

SUBCOMMITTEE ON MATERIALS

2016 Annual Meeting – Greenville, SC

Monday August 4, 2016

8:00 – 10:00 AM 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	DC
James	Williams, III	MS
Peter	Wu	GA
Robert	Horan	Asphalt Institute
Delmar	Salomon	Pavement Solutions

III. Approval of Technical Section Minutes from Mid-Year

IV. Old Business

- A. SOM Ballot Items

B. TS Ballots June 2016

- i. M 81 Cutback Asphalt (Rapid-Curing Type), Reconfirmation, 15-Yes, 0-No, 4-No Vote
 1. No comments
- ii. M 82 Cutback Asphalt (Medium-Curing Type), Confirmation, 15-Yes, 0-No, 4-No Vote
 1. No comment
- iii. R 5 Selection and Use of Emulsified Asphalts, Confirmation or numerous changes to change to AASHTO standard. 15-Yes, 0-No, 4-No Vote

1. Comments:

Short (SC) - Table 2: MS-2h, HFMS-2h (M140) and CMS-2, CMS-2h (M208) - if there are no typical uses noted for these emulsions should they even be listed in the table?

Response:

Timothy Ramirez (PA) – Numerous editorial comments will be included as appropriate.

In Section 3.3.3, consider revising from "Working cracks are defined as those that experience significant horizontal movements, generally greater than about 2 mm (0.1 in.)" to "Non-working cracks are defined as those that experience minor horizontal movements, generally less than about 2 mm (0.1 in.)" since this section is talking about filling of non-working cracks.

Response:

Wu (GA) - Tables 1 and 2 do not have a place for "scrub seal", which is listed under Section 3.3.10.

Response:

Williams (MS) - Section 3.2 and Tables 1 and 2 - There is widespread use of various less-tracking and non-tracking emulsions for tack coat. While these products are proprietary in nature, many states specify their use either through a performance based specification or an Approved Products Listing. I would characterize these materials as Special Purpose or High Performing Tack Coats. Should this be discussed in Section 3.2 and or a note placed in the tables pointing out the widespread use of Special Purpose Tack Materials.

Response:

Also, with the increased use of thin-lift asphalt mixtures and Permeable Friction Course (PFC) or Open Graded Friction Course (OGFC), many states use Special Purpose emulsions and/or hot applied tack materials that yield much higher bond strengths and can be applied at higher rates. Because the intent of this specification is to give guidance on the application of emulsions in various applications, I believe this is worth a footnote or note in the standard even though there are not "Standard Specifications" for many of these Special Purpose tack materials.

Response:

Lane (Ontario) – General? Were in situ recycling methods excluded on purpose?

Response:

3.3.3 "placement is to reduce the infiltration of water to reinforce the adjacent pavement" is confusing.

Response:

3.3.7 Refers to a paved surface. Can it be done on a surface treatment/chip seal surface?

Response:

iv. T 295 Specific Gravity or API Gravity of Liquid Asphalts by Hydrometer Method, Reconfirmation, , 15-Yes, 0-No, 4-No Vote

1. Comments

Santi (ID) – recommend defining API

Response:

v. T 301 Elastic Recovery Test of Asphalt Materials by Means of a Ductilometer, Reconfirmation, , 15-Yes, 0-No, 4-No Vote

1. Comments:

Lane (Ontario) – Figure 1 middle picture, "K" is not tied to the dimension shown in the blow-up, i.e. not referenced.

Response:

vi. MP 28 Materials for Micro Surfacing, Confirmation, 15-Yes, 0-No, 4-No Vote

1. Comments:

Ramirez (PA) - In Section 6.1, it states "Mineral aggregate shall be 100 percent crushed" but that is all the standard says about this. Is this "100 percent crushed" for the coarse aggregate fraction only? If only coarse aggregate, is the requirement for 1-face crush or 2-face crush? Is natural fine aggregate permitted or is only manufactured fine aggregate permitted? In addition, the standard does not reference any test methods to determine if the aggregate meets this "100 percent crushed" requirement. Consider providing more detail as to what is meant by "100 percent crushed" and also referencing a test method(s) to determine if the aggregate meets this requirement, such as, T 304 and/or T 335 and specifying the number of faces (1-face or 2 face or both). If T 304 or T 335 are included, add them to Section 2.1 also.

