

SUBCOMMITTEE ON MATERIALS
2017 Annual Meeting – Phoenix, AZ
Thursday August 10, 2017
8:00 – 10:00 AM

TECHNICAL SECTION 2a Meeting Minutes
Emulsified Asphalt

TS2a 2017 Annual Meeting Summary		
Meeting Date:	10-Aug-17	
Items approved by the TS for TS/Subcommittee/Concurrent Ballot		
Standard Designation	Summary of Proposed Changes	TS Only, Subcommittee Only or Concurrent? (TS / S / C)
M140	TS Ballot with change to Footnote C in Table 1	C
M208	TS Ballot with change to Footnote C in Table 1	C
M216	TS Ballot with change to Footnote C in Table 1	C
TP121	Ballot as Full Standard with changes based on comments from TS ballot	C
PP XX	New Standard on Asphalt Tack Coat Design, ballot as concurrent with changes made based on comments from TS ballot. Example calculations will be moved to appendix.	C
MP XX	New Standard on Tack Coat Materials, to be balloted concurrently with changes based on TS ballot. Cement mixing requirement will be removed.	C
New Task Forces Formed:		
Task Force Name	Summary of Task	Names of TF Members
None.		
Research Liaison:	None selected, Illinois (Chair) be default	
Other Action Items:		
The chair will coordinate with TS 5b on the results of research NCHRP report 837 and new draft standards that came out of this research.		

I. Call to Order and Opening Remarks

Ron Horner, North Dakota has retired. Brian Pfeifer, Illinois is the new Chair. The meeting was called to order at 8:04 AM. The Chair welcomed members, visitors, and friends. The new chair briefly thanked Ron Horner for his service to the TS, and also thanked Sharon Taylor, who did a lot of the prep work for this meeting and works very closely with Ron in North Dakota.

Roll call was taken with the individuals highlighted below in attendance.

II. Roll Call

The following voting members were present when Roll Call was taken: IL, KY, NH, OH, UT, TN, MS, SD, OK, VA, SC, AL, NC, ON

Voting Members:

Brian	Pfeifer	IL	Chair	Voting
Allen	Myers	KY	Vice Chair	Voting
Denis	Boisvert	NH	Member	Voting
Eric	Biehl	OH	Member	Voting
Jason	Davis	LA	Member	Voting
Kelly	Morse	IL	Member	Voting
Michael	Doran	TN	Member	Voting
Scott	Andrus	UT	Member	Voting
Darren	Hazlett	TX	Member	Voting
James	Williams, III	MS	Member	Voting
Joe	Feller	SD	Member	Voting
Michael	Santi	ID	Member	Voting
Peter	Wu	GA	Member	Voting
Scott	Seiter	OK	Member	Voting
Timothy	Ramirez	PA	Member	Voting
William	Bailey	VA	Member	Voting
Temple	Short	SC	Member	Voting
Tanya	Nash	FL	Member	Voting
Lyndi	Blackburn	AL	Member	Voting
Christopher	Peoples	NC	Member	Voting
Becca	Lane	ON	Associate Member	Voting

Non-Voting Members:

Evan	Rothblatt	DC	AASHTO Staff	Non-Voting
Anne	Holt	ON	Associate Member	Non-Voting
Pamela	Marks	ON	Associate Member	Non-Voting
Michael	Voth	DC	Ex Officio	Non-Voting
Delmar	Salomon	ID	Friend	Non-Voting
Robert	Horan	VA	Friend	Non-Voting
Larry	Tomkins	MS	Friend	Non-Voting
John	Malusky	MD	Liaison	Non-Voting
Maria	Knake	MD	Liaison	Non-Voting
Kelly	Morse	IL	Member	Non-Voting
Jim	Trepanier	IL	Member	Non-Voting

Introductions were made by all members, visitors, and friends.

III. Approval of Technical Section Minutes

- A. The Mid-year meeting was held February 21, 2017. **Attachment 1**
A motion was made by New Hampshire and a second by North Carolina to approve the minutes. The minutes were approved unopposed.

IV. Old Business

A. SOM Ballot Items

1. All 2016 SOM ballot Issues were discussed. The Tack Coat standards were sent back to the ETG for revision and then re-balloted in June. All other standards including the new provisional standards were sent to publication. The new and/or revised standards are listed below.

