AASHTO
THE VOICE OF TRANSPORTATION
SUBCOMMITTEE ON MATERIALS

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2017 Mid-Year Meeting
February 21, 2017
11:00 am – 1:00 pm EST

TECHNICAL SECTION 2a
Emulsified Asphalt

I. Call to Order and Opening Remarks

II. Roll Call

Ron	Horner	ND
Allen	Myers	KY
William	Bailey	VA
Lyndi	Blackburn	AL
Denis	Boisvert	NH
Joe	Feller	SD
Colin	Franco	RI
Darren	Hazlett	TX
Becca	Lane	ON
Cole	Mullis	OR
Tanya	Nash	FL
Christopher	Peoples	NC
Timothy	Ramirez	PA
Michael	Santi	ID
Scott	Seiter	OK
Eileen	Sheehy	NJ
Temple	Short	SC
Michael	Voth	FHWA
James	Williams, III	MS
Peter	Wu	GA
Robert	Horan	Asphalt Institute – Friend
Delmar	Salomon	Pavement Preservations Systems - Friend

III. Approval of Technical Section Minutes

Motion by: RI; Second: AL; Vote: All in favor. Motion carries.

IV. Old Business

A. Reconfirmation Ballot June 2016

i. **M 81 Cutback Asphalt (Rapid-Curing Type)**, Reconfirmation, 18-Yes, 0-No, 2-No Vote

1. No comments

ii. **T 295 Specific Gravity or API Gravity of Liquid Asphalts by Hydrometer Method,** Reconfirmation, 18-Yes, 0-No, 2-No Vote

1. No comments

iii. **T 301 Elastic Recovery Test of Asphalt Materials by Means of a Ductilometer,** Reconfirmation, 18-Yes, 0-No, 2-No Vote

1. No comments

iv. **M 82 Cutback Asphalt (Medium-Curing Type)**, 15-Yes, 0-No, 4-No Vote

1. No comment

B. SOM Ballot Items

i. **R 5 Selection and Use of Emulsified Asphalts**

Concurrent SOM Ballot item 11: 43-Yes, 0-No, 8-No Vote

1. Comments: Numerous editorial comments received will be addressed and included as appropriate.
2. CSS-1h will be removed from micro surfacing
3. Scrub Seal will remain. Recommended type of asphalt will be listed as CSS1, CSS1H - (any other suggestions) A provisional has been drafted for scrub seals, but has not been published yet. R5 tables will automatically be updated when new specs are developed as long as TS 2a is made aware of the proposed changes **(RI)**.
4. Any other suggestions for additions to grades/uses please submit

ii. **MP 28 Materials for Micro Surfacing**

Concurrent SOM Ballot item 12: 43-Yes, 0-No, 8-No Vote

1. Comments: Numerous editorial comments and corrections suggested were received and will be addressed and included as appropriate.
2. CSS-1h will be removed from R 5 so no additions needed to M 28.
3. Michael Benson (AR) - The need for a variable blend in Section 6.3 is understandable, but the sentence referencing changes from one end of the specified range to the other end will be difficult to enforce as written.

   Response: We have struggled with this but have not arrived at a better way of saying it. (This should be reviewed further by the ETG)

4. Denis Boisvert (NH) - Some of the requirements of MP 28 are not consistent with ISSA Recommended Performance Guidelines for Micro Surfacing. Most agencies follow ISSA and most

Micro/Slurry contractors are ISSA members. For example, the crushed 2-face requirement is not in ISSA. This method and ISSA should be consistent.

Response: ISSA does not have a crushed face requirement but comments from the SOM during previous reviews indicated the desire to insert a crushed face requirement.