Response:

In Section 6.1, Table 1, is there a particular reason that the number of cycles for the Magnesium Sulfate and Sodium Sulfate Soundness tests are specified at 4 cycles rather than the typical 5 cycles (e.g., M 80)? It is probably common that agencies are determining and reporting these soundness test results using 5 cycles and not 4 cycles. These potentially could require states to report soundness test results for both 4 cycle and 5 cycle or to report them differently when being used for micro-surfacing applications. Consider revising to require a standard soundness test at 5 cycles and, if need be, adjust the max loss requirement to account for this extra cycle.

Response:

In Section 6.1, Table 1, both the Magnesium Sulfate Soundness and Sodium Sulfate Soundness tests include an asterisk "*", but there is no table footnote to explain this asterisk. If there should be a Table footnote, revise the asterisk "*" to a "superscript b".

Response:

Williams (MS) - The Magnesium Sulfate Soundness and Sodium Sulfate Soundness values should be labeled as "max" consistent with the LA Abrasion requirement.

Response:

The requirement of 25% maximum loss at 4 cycles for the magnesium sulfate soundness seems high. In Mississippi we use a maximum of 20% at 5 cycles for magnesium sulfate for this type of aggregate.

Response:

Feller (SD) - Section 6, table 1:

Cannot find footnote for the asterisk denoted after 4 cycles.

Also, this test typically specifies five cycles-not four.

Response:

Lane (Ontario) - Table 1 Is parent aggregate defined elsewhere?

Response:

What is the reference for the * after 4" cycles"

Response:

7.1 Is usage level by mass or volume?

Response:

- vii. PP XX Determination of Optimum Emulsified Asphalt Content of Cold Recycled Mixtures, Confirmation new proposed standard, 15-Yes, 0-No, 4-No Vote
 - 1. Comments:

Short (SC) - 9.3 - fix the beginning of the sentence. Constant weight should be defined as shown except add that it's "no more than a 0.05% change in weight in 2 hours."

Response:

Ramirez (PA) – In Section 6.1, revise from "on materials" to "on two representative samples" to match up with Section 5.3.2 and to match up with Section 6.2 where "the average asphalt content" is referenced.

Response:

In Section 6.2, is there or should there be consideration of an asphalt content correction factor or aggregate correction factor for the T 308 test results? There is absolutely no discussion of correction factors here and there probably should be something. Possibly consider adding that an asphalt content and/or aggregate correction factor should be applied if the original RAP materials is known or based on experience of local aggregate materials.

Response:

In Section 8.5.2, 4th line, revise from "0.05% change in weight in 2 hours" to "0.05 percent change in mass or less in 2 h" as the 0.05% is not defined as a minimum or maximum mass change here and to be consistent with use of word "percent" and "h" for "hours" as is done in Section 9.3.

Response:

In Section 9.3, last line, revise from "0.05 percent change in weight in 2 h" to "0.05 percent change in mass or less in 2 h" as the 0.05% is not defined as a minimum or maximum here.

Response:

In Section 10, Note 11, is it possible to identify the specific combinations of tests with the raveling test that are covered by the patents? If a patented combination is desired and specified, are there then royalty payments required? Suggest adding more information here regarding these patents if it is possible.

Response:

In Section 11.1, 1st line and 2nd line, revise from "CR" to "CIR" to be consistent with Section 3.1. Also, suggest adding "CCPR" in both locations where "CR" is included as this standard applies to both.

Response:

In Section 12, there are 21 items to include in a report. This seems excessive and there are some reportable items that are not really necessary to report for a standard that is for "Determination of Optimum Emulsified Asphalt Content...". If all these items are required by some agencies, consider making some optional if specifically specified by the purchasing agency to be reported. Consider requiring only the item listed in Section 12.1.14 (Optimum emulsified asphalt content with a range) and having all other items as optional per requirement of the purchasing agency. There are also some items that seem to go well beyond this standard including Section 12.1.7 (penetration of residue) and Section 12.1.21 (Certificates of compliance). Also, Section 12.1.6 seems redundant with Section 12.1.14. Most items seem to be part of the full mix design, not necessarily the "Determination of the Optimum Emulsified Asphalt Content" that seems to be the focus of this standard practice.