R 5 Selection and Use of Emulsified Asphalts

MP 28 Materials for Micro Surfacing (initially published in 2016)*

PP 86 Determination of Optimum Emulsified Asphalt Content of Cold Recycled Mixtures

MP 31 Cold Recycled Mixture with Emulsified Asphalt

MP 32 Materials for Slurry Seal*

MP 87 Slurry Seal Design*

PP 88 Emulsified Asphalt Fog Seal Design*

MP 33 Materials for Emulsified Asphalt Fog Seal*

*Moved to 5b May 2017. PP 83 Micro Surfacing Design was published in 2016 and also moved to 5b

B. TS Ballots – June 2017

The TS received an email from Oak Metcalfe (MT) regarding these standard. Currently in M 140, M 208, and M 316 there is a note that says “This test requirement on representative samples may be waived if successful application of the materials has been achieved in the field.” The email suggests that the C footnote be applied to the Saybolt Furol Viscosities as well. The viscosity is a requirement that is typically required for application purposes. If the application is successful, than a viscosity requirement is not really necessary. It is suggested that agencies should be allowed to waive the viscosity requirement if they so choose. Other attendees mentioned that they have had similar issues. In some cases, because of transport times, emulsion samples are not received by the lab until after they have broken, or after the material has already been applied.

The standards below (M140, M208, and M316) passed TS ballot. A motion was made to move the standards to concurrent ballot with the TS changes, and the change to Table 1 footnote C noted above to concurrent ballot by Virginia. A second was made by Alabama. The motion passed unopposed.

~~(anionic, cationic, and polymer modified) there is a footnote C in Table 1~~

~~ii.i.~~ **M 140 Emulsified Asphalt, Yes-17, No-0, No Vote -3**

Comments: various editorial comments regarding missing reference to TP 121 and footnote reference (b) were received and will be incorporated

~~ii.ii.~~ **M 208 Cationic Emulsified Asphalt, Yes-17, No-0, No Vote-3**

Comments: various editorial comments regarding missing reference and footnote reference were received and will be incorporated

~~iv.iii.~~ **M 316 Polymer-Modified Emulsified Asphalt. Yes-17, No-0, No Vote-3**

Comments: various editorial comments regarding missing reference and footnote reference were received and will be incorporated

~~v.iv.~~ **TP 121 - Determining the Viscosity of Emulsified Asphalt by a Rotational Paddle Wheel Viscometer, Yes-17, No-0, No Vote-3 Attachment 2**

Comments received on this ballot were briefly reviewed by the TS. Several changes will be made based on the comments received.

A motion was made by Utah and a second by Virginia to move this ballot, with the proposed changes noted below, be sent to SOM ballot as a full standard.

Comments:

Temple Short, SC - Much of this standard reads geared towards a particular manufacturer.

Every effort has been made to make this standard as generic as possible. For example, in Figures 1 (paddle), 2 (sample cup) and 3 (paddle and sample cup with temperature probe) detailed dimensions are shown such that any supplier could develop a unit in the future.

7.10: How much is a few degrees? +/- 3 as specified in the allowable procedure limits?

A few degrees (lower) would be 3-5 degrees less than the test temperature

Entering "Run Test" sounds proprietary - reword to account for differences in manufacturers.

This wording was changed in the standard to "then start the test following the manufacturer's instructions"

Any guidance on time expected for testing to occur from loading of sample to reading viscosity?

Expected time is included in section 7:10: "The average time for testing varies from 5 to 20 minutes depending on the test temperature".

Annex A: remove subnote 3. The calibration standards should not be specified to a particular company since they are available elsewhere. The manufacturer of the piece of equipment may recommend a different source or provide their own.

Removed

Timothy Ramirez, PA - 1) In Section 2.2, ASTM E11-15 is specifically being referenced. Is there a particular reason? I know that ASTM E11-16 revised the Table 1 dimensional and permissible variation tolerances throughout the table, but are we not in agreement with the revisions made in ASTM E11-16?

That is correct the year should not be referenced and will be removed.