5. Brad Pfeifer (IL) - Table 2 Type I is not recommended for micro surfacing in accordance with ISSA guidelines.

Response: Editorial, remove Type I from Table 2

iii. **PP XX Determination of Optimum Emulsified Asphalt Content of Cold Recycled Mixtures**

Concurrent SOM Ballot item 13: 43-Yes, 0-No, 8-No Vote

1. Comments: Numerous editorial comments and corrections suggested were received and will be addressed and included as appropriate.
2. T 164 will be added as alternative to ignition oven.
3. Becca Lane (Ontario) - Note 5 - says you can't determine AC content for RAP containing an unknown aggregate because you can't determine aggregate correction factor. Therefore you can only use the ignition oven to determine AC content if you have history/knowledge of aggregate. Recommend 6.1 starts by saying that if you aren't familiar with the aggregate, you should use T164 (extraction); but if you do know correction factor for aggregate, then ok to use the ignition oven method

Response: T 164 was added to 6.1

Peter Wu (GA) - With the following review comment: In section 5.2.2: "Provide at least 45 kg (400 lb) of RAP....." is NOT correct from the metric to English conversion. 45 kg is about 100 lb, or 400 lb is about 180 kg.

Response: **Corrected throughout the document to 45 kg (400 lb)**

4. Robert Horwhat (PA) - *Section 12.1.10 is redundant and should be deleted because these items are already reported in 12.1.5, 12.1.6, 12.1.7, and 12.1.9. Raveling should only be reported if performed (See Section 10) and moved to the optional report information.*

Response: We disagree, did not change. Sections 12.1.5, 6, 7 & 9 report properties at tested emulsion contents. Section 12.1.10 says report properties at the optimum emulsion and moisture content. These values could be slightly different if the optimum

emulsion content was not the same as one of the trial specimens.

5. George Stellmach (OR) - Section 9.5 should show the formula that is used to back calculate the rice value for the lower asphalt contents

   Response: **Adding the formulas required splitting section 9.5 into 2 sections, 9.5 and 9.6. Added section 9.7 to include the two requested formulas.**

iv. **MP 31 Cold Recycled Mixture with Emulsified Asphalt**

Concurrent SOM Ballot item 14: 43-Yes, 0-No, 8-No Vote

1. Comments: Editorial comments received will be incorporated.

v. **MP XX Materials for Asphalt Tack Coat**

Concurrent SOM Ballot item 15: 42-Yes, **1-No**, 8-No Vote.

This proposed standard has received numerous comments and negative votes in both the Tech Section ballot and now the SOM ballot. The standard will be returned to the ETG to address the comments and prepare for an upcoming technical section ballot.

vi. **PP XX Asphalt Tack Coat Design Practice**

Concurrent SOM Ballot item 16: 42-Yes, **1-No**, 8-No Vote

This proposed standard has received numerous comments and negative votes in both the Tech Section ballot and now the SOM ballot. The standard will be returned to the ETG to address the comments and prepare for an upcoming technical section ballot.

vii. **MP 32 Materials for Slurry Seal**

Concurrent SOM Ballot item 17: 43-Yes, 0-No, 8-No Vote

1. Comments: Editorial changes received will be incorporated.

2. Denis Boisvert (NH) – Recommended consistency with ISSA standards.

   Response: ISSA does not have a crushed face requirement but comments from the SOM during previous reviews indicated the desire to insert a crushed face requirement.

3. Brian Pfeifer (IL) - why just CQS-1h? The ISSA recommends SS-1, SS-1h, CSS-1h and HFMS-2s.

Response: The Emulsion Task Force recommended that the most used, performing emulsion be specified.

MPXX-2 Table 2 Type III #200 should be 5-15 per ISSA guidelines

Response: the Type III in Table 2 will be changed to 5-15.

viii. **PP XX Slurry Seal Design**

Concurrent SOM Ballot item 18: 43-Yes, 0-No, 8-No Vote

1. Comments: Editorial changes received will be incorporated.
2. Brian Pfeifer (IL) - PPXX-1 Add AASHTO M140 to referenced documents if adding the SS-1, SS-1h and HFMS-2s to the MP for slurry seal.

Response: The Emulsion Task Force recommended that the most used, performing emulsion be specified. Not adding the M 140 emulsions.

ix. **PP XX Emulsified Asphalt Fog Seal Design**

Concurrent SOM Ballot item 19: 43-Yes, 0-No, 8-No Vote

1. Comments: Editorial comments suggested will be incorporated as appropriate.

2. Lyndi Blackburn (AL) - This standard should also cover where rejuvenating fog seals are best used and standard fog seals are used.

   Response: Composition and use of rejuvenator fog seals is very different from conventional fog seals, and will be addressed in a different specification.