Response:

Are there agencies using Marshall stability to perform the strength ratio rather than T 283? Why is Marshall stability included in this standard for the strength ratio?

Response:

Wu (GA)- Section 8.1.1.2: has any study been conducted to demonstrate that >5 blows of Marshall Hammer is equivalent to 30 gyrations of Superpave Compactor in terms of density or degree of compaction?

Response:

Williams (MS) - Section 6 - When performing T 308, how are the asphalt binder and aggregate correction factors determined? Considering that this process differs from a new asphalt mixture, is guidance needed in the performance of T 308 for CIR and CCPR?

Response:

Section 8.4 - Should guidance be given on the gyration levels and how that could affect the emulsified asphalt content? There is no mention of design air voids as it relates to the chosen emulsified asphalt content. Realizing that the mixture must meet the performance testing requirements, the gyration level could have a significant effect on the performance test results and could differ

significantly from the in-place material which is be compacted to a target density.

Response:

Section 8.6.1 - If I read this correctly, the specimens should be cured in accordance with Section 8.5. At this point the specimen should be dry. Then in Section 8.6.1 the standard says to determine the bulk gravity of each specimen in accordance with T 166, Method A. The curing regimen is different than the drying procedure in T 166. If the intent is to cure the specimen and then cool it to determine the bulk specific gravity, it should be clearly stated that drying of the specimen (T 166, Section 6.1) is not necessary. The same would apply for T 331 if required due to the specimen absorption.

Response:

Lane (Ontario) - 5.1.2 Varied temperature for core crushing may produce different aggregate gradations and would affect the mix design. Consider including this information in the notes.

Response:

8.1.1.2 Uncommon to use 4 inch mold for gyratory compactor. Also, the particles size above 25 mm should be removed from samples if 4 inch mold is used.

Response:

8.3.2 The temperatures for the materials (RAP, water, additives, emulsified asphalt) are all varied, and just specify mixing at room temperature will not produce a consistent temperature mix. Suggest adding preconditioning materials to stabilize temperature before mixing.

Response:

viii. MP XX Cold Recycled Mixture with Emulsified Asphalt, Confirmation new proposed standard, 15-Yes, 0-No, 4-No Vote

1. Comments

Ramirez (PA) – Editorial comments will be included as appropriate. Also, comments from Troy Lehigh (PennDOT Asphalt Lab Manager):

1. In Table 2, there is a requirement for "Retained Marshall". I don't think that the Marshall test (T245) is used in a similar fashion as the TSR (T283). It doesn't compare the results of a control set of sample to a conditioned set. I have an idea of how to calculate the "retained Marshall", but I am not aware of any specification or test method that contains this.

Response:

Wu (GA) - Table 2 should note 1250 lbs. Marshall stability, T245 is for 4" samples or 2,500 lbs for 6" samples.

Response:

Lane (Ontario) - Table 2 No mention that the strength criteria (310kPa) is for dry subset or for conditioned subset samples. the strength criteria would be too high if it is for conditioned subset samples.

Response:

- ix. MP XX Materials for Asphalt Tack Coat, Confirmation new proposed standard, 14-Yes, 1-No, 4-No Vote. *Negative – Ramirez (PA)*

1. Comments

Short (SC) - 3.1.2 What about alternative products like less or non tracking tack coats (emulsified and hot applied)? i.e. - trackless, efog, ultrafuse, etc.

Response:

Williams (MS) - This standard addresses traditional tack materials. With the increased use of thin-lift asphalt mixtures and Permeable Friction Course (PFC) or Open Graded Friction Course (OGFC), many states use Special Purpose emulsions and/or hot applied tack materials that yield much higher bond strengths and can be applied at higher rates. Because the intent of this specification is to give guidance on the application of emulsions in various applications, I believe this is worth a footnote or note in the standard even though there are not "Standard Specifications" for many of these Special Purpose tack materials.