2) In Section 13.2, the ASTM Standards show one listed reference with the revision year designation "D2397/D2397M-13", but the other ASTM Standard is listed without a revision year designation "D977". Shouldn't these ASTM Standards be listed similarly, either both with the revision year or both without the revision year? I understand showing the revision year designation as that may have been the year that a specific standard was referenced.

Again the year designation will be removed

Kelly Morse, IL - Section 7.11 - Should add a statement on how to calculate the corrected viscosity, i.e. "Apply the correction factor by multiplying the apparent viscosity by the correction factor, F, as calculated in section 9." or a similar statement. A sample calculation would also clarify.

Agreed and the statement "apply the correction factor by multiplying the apparent viscosity by the correction factor, F, as calculated in section 9" has been incorporated to section 7.11.

Darren Hazlett, TX - 7.7 - This is the first mention of the heater block, a part that is certainly specific to a particular instrument. I'd suggest 6.1 should reference a "temperature control apparatus," and that it should be called out in this section instead of heater block.

Agreed and have added this phrase: temperature control unit to section 6.1 where the apparatus items are listed and in section 7.7 used the phrase "temperature control unit in place of heater block."

7.10 - The equipment is not required to have an automated test sequence, and "Run test" is certainly specific to one particular piece of equipment. I think this need to describe the test sequence of testing rather than assuming it's automated.

Agreed and have made section 7:10 to read as follows:

Verify that the temperature of the sample is 3 to 5 degrees lower than the test temperature before beginning the test sequence; then start the test following the manufacturer's instructions. The rotational speed is preset by the manufacturer to 100 rpm.

The average time for testing varies from 5 to 20 minutes depending on the test temperature.

Note: "Sampling" will be moved to Section 7 and Procedure will become Section 8 in the future ballot version. References will change accordingly.

vi-v. PP XX Asphalt Tack Coat Design, Yes-17, No-0, No Vote-3 Attachment 3

Comments received on this ballot were briefly reviewed by the TS. Several changes will be made based on the comments received.

There was brief discussion about the comment from Alabama regarding the example calculations. It was suggested that because this information is non-mandatory that it be placed in an appendix (non-mandatory). Mike Voth volunteered to work with Jason Dietz to revise editorially before SOM ballot.

A motion made by North Carolina and a Second was made by South Carolina to move this item to SOM ballot with editorial changes as discussed above.

Comments:

Temple Short, SC - .3.2 - Note 2: reword to remove reference to contractor since the contractor's level of responsibility is determined by the agency. Suggested "Ensure that emulsified asphalt residual application rates on the roadway are still satisfied after dilution."

Added

4.1.1: remove sentence about measurement and payment since this is at the discretion of the agency. The last sentence still makes sense with this one removed.

Included volume into sentence so it gives the agencies options.

4.1.2/4.1.3: reword to remove the "should". Suggested "Ensure that emulsified asphalt meets...and application rates conform to..."

Entire section was reworded

4.2.2 - 1) correct CSR-1

This was corrected

Timothy Ramirez, PA - In Section 1.2, this section moderately differs from MP XXX, Section 1.1. MP XXX, Section 1.1 includes some additional information that would seem to be applicable here and probably should be the same or very similar. Suggest revising Section 1.2 here to be same/similar to MP XXX, Section 1.1.

Change made.

2) In Section 3.1, last line, suggest revising from "needs for their product' to "needs of their product". The word "of" seems to be more appropriate for potential selection of a product and the word "for" seems to be more appropriate when a specific product has already been specified. This is design, so multiple products are being considered before a selection is made.

Change made

3) In Section 3.3.2, 3rd line, revise from "homogenous mixture" to "homogenous material" so as not to confuse with asphalt mixture.

Change made

4) In Section 3.4, 3rd line, delete second period at end of first sentence.

Change made

5) In Section 4.1.1, 3rd line, revise from "A flushed or bleeding surface requires less tack coat than a dry or aged surface" to "An existing flushed or bleeding surface or a new surface requires less tack coat than an existing dry or aged surface" since the last half of sentence includes the word "aged' but first part of sentence mentions nothing about age of pavement.