3. Peter Wu (GA) - Section 4.4.1 should it be revised to "Note 1- Care should be taken to ensure that the fog seal application rate does not cause a significant reduction in skid resistance of the pavement?"

   Response: Change will be made to address skid resistance of pavement.

4. Timothy Ramirez (PA) - In Section 3.3, last sentence, revise to read "All other emulsified asphalt types are not to be diluted." If dilution is occurring at the emulsified asphalt producer plant using surfactant solutions, this should be covered under the producer's QC Plan and does not need to be mentioned here. The bill of lading coming from the producer should indicate the minimum

asphalt residue percentage as the material is provided (if produced or if diluted at the plant).

Response: We believe this specification should describe the possibility for dilution of emulsions other than SS, but only if diluted at the emulsion plant with surfactant solutions known to be compatible with the fog seal emulsion of choice.

The comment regarding "Bill of Lading" is correct, and will be added as "The bill of lading coming from the emulsion producer should indicate the minimum asphalt residue percentage as the material is provided to the project."

In Section 4.1, Table 1, footnote "*", the footnote indicates to assume emulsified asphalt is 60% asphalt, but in Section 3.3, 3rd and 4th lines, it indicates "The minimum residue content for fog seal emulsified asphalts will typically be 50 percent". Section 3.3 text, Table 1, footnote "*" text, and Section 4.3.2 text ("40 percent water") should all agree and be consistent with the amount of asphalt residue and water in emulsified asphalts for fog seals.

Response: There is some confusion here, because 60% residue is meant to describe a typical SS emulsion as manufactured before dilution, and a 50:50 dilution with water would lead to an applied emulsion with 30% residue. To clarify the example, section 4.3.2 has been rewritten as follows:

"For example, a fog seal application of 0.10 gal/yd2 might be made using an SS emulsified asphalt with a 60% asphalt residue content (40% water) which is then diluted 1:1 (original emulsified asphalt–water). Calculation of the residual application rate would need to account for both sources of water. The application rate of 0.10 gal/yd2 would be multiplied by 0.50, to account for the dilution, and then by 0.60, to account for the water in the original emulsified asphalt. Therefore, the residual tack coat rate in this example would be 0.030 gal/yd2."

5. Ron Stanevich (WV) - In section 3.3.....I think it should specify when and where SS grades "may" be diluted. Just saying they "can" opens it up to a lot of issues. It should have language about not adding more water after the initial dilution process, so as not to exceed the 50/50 ratio.

   Response: Paragraph 3.3 is meant to control maximum dilution by setting a diluted residue content that must be at least 50% of the original emulsion as manufactured according to AASHTO specifications.

6. Allen Myers (KY) - In the first sentence of Section 4.2, what does the phrase "representative of the materials used for the project" mean?

   Response: section 4.2 revised as follows:

Material Quantities—Emulsified asphalt should meet recommendations in MP XXX. The application rates may be determined by a test strip according to the procedure in Section 4.4 or determined empirically by the ring test detailed in Section 4.5. Emulsified asphalt samples used to optimize application rates should be representative of the materials used for the project.

In the second sentence of Note 2 below Section 4.5.7, what is meant by the phrase "when the pavement is tight"?

Response: note 2 in section 4.5.7 rewritten as follows:

Note 2—Fog seals may be applied at a higher application rates or at higher residue contents for chip seal applications or for open-graded hot mix surfaces. Normally the ring test is used only when a pavement surface has a relatively low permeability, such that a slippery pavement can result following application of the treatment.

7. Brian Pfeifer (IL) - *3.3 Clarification on intent of dilution of slow setting emulsified asphalts with water only? Current wording implies contractor can dilute, not the intent (want at manufactures facility). Look at wording in the MP fog seal specification section 5*

   Response: This issue of diluting SS emulsions at locations other than the emulsion manufacturer's plant site is controversial, and is best addressed by local specifications. In some areas, especially in the western US, emulsion transportation distances are long, and transport of dilution water is expensive. Job-site dilution of SS emulsions can be done effectively with appropriate controls for proportioning and mixing. This issue may warrant further discussion within AASHTO materials committees.

8. Brian Egan (TN) - Don't see a need for Table 1 columns 2 and 3 since all emulsions will have different residual percentages and/or allow various dilution rates.