Response:

Sheehy (NJ) - Should tack coat be taken out of R 5 if there is a separate standard?

Response:

Lane (Ontario) - 1.1 Not necessarily followed by a surface layer, should consider using the wording from PPXX Asphalt tack Coat Design Practice.

Response:

Hazlett (TX) - The terminology and the recommendations for asphalts to be used are very much conflated here. The guidance in general is very straightforward, but the typical materials used I think ought to be separated from the terminology. Viscosity grades are left out of the options for materials, and although the design standard lists specialty materials in the table, there is no discussion in this spec or the standard of what the specialty materials may be.

Response:

Ramirez (PA) - Primary reason for negative is that there is little "specification", if any, within this proposed standard specification. What is the purpose of this specification that indicates in Section 4.1 "The contractor has the option of using any emulsified asphalt or asphalt binder that conforms to the Agency Standard Specifications for tack coat."? If agency tack coat specifications are so diverse that an AASHTO standard specification cannot specify something, or some minimum, why have this standard specification?

Response:

In Section 1.1, 4th line, suggest revising from "that the new layer will be placed (curbs, gutters, utilities, and construction joints)" to "that the new layer will be placed against or adjacent to, such as, curbs, gutters, utilities, construction joints, etc."

Response:

In Section 3.1.1, recommend that this specification not allow dilution for slow setting grades. Issues arise with improper dilution, multiple dilutions, thorough mixing after dilution, and stability issues. Recommend adjustment of application processes or equipment to apply non-diluted slow setting

emulsified asphalts using proper distributor spray nozzles, pump pressures, distribution rates, etc.

Response:

In Section 3.1.3, recommend that this specification not allow dilution for quick setting grades. Issues arise with improper dilution, multiple dilutions, thorough mixing after dilution, and stability issues. Recommend adjustment of application processes or equipment to apply non-diluted quick setting emulsified asphalts using proper distributor spray nozzles, pump pressures, distribution rates, etc.

Response:

In Section 3.1.4, 1st line, add a period (".") after the word "coat". Period is missing after end of 1st sentence.

Response:

In Section 4.1, 1st sentence, refers to "Agency Standard Specifications for tack coat". There is little specification substance here. Wondering what is the purpose of this standard specification and if it is really needed, or if it will be used by highway agencies as written without more substance?

Response:

Comments from Troy Lehigh (PennDOT Asphalt Lab Manager):

There doesn't seem to be much information here to justify creating a new AASHTO Specification.

Response:

I don't like the idea of allowing the emulsion to be diluted (see Sections 3.1.1, 3.1.2, and 3.1.3).

Response:

Section 3.1.4 should also refer to MSCR graded PG binders.

Response:

Section 5.1 should also refer to AASHTO M 332 in the last sentence. (Section 2.1 should also include M 332).

Response:

- x. PP XX Asphalt Tack Coat Design Practice, Confirmation new proposed standard, 15-Yes, 0-No, 4-No Vote
 - 1. Comments

Short (SC) - 5.1.3 This standard references a the use of PG or "specialty products" to be used on roads over 5000 ADT? Specialty products include...? products with "h products", trackless, etc.?

Response:

Assuming an average content of 67% asphalt would only apply to CRS-2.

Response:

5.1.4 - no typically used emulsions at night, so would that mean no micro-surfacing applications at night either?

Response:

Ramirez (PA) - In Section 3.2.2, if dilution is to be maintained in this standard, there are discrepancies between this standard and the proposed MP XX (Materials for Asphalt Tack Coat). This PP XX indicates that only slow setting emulsified asphalt can be diluted with plain water, but MP XX seems to indicate that quick sets may also be diluted with "additional water" (See Section 3.1.3 in MP XX).