Change made

6) In Section 4.1.1, 5th line, revise from "Dense-graded mixtures" to "Overlays of dense-graded mixtures" and revise from "than open-graded friction course (OGFC) overlays" to "than overlays of open-graded friction course (OGFC) mixtures." For better readability".

Change made

7) In Section 4.1.1, 10th & 11th line, revise from "and not on residual application rates" to "and not on a residual application rate" to be consistent with singular use of "on the emulsified asphalt application rate" earlier in same sentence.

Made changes to the sentence due to others comments as well.

8) In Section 4.1.2, revise this entire Section to read "Design a tack coat by selecting a tack coat material in accordance with Table 2 unless otherwise required by the purchasing agency. When emulsified asphalt is selected as the tack coat material, select a specific type of emulsified asphalt (e.g., CSS-1) meeting the requirements of MP XXX unless otherwise specified by the purchasing agency. When performance-graded asphalt binder is selected as the tack coat material, select a specific grade of performance-graded asphalt binder (e.g., PG 64-22 or PG 64E-22) meeting the requirements of M 320 or M

332 unless otherwise specified by the purchasing agency. When a Special Purpose material is selected as the Tack Coat material, select the specific type or grade of Special Purpose material meeting the requirements as specified by the purchasing agency." The current language uses "should meet" which is weak language and is otherwise handled by the language "unless otherwise specified by the purchasing agency". Suggested revised language also tries to enforce there is selection of tack coat material (emulsified asphalt, PGAB, or Special Purpose) and there is also selection of an emulsified asphalt type (e.g., CSS-1), a grade of PGAB (e.g., PG 64-22), or a Special Purpose material which may be either a type or grade.

Made the recommended section changes.

9) In Section 4.1.3, revise this entire Section to read "Design residual asphalt and application rates for emulsified asphalt material are to conform to the residual asphalt rates and the emulsified asphalt application rates shown in Table 1 unless otherwise specified by the purchasing agency. Design application rates for PG asphalt binder material are to conform to the residual rates shown in Table 1 unless otherwise specified by the purchasing agency. Design application rates for Special Purpose material are to conform to the residual rate and the application rate, if applicable, as specified by the purchasing agency."

Made the recommended section changes.

10) In Table 1 caption, revise from "Recommended Residual Emulsified Asphalt, and Diluted Emulsified Asphalt Rates for Tack Coat" to "Residual, Undiluted, and Diluted Application Rates for Tack Coat Materials" since this Table 1 residual rate also applies to performance-graded asphalt binder which is currently not mentioned in the Table 1 caption (i.e., make Table 1 caption generic so it applies to both emulsified asphalt and PGAB). Also, lose "Recommended" as the language "unless otherwise specified by the purchasing agency" will cover other specified rates.

Made the recommended section changes.

11) In Table 1, 2nd column, consider revising column header from "Residual Rate" to "Residual Asphalt Rate".

Made the recommended section changes.

12) In Table 1, 3rd column, revise column header from "Emulsion" to "Emulsified Asphalt".

Made the recommended section changes.

13) In Table 1, 4th column, revise column header from "Emulsion" to "Emulsified Asphalt".

Made the recommended section changes.

14) In Section 4.1.4, suggest deleting this subsection in favor of suggested revisions for Section 4.1.2 in comment(s) above.

Deleted this subsection

15) In Table 2 caption, revise from "Recommended Tack Coat Material for Project Type/Time" to "Tack Coat Material for Project Type/Time" since suggested revision for Section 4.1.2 in comment(s) above indicates "Design a

tack coat by selecting a tack coat material in accordance with Table 2 unless otherwise required by the purchasing agency".

Made the recommended change

16) In Table 2, column 1, Row 2 for "Standard", consider revising from "Standard" to "Standard (Traffic volume \leq 5,000 ADT and Daytime or Nighttime Paving with Adequate Curing Time Windows)".

Made the recommended change

17) In Section 4.2.2, in the second paragraph, revise from "Assume an application rate of" to "Assume tack coat material application at a residual asphalt rate of" for better clarity.

Made the recommended change

18) In Section 4.2.2, Section 1), equation, revise the equation's first term numerator from "0.050 gal residual asphalt" to "0.050 gal residual asphalt rate" for consistency with Table 1, column 2 header (as suggested For Table 1, column 2 header in comment above).

