICABLE RECURRING SPECIAL PROVISIONS:

PAY ITEMS AFFECTED: Joint Adhesive, (course type)...LFT

Mr. Buening
Date: 06/20/13

SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO SPECIAL PROVISIONS

Submitted By: Michael Prather for Mike Buening

(continued)

Title: Area Pavement Engineer

Phone Number: 234-8250

Date: 06/07/13

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Joint INDOT/APAI Tech Committee

ADDENDUM 01

REVISION TO SPECIAL PROVISIONS
401-R-581 JOINT ADHESIVE

(Note: The proposed changes are shown highlighted gray.
Basis For Use: Required for all contracts with 401, 402, 403 or 410 (surface) pay items.
A copy of the 2014 SS is available on-line at
<http://www.in.gov/dot/div/contracts/standards/book/index.html>.)

401-R-581 JOINT ADHESIVE

(Revised xx-xx-13)

The Standard Specifications are revised as follows:

SECTION 401, AFTER LINE 353, INSERT AS FOLLOWS:

Hot poured joint adhesive in accordance with 906 shall be applied to longitudinal joints constructed between two adjacent HMA courses in the top course of dense graded intermediate mixtures and all 4.75 mm, 9.5 mm and 12.5 mm surface mixture courses. This includes joints within the traveled way as well as between any of the following: traveled way and an auxiliary lane, traveled way and a paved shoulder, and auxiliary lane and a paved shoulder.

The material shall be heated in a jacketed, double boiler melting kettle. The kettle shall have an attached pressure feed wand system with applicator shoe.

The joint adhesive shall be applied to the face of the previously constructed edge at the joint using a wand applicator. Prior to application of the joint adhesive, the joint face shall be dry and free of loose material and foreign objects. The adhesive shall be applied on the joint face 1/8 in. thick at the temperature recommended by the manufacturer. Excess joint adhesive shall not be allowed to pool on the top of the previously constructed pavement course or the pavement to be overlaid. The application of the adhesive shall be made within the same day, but at least 15 minutes prior to construction of the longitudinal joint.

All 9.5 mm and 12.5 mm surface mixture longitudinal joints that have the joint adhesive applied shall be sealed using ~~AE-F~~ SS-1h or ~~AE-NT~~ asphalt emulsion in accordance with 902.01(b). The sealing operation shall not begin until all density cores in accordance with 401.16 and 401.20 have been obtained and the installation of ~~milled centerline pavement~~ corrugations, when specified in accordance with 606, has been completed.

The liquid asphalt sealant, ~~AE-F~~, shall be a minimum width of 24 in., centered on the joint line, and shall be extended, when necessary, to provide coverage beyond the edge of the pavement corrugation. ~~AE-F~~The sealant shall be applied at an application rate of 0.06 ± 0.02 to 0.03 ± 0.01 gal./sq yd onto a dry surface, free of any foreign or loose material, using a distributor in accordance with 409.03(a). Areas receiving greater than 0.04 gal./sq yd shall be lightly broomed to reduce the effects of excess sealant on the pavement surface. The sealant temperature at the time of application shall be $135 \pm 5^{\circ}\text{F}$. The ambient air and pavement temperatures at the time of application shall be greater than 32°F .

Temporary pavement markings in accordance with 801.12 shall be offset a sufficient distance from the longitudinal joint so as to not obstruct the installation of the ~~milled centerline pavement~~ corrugations or the application of the liquid asphalt sealant. The ~~AE-~~

REVISION TO SPECIAL PROVISIONS
401-R-581 JOINT ADHESIVE

Sealant shall be cured a minimum of five days prior to applying the permanent pavement traffic markings in accordance with 808.

SECTION 401, AFTER LINE 771, INSERT AS FOLLOWS:

Joint adhesive will be measured by the linear foot in accordance with 109.01(a). Liquid asphalt sealant will be measured by the linear foot.

SECTION 401, AFTER LINE 785, INSERT AS FOLLOWS:

Joint adhesive will be paid for by the linear foot, complete in place. Liquid asphalt sealant will be paid for by the linear foot.