Response:

In Section 3.2.2, if "Dilution of any other emulsified asphalt type must occur at the manufacturer's plant site" why not require that the emulsified asphalt be a produced or colloid milled emulsified asphalt at the desired asphalt residue rate? We have heard about dilution at the manufacturer's plant that is not very controlled (dump extra water/surfactant in distributor truck during load out and have mixing occur during transport to project site or during a circuitous route through the manufacturer's plant site). If at the manufacturer's plant site, they should be able to produce a colloid milled emulsified asphalt at the proper asphalt residue to water ratio.

Response:

In Section 5.1.4, Table 2, the last column and in the last two rows, it refers to "Specialty Product", but "Specialty Product" is not defined anywhere. Suggest revising both locations from "Specialty Product" to "Polymer Modified Emulsified Asphalt" and/or "specifically formulated Emulsified Asphalt".

Response:

In Section 5.1.4, Table 2, last column and last row, delete the text "or Spray Paver" as this column's header is "Recommended Tack" and most rows list type of tack (emulsified asphalt or PG Asphalt Binder). Spray Paver is an application method not a tack type. Also, it is likely that a spray paver could use either an Emulsified Asphalt or a PG Asphalt Binder. If it is desired to retain Spray Paver, suggest adding a "superscript a" at end of last column and last row and a "superscript a" at bottom of Table 2 as a footnote indicating that the recommended application of the recommended tack for this paving type is by Spray Paver.

Response:

In Section 5.3.2, recommend that this subsection be deleted in its entirety as it is related to construction where this standard practice is to determine the proper residue rate and/or emulsified asphalt application rate based on the pavement type.

Response:

Comments from Troy Lehigh (PennDOT Asphalt Lab Manager):

Section 5.1.3 should also include AASHTO M 332. (Section 2.1 should also list M 332).

Response:

Horner (ND) - The emulsion in this standard is assumed to be 37% water and 63% asphalt. Other standards list 40% water and 60% asphalt. Which is the most common. For consistency some agreement should be made on the percentage of water in emulsion.

Response:

Williams (MS) – Section 5.1.1 - The sentence "Dense and gap-graded hot mix asphalt overlays require less tack coat ..." should be clarified. I believe the

intent is that SMA type mixtures that are gap-graded should require less tack coat than OGFC layers. As it is written, OGFC mixtures are gap-graded as well and could lead to confusion. Example wording could be, "Dense graded mixtures including Stone Matrix Asphalt (SMA) ..."

Response:

Table 1 - The rates listed in Table 1 appear to be typical rates used for normal dense graded type asphalt mixtures. Residual rates in excess of 0.08 gal/yd² are routinely used with Special Purpose tack materials to create higher bond strengths resulting in a bonded overlay. This is very important for thin-lifts and PFC/OGFC type mixtures. This is mentioned in 5.1.1, but is not taken into account in Table 1

Response:

Lane (Ontario) - 3.3 Consider adding more common usages such as warm mix, insitu recycled surfaces (such as CIR, CIREAM or FDR) or take out examples. Also applies to Table 1

Response:

5.1.2 Suggest removing "as directed"

Response:

5.2.2 What is residual shot rate vs residual application rate?

Response:

5.3.2 Report what was used for dilution

Response:

Hazlett (TX) - Again, the table shows specialty materials as an option but there is no discussion of specialty materials. Viscosity graded asphalt are not considered. Section 5.1.1 says that measurement and payment is by weight, but 5.3.1 only requires a report of the volume applied.

Response:

- xi. MP XX Materials for Slurry Seal, Confirmation new proposed standard, 15-Yes, 0-No, 4-No Vote

1. Comments

Short (SC) - Does the LA abrasion have to be 35% max? This is pretty low and will eliminate a lot of good aggregate sources.

Response:

Ramirez (PA) - In Section 1.1 and 1.2, suggest revising both of these subsections completely to result in one subsection 1.1 that reads "This specification covers requirements for emulsified asphalt, aggregate, mineral filler, water, and additive materials used in slurry seals. Slurry seals are mixed and placed on existing pavement surfaces using specially designed paving machines."

Response:

In Section 2, ANSI 60 for aluminum sulfate is not referenced in this materials specification, but ANSI 60 is referenced in the proposed PP XX (Slurry Seal Design). Should ANSI 60 be added to Section 2?