Made the recommended change

19) In Section 4.2.2, Section 2), revise from "CSS-1 emulsion" to "CSS-1 emulsified asphalt".

Made the recommended change

20) In Section 4.2.2, Section 2), equation, revise the equation's first term numerator from "0.050 gal residual asphalt" to "0.050 gal residual asphalt rate" for consistency with Table 1, column 2 header (as suggested for Table 1, column 2 header in comment above).

Made the recommended change

21) In Section 5.1, at a minimum suggest revising from "spray rate" to "spray application rate", but see comment immediately below.

Made the recommended change

22) In Section 5, there are more items that need to be reported based on selectable items in this PP XXX. Suggest revising Section 5 as follows "5.1 Report the selected Tack Coat Material for the Project Type/Time (e.g., emulsified asphalt, performance-graded asphalt binder, or Special Purpose)", "5.2" Report the selected specific type of emulsified asphalt, specific grade of performance-graded asphalt binder, or specific type or grade of Special Purpose material (e.g., CSS-1, PG 64-22, or Special Purpose Type/Grade XXX)", "5.3 Report the designed residual asphalt rate, to the nearest 0.001 gal/yd²", "5.4 Report the emulsified asphalt application rate, to the nearest 0.001 gal/yd² (as applicable)."

Made the recommended changes

Lyndi Blackburn, AL - Suggest moving the example calculations to their own section, separate the two examples, and include a full example with an example project with length, width, surface type, project type/time and provide a selected material with an estimated plan quantity that would be included in the report to go with the suggested rate.

It was decided to keep this in the design requirements section instead of

appendix because there was not a strong preference. However, we believe it fits well within the body of the standard and further information can be incorporated in agency specifications, construction manual, or other documents

Suggest deleting Section 3.3 from the Design practice since it is covered in the Materials specification.

There was no strong preference so we felt there was a need to leave it in for the designer awareness.

Kelly Morse, IL - Section 3.3.1 - Perhaps add a suggestion that dilution occur at the emulsion terminal and not in the field, which allows for greater control and ability to properly verify dilution ratios.

Made the recommended change

Darren Hazlett, TX - Same comments as tack coat material standard plus:

4.1.1 - Several points of disagreement between our practices and this spec with the last two sentences:

- we pay for distributor shot material by either weight or volume , but most often by volume, since the rate is volume applied

- we usually want to pay for the material based on residual rate to help eliminate confusion about dilution

- here it says payment is based on weight but uses that as justification for basing estimates on the rates, which are volume rates, not weight rates.

Made the recommended change and added volume and residual rate

Should example calculations be in an appendix rather than a required part of the spec?

There was no strong preference and think it fits well within the body of the standard

4.2.2 - (editorial) "CSR-1" is used instead of "CRS-1" in the line between 1) and the equation.

Made the recommended changes

vii.vi. MP XX Asphalt Tack Coat Materials, Yes-17, No-0, No Vote-3 Attachment 4

Comments received on this ballot were briefly reviewed by the TS. Several changes will be made based on the comments received. The cement mixing requirement was discussed and it was decided it could be dropped.

A motion was made by Virginia and a second by Alabama to move this ballot, with the removal of the cement mixing requirement and the proposed changes noted below, be sent to Concurrent ballot.

Comments:

Timothy Ramirez, PA - Affirmative with comments:

1) In Section 1.1, this section moderately differs from PP XXX, Section 1.2. PP XXX, Section 1.2 includes some additional information regarding "overlays" and "multiple lifts" that would seem to be applicable here and probably should be the same or very similar. Suggest revising Section 1.1 here to be same/similar to PP XXX, Section 1.2.

Change made.

2) In Section 1.1, consider above comment, but at a minimum, revise line 3 from "or concrete pavement, between the layers of a structural pavement and" to "or concrete pavement and an overlay, between the multiple lifts of a new structural pavement, and". As written, the "good bond between" gives the first part of the "between", but not the last part of the "between".

Made the recommended change

3) In Section 3.1, revise from "performance-graded binder" to performance-graded asphalt binder".