SECTION 401, AFTER LINE 789, INSERT AS FOLLOWS:

Joint Adhesive,LFT
course type
Liquid Asphalt SealantLFT

SECTION 401, AFTER LINE 799, INSERT AS FOLLOWS:

~~*The cost of the liquid asphalt sealant for the joint adhesive and centerline corrugations shall be included in the cost of the joint adhesive.*~~

SECTION 410, AFTER LINE 312, INSERT AS FOLLOWS:

Hot poured joint adhesive in accordance with 906 shall be applied to longitudinal joints constructed between two adjacent HMA courses in the top course of dense graded intermediate mixtures and all 9.5 mm and 12.5 mm SMA surface mixture courses. This includes joints within the traveled way as well as between any of the following: traveled way and an auxiliary lane, traveled way and a paved shoulder, and auxiliary lane and a paved shoulder.

The material shall be heated in a jacketed, double boiler melting kettle. The kettle shall have an attached pressure feed wand system with applicator shoe.

The joint adhesive shall be applied to the face of the previously constructed edge at the joint using a wand applicator. Prior to application of the joint adhesive, the joint face shall be dry and free of loose material and foreign objects. The adhesive shall be applied on the joint face 1/8 in. thick at the temperature recommended by the manufacturer. Excess joint adhesive shall not be allowed to pool on the top of the previously constructed pavement course or the pavement to be overlaid. The application of the adhesive shall be made within the same day, but at least 15 min prior to construction of the longitudinal joint.

SECTION 410, AFTER LINE 485, INSERT AS FOLLOWS:

Joint adhesive will be measured by the linear foot in accordance with 109.01(a).

SECTION 410, AFTER LINE 492, INSERT AS FOLLOWS:

Joint adhesive will be paid for by the linear foot, complete in place.

SECTION 410, AFTER LINE 503, INSERT AS FOLLOWS:

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401-R-581 JOINT ADHESIVE

Joint Adhesive,LFT
course type

SECTION 906, AFTER LINE 94, INSERT AS FOLLOWS:

5. Hot Poured Joint Adhesive

Joint adhesive is a hot applied asphalt material that is used to seal the longitudinal construction joint formed between the adjacent HMA pavement courses.

Joint adhesive shall be in accordance with the following:

<i>Test</i>	<i>Method</i>	<i>Test Results</i>
<i>Softening Point, °F (°C)</i>	<i>AASHTO T 53</i>	<i>> 170 (77)</i>
<i>Ductility @ 77°F (25°C), mm</i>	<i>AASHTO T 51</i>	<i>> 300</i>
<i>Ductility @ 39°F (4°C), mm</i>	<i>AASHTO T 51</i>	<i>> 300</i>
<i>Apparent Viscosity @ 400°F (204°C), cp</i>	<i>ASTM D 2669</i>	<i>4,000 – 11,000</i>
<i>Asphalt Compatibility</i>	<i>ASTM D 5329</i>	<i>Pass</i>
<i>Cone Penetration @ 77°F (25°C), mm</i>	<i>ASTM D 5329</i>	<i>50.0 – 100.0</i>
<i>Flow @ 140°F (60°C), mm</i>	<i>ASTM D 5329</i>	<i>< 5</i>
<i>Resilience @ 77°F (25°C), %</i>	<i>ASTM D 5329</i>	<i>> 30</i>
<i>Tensile Adhesion @ 77°F (25°C), mm</i>	<i>ASTM D 5329</i>	<i>> 500</i>
<i>Flexibility @ 0°F (-18°C)</i>	<i>ASTM D 3111</i>	<i>Pass</i>
<i>Flash Point, °F (°C)</i>	<i>AASHTO T 48</i>	<i>> 410 (210)</i>

The joint adhesive will be accepted by type A certification in accordance with 916 for each batch or lot of material furnished.

COMMENTS AND ACTION

401-R-581 JOINT ADHESIVE

Motion:	Action:
Second:	☐ Passed as Submitted
Ayes:	☐ Passed as Revised
Nays:	☐ Withdrawn
Standard Specifications Sections affected:	☐ 2016 Standard Specifications Book
	☐ Revise Pay Items List
SECTION 401, 410 AND 906.	☐ Create RSP (No.)
Recurring Special Provision affected:	Effective Letting
401-R-581 JOINT ADHESIVE	RSP Sunset Date:
Standard Sheets affected:	☐ Revise RSP (No.)
NONE	Effective Letting
Design Manual Sections affected:	RSP Sunset Date:
NONE	Standard Drawing Effective
GIFE Sections cross-references:	☐ Create RPD (No.)
NONE	Effective Letting
	☐ Technical Advisory
	GIFE Update Req'd.? Y ☐ N ☐
	By Addition or Revision
	Frequency Manual Update Req'd? Y ☐ N ☐
	By Addition or Revision
	Received FHWA Approval?