Response:

In Section 6.1, it states "Mineral aggregate shall be 100 percent crushed" but that is all the standard says about this. Is this "100 percent crushed" for the coarse aggregate fraction only? If only for the coarse aggregate, is the requirement for 1-face crush or 2-face crush? Is natural fine aggregate permitted or is only manufactured fine aggregate permitted? In addition, the standard does not reference any test methods to determine if the aggregate meets this "100 percent crushed" requirement. Consider providing more detail as to what is meant by "100 percent crushed" and also referencing a test method(s) to determine if the aggregate meets this requirement, such as, T 304 and/or T 335 and specifying the number of faces (1-face or 2 face or both). If T 304 or T 335 are included, add them to Section 2.1 also.

Response:

In Section 6.1, Table 1, is there a particular reason that the number of cycles for the Magnesium Sulfate Soundness test is specified at 4 cycles rather than the typical 5 cycles (e.g., M 80)? It is probably common that agencies are determining and reporting this soundness test result using 5 cycles and not 4 cycles. This potentially could require states to report soundness test results for both 4 cycle and 5 cycle or to report them differently when used for slurry seal applications. Consider revising to require a standard soundness test at 5 cycles and, if need be, adjust the max loss requirement to account for this extra cycle.

Response:

In Section 6.1, Table 1, consider adding an alternative Sodium Sulfate Soundness test for those states using Sodium Sulfate Soundness and not Magnesium Sulfate Soundness. Consider adding similarly to the proposed revision to MP 28 (Materials for Micro-Surfacing) in ballot item #6 above. Consider adding the Sodium Sulfate Soundness at 5 cycles.

Response:

In Section 6.3, the 1st sentence is a little confusing especially the last part of the sentence which reads "while also remaining within the gradation's specification band". Which "gradation's" is being referred to here? Is it the mix design's gradation band or is it the aggregate's size gradation band? If it is intended to be the aggregate's size gradation band, the specified grading requirements in Table 2 may not fall within a specific aggregate size (e.g., No. 8 aggregate size).

Response:

In Section 9.1, are these additives different than the mineral filler specified in Section 7? Wording about adjusting mixture breaking, curing or set time is similar. Is there an example or, a "such as", additive that could be specifically included here to show what the difference is between Section 9 and Section 7?

Response:

Williams (MS) - Table 1 - Should the Aggregate Quality Requirements be consistent with MP 28? Also, Item No. 6 in this ballot adds Sodium Sulfate Soundness as an option. Wouldn't this addition be applicable to slurry seals as well?

Response:

The Soundness requirements should be listed as maximum values.

Response:

Table 2, Subscript b - It is recommended that "maximum friction resistance" be changed to "higher friction resistance."

Response:

Because Frictional Resistance is noted, it should be pointed out that there are no angularity requirements for the aggregates specified in this standard. Because of that, the resulting frictional resistance of the finished surface could vary drastically based on the finished surface texture and the angularity of the aggregate.

Response:

Lane (Ontario) – Table 1 Is parent aggregate defined elsewhere?

7.1 Is usage level by mass or volume?

Response:

- xii. PP XX Slurry Seal Design, Confirmation new proposed standard, 15-Yes, 0-No, 4-No
Vote

1. Comments

Ramirez (PA) - In Section 2.1, consider adding M 17 if applicable for slurry seal.

Response:

In Section 4.3, consider revising from "with M 85" to "with M 17 for bituminous mineral filler, M 85" if M 17 is applicable for slurry seal.

Response:

In Section 4.3, "ANSI 60 for aluminum sulfate" is referenced for slurry seal, but this type of mineral filler was not referenced in MP 28 (Materials for Micro-Surfacing), is there a difference between Slurry Seal and Micro-Surfacing where ANSI 60 is not applicable to Micro-Surfacing, but is applicable for Slurry Seal?

Response:

In Section 4.3, ANSI 60 for aluminum sulfate is not referenced in the proposed MP XX (Materials for Slurry Seal). Should ANSI 60 remain here in Section 4.3?

Response:

In Section 9.1, consider revising the first sentence to add "by max loss of Wet Track Abrasion" after the word "determined" as the title of ISSA TB 100 does not reference anything about minimum binder content.