Made the recommended change

4) In Section 3.4, last line, revise from "homogenous mixture" to "homogenous material" so the language is not confused with asphalt mixture.

Made the recommended change

5) In Section 3.5, 1st line, revise from "Apply the tack coat according to PP-XX" to "Design the asphalt tack coat in accordance with PP XXX". This is a material specification and not a construction specification, so it should not specify how to "apply" and PP XXX is how to "design", not how to "apply".

Made the recommended change

Kelly Morse, IL - Section 3.2 - IL dropped the cement mixing requirement for slow-setting type emulsions when used as a tack coat; perhaps a footnote added to the table.

'I appreciate the comment but needing further information on why the cement mixing requirement was dropped due to...'

Jason Davis, LA - I am voting affirmative, but I don't understand how this standard will be used. This specification basically references the tack application specification and says "use what the purchasing agency specifies". How does a state agency use this document in a specification? We typically state "use material A, B, C or D for tack". Even if we only used "standard" tack coats (no "special purpose" products), we would still likely need to limit what could be used from the references in this document, as not all emulsions referenced would be suitable for all tack coat situations.

I can see this being used as a reference to other specifications (the entrance to the rabbit hole of emulsion specifications), but I don't see an agency specifying "use tack coat according to AASHTO MP-XXX".

This standard covers the quality requirements while for the Design it covers application rate so that is the reasoning for the difference.

Darren Hazlett, TX - This spec excludes some materials; specifically, if we can use SS and RS emulsions, why not MS? Also why not M226 (viscosity graded) asphalt? I would not classify any of those as specialty materials, since they are in AASHTO specs already.

Made the recommended changes except we didn't include M 226 due to viscosity is covered M 140, 208, 316, 320, and 332. Also, we didn't classify any of those specialty materials.

- C. Task Force Reports
 - i. No task forces at present time

V. New Business

- A. Research Proposals
 - 1. 20-7 RPS
 - 2. Full NCHRP RPS
- B. AASHTO Re:source/CCRL - Observations from Assessments?
- C. NCHRP Issues - [See below](#)
- D. Correspondence, calls, meetings
- E. Presentation by Industry/Academia
- F. Proposed New Standards (Amir Hanna, TRB) **Attachment 5 – first three standards listed below**
[Amir Hanna](#) gave a brief update on an NCHRP project 9-50, research report 837 on surface treatments (Performance-Related Specifications for Emulsified Asphaltic Binders Used in [Preservation Surface Treatments](#)). This project is complete. Specifications were developed in a manner similar to Superpave. A second set of products included tests that are ~~not~~ part of the specification developed. These have been written in AASHTO format for consideration by this TS. The ETF is doing a round-robin this summer on these proposed specs. Recommendations from the ETF should be expected in the winter/spring. This could be further discussed at mid-year meeting. The chair will coordinate with TS 5b on this effort.
 - i. Proposed Standard Specifications for Performance-Graded Emulsions Used in Chip Seal Surface Treatments
 - ii. Proposed Standard Specifications for Performance-Graded Emulsions Used in Micro Surfacing Treatments
 - iii. Proposed Standard Specifications for Performance-Graded Emulsions Used in Spray Seal Treatments
 - iv. Proposed Standard Method of Test for Determining Storage Stability of Emulsified Asphalts: Resistance to Physical Separation and Change in Rheological Properties
 - v. Proposed Standard Method of Test for Determining the Viscosity of Spray Grade Emulsified Asphalts Using the Three-Step Shear Test
 - vi. Proposed Standard Method of Test for Determining Dynamic Shear Modulus of Emulsion Residues at Critical Phase Angle Values Using the Dynamic Shear Rheometer (DSR)
 - vii. Proposed Revisions to ASTM D 3121 Standard Test Method for Tack of Pressure-Sensitive Adhesives by Rolling Ball
- G. Proposed New Task Forces
- H. Standards Requiring Reconfirmation
 - i. T 50, Float Test for Bituminous Materials
[A reconfirmation ballot will be prepared by AASHTO staff.](#)
- I. SOM Ballot Items (including any ASTM changes/equivalencies)

VI. Open Discussion – None.

VII. Adjourn [The meeting adjourned at 8:53 AM.](#)