   Response: Table 1 is just intended to be an example of the most probable case for an undiluted SS emulsion of 60% residue. No changes made.

   6.1 states to report rate to nearest 0.01 gal/'SY but Table 1 reports rates to nearest 0.001 gal/SY.

   Response: This refers to section 5.1, which is changed to "report rate to nearest 0.001 gal/yd2"

x. **MP XX Materials for Emulsified Asphalt Fog Seal**

Concurrent SOM ballot item 20: 43-Yes, 0-No, 8-No Vote

1. Comments: Editorial comments suggested will be incorporated as appropriate
2. Timothy Ramirez (PA) - 1) In Section 4.3, reconsider allowing dilution of polymer modified emulsified asphalts due to improper dilutions, multiple dilutions, etc.

   Response: Polymer-modified emulsions are diluted and used regularly, particularly for routine maintenance of open-graded friction courses. Appropriate discussion of dilution should be included in the fog seal design standard. No change recommended.

3. Denis Boisvert (NH) - Requiring that the emulsion meet the requirements of M 140, M 208 or M 316 prior to dilution, and requiring that the dilution occur at the plant makes it difficult for agencies to perform verification testing.

   Response: By combining agency sampling with approved supplier certification plans, it should be possible for the agency to collect residue data for both original tank samples after production, and diluted emulsions either as delivered from the supplier or as diluted by sampling the distributor. No change recommended.
   RI on behalf of ETF- will there be a TS ballot soon? Chair- yes and if approved by TS it will move to full SOM ballot in Fall.

C. Task Force Reports
   i. No current task force

V. New Business

A. Research Proposals
   1. 20-7 RPS -NCHRP ballots are closed. Recommend SCOR to vote for D10. Research formation of SBG specification for emulsion. A problem statement has been submitted. Asking for additional funding with PS. ETF is looking at conducting 4mm DSR testing on residue. If you are willing to volunteer to run 4mm DSR please reach out to Colin Franco and ETF. **(Colin Franco on behalf of ETF)**
   2. Full NCHRP RPS
B. AMRL/CCRL - Observations from Assessments?
C. NCHRP Issues
D. Correspondence, calls, meetings
E. Presentation by Industry/Academia
F. Proposed Changes to Existing Standards
   i. Proposed revisions by Delmar Salomon to M 140, M 208 and M 316 to include Rotational Paddle Viscosity (TP 121) Presentation was given at SOM in Greenville. RPV is not referenced in any standard. Should be reference in T59 or in each one of the specifications (M140, M208, and M316). Two tables would be required, one for Saybolt and one for RPV. A conversion can be made from RPV value to Saybolt if needed. Compared calculated

values and actual measured vales. The values compare within 5 to 8% of each other. A table was submitted to TS Chair to eliminate conversion process. Table will reflect direct reading of RPV. **(Delmar Salomon)**

ii. T 59- proposed changed to include reference to (TP 121) What would be the best way to handle this? **(Chair)** Reach out to the rest of the TC for input **(Knake)**. Provisional now, but is being used heavily. Should probably be put in as soon as possible **(Hanz)**. Do we need to develop a new test method for this, or could we just keep it as is **(RI)**. TP 121 is a quick alternative to Saybolt. It is a bit different then paint. Temperature is more accurately controlled **(Salomon)**. This RPV is different and it is specific to the material being tested **(Knake)**. Is there a minimum time period for this to be a provisional **(FHWA)**? We must wait for two years for it to become a full standard **(Knake)**. Maria will reach out to Evan regarding procedure. **Delmar Salomon** has asked that steps be taken to move this provisional to a full standard.

G. Proposed New Task Forces

H. Standards Requiring Reconfirmation

I. 50-14 Float Test for Bituminous Materials

J. SOM Ballot Items (including any ASTM changes/equivalencies)

VI. Open Discussion

ETF moving ahead trying to get these specifications into AASHTO. Working on QA guidelines and expect to see something within this year. Certification and training plans will also be made available. **(Colin Franco on behalf of ETF)**

VII. Adjourn

Move- **RI**, Second- **??**; All in favor: **Motion carries.** Meeting adjourned.