Response:

- xiii. PP XX Emulsified Asphalt Fog Seal Design, Confirmation new proposed standard,
15-Yes, 0-No, 4-No Vote

1. Comments

Ramirez (PA) - In Section 2.1, "M XXX, Emulsified Asphalt Fog Seal Construction" is listed, but this standard does not exist as either a proposed standard or an existing standard. Recommend deleting this from the list of referenced documents.

Response:

In Section 3, consider revising the order of terms from existing order to "3.1 Slow Setting", "3.2 Medium Setting", "3.3 Rapid Setting", and finally "3.4 Quick Setting" to match order of how these are listed in Tables of M 140 and M 208.

Response:

In Section 5.1 and Section 5.2, reconsider allowing dilution and specifying an emulsified asphalt having the required asphalt residue that will be produced by manufacturer's at their plant site by colloid milling.

Response:

In Section 5.5, delete this subsection in its entirety as the referenced M XXX (Fog Seal - Construction) does not exist as a proposed standard or as an existing standard.

Response:

Horner (ND) - The emulsion in this standard is assumed to be 40% water and 60% asphalt. Other standards list 33% water and 67% asphalt. Which is the most common. For consistency some agreement should be made on the percentage of water in emulsion.

Response:

Williams (MS) - A note should be added as a disclaimer related to the Fog Seal Application Rate. It is extremely important that the Fog Seal not be applied "too heavy" due to the effects to the surface friction. Care should be taken to ensure that the Fog Seal Application Rate is not such that there is a significant reduction in the surface texture of the pavement.

Response:

Becca (Ontario) - SI units missing from some sections

Response:

- xiv. MP XX Materials for Emulsified Asphalt Fog Seal, Confirmation new proposed standard, 15-Yes, 0-No, 4-No Vote
1. Comments

Ramirez (PA) – Editorial comments will be included as appropriate.

Is dilution necessary if all dilution is to occur at the manufacturer's plant site? Why not require produced or colloid milled material for emulsified asphalt for fog seals since it must already come from the manufacturer's plant site?

Response:

In Section 4.1, the minimum fine aggregate angularity of 45 by T 304 is a specification requirement. This requirement should be in MP XX (Materials for Fog Seals), not here in the standard practice. Consider deleting this requirement from this PP XX standard and adding it to the MP XX (Materials for Fog Seals) proposed standard.

Response:

In Section 4.4, is the Ring Test practical for chip seals, especially those with a high macro-texture? Can the volume of emulsified asphalt poured into the 6-inch circles be evenly distributed within the circle with a small brush?

Response:

Horner (ND) - The information in Section 5.3 should be presented in a table similar to the Design standard for consistency.

Response:

Wu (GA) - Should polymer modified emulsion, such as CMS-18, be included in this spec?

Response:

Williams (MS) - Should polymer modified emulsion, such as CMS-18, be included in this spec?

Response:

Lane (Ontario) - 3.2 QS and CQS listed but not included in M208?

Response:

Hazlett (TX) - This is very minimal guidance, and there is some redundancy with the fog seal practice. I sort of see this as a place keeper for future development of a more rigorous selection.

Response:

- C. Task Force Reports
 - i. No current task force

V. New Business

- A. Research Proposals
 - 1. 20-7 RPS
 - 2. Full NCHRP RPS
- B. AMRL/CCRL - Observations from Assessments?
- C. NCHRP Issues
- D. Correspondence, calls, meetings
- E. Presentation by Industry/Academia
 - i. Delmar Salomon, Pavement Solutions. Converting viscosity results from TP 121 Determining the Viscosity of Emulsified Asphalt by a Rotational Paddle Viscometer to saybolt viscosity standard (sfs) to compare to emulsion specifications.
- F. Proposed New Standards
- G. Proposed New Task Forces
- H. Standards Requiring Reconfirmation
 - i. T 50-14 Float Test for Bituminous Materials
- I. SOM Ballot Items (including any ASTM changes/equivalencies)

VI. Open Discussion

VII. Adjourn