Subcommittee #4 Research Breakout Session 1

AASHTO Preservation Management

Emulsion Task Force (ETF) Meeting

March 31, 2026

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Research project update: completed

- NCHRP 14-44 Construction Guide Specifications for Slurry Seals, Scrub Seals, and Tack Coats
  - QA guides submitted for TS ballot
- NCHRP 14-48 Construction Guide Specifications for Pavement Treatments - Sand Seals and Ultra-thin Bonded Surface Treatments
  - QA guides still need done. Need to review comments provided by the ETF

Updates?

Research project update: in progress

- NCHRP 9-63 A Calibrated and Validated National Performance-Related Specification for Emulsified Asphalt Binder
  - Presentation later today
- NCHRP 10-114 Developing Performance and Safety Specifications for Rejuvenating Seals
  - Presentation tomorrow
- NCHRP 10-124 Development of Field Test to Determine Actual Percent Embedment of Chip Seal Aggregate
  - Presentation earlier today
- NCHRP 10-134 Performance-Based Tests for Asphalt Emulsion Treatments as part of Agency Acceptance and Incentive Programs
  - Began May 2025, Auburn/Dr. Vargas-Nordcbeck

Research project update: upcoming

- NCHRP 10-145 Asphalt Emulsion-Based High Friction Surface Treatments
  - Pending
- NCHRP 17-138 Pavement Marking Selection for Bridge and Pavement Preservation Treatments
  - Pending

Questions/thoughts on these projects?

RNS #1: Viscosity overview

- Title: “Measuring and specifying the viscosity of emulsified asphalt”
- Objective: evaluate asphalt emulsion tests that can replace Saybolt
  - Evaluate Saybolt, paddle, rotational, other?
  - Develop correlation factors
  - Correlate lab results to field performance (pumping, spraying, runoff potential)
  - Recommend modifications to current test methods or develop new test method
  - Recommend changes to ASTM/AASHTO specifications
- Final product: changes to existing test methods and specifications and/or development of new test
- Worthy: the content would be good and beneficial to pass along to others in the industry – especially the
- Lots of labs want to do paddle, very efficient versus Saybolt. But correction factors not clear.
- Question: AASHTO resource has provided data to Delmar (rotational vs. Saybolt), four or five years wor Paddle did not have a “comparable,” was looking at feasible. We know more now.
- Expand: why are there two different factors from Delmar’s data? Saybolt 22% reproduction is bad, there correlation? AASHTO data is prior to modified emulsions. Modified emulsions do not act the same way
- Saybolt empirical, not fundamental – impossible to compare to other fundamental viscosity tests. Corre field performance.
- Darren and Andrew will work with Kelly to submit to COMP 2a, need to get something to them by just aft technical subcommittee – Andrew will work with Larry on this

RNS #1: Viscosity initial discussion points

- Ohio switching to the paddle viscometer by 2027
  - Saybolt pain to clean, cork breaks, emulsion not coming down straight.
- AASHTO has Saybolt and DPV
  - “Doubling” may be getting adjusted based on TFASH, move toward ASTM
  - Not sure it hit ballot yet
- Values “as is” are pumpable, sprayable, and don’t runoff
  - Too low for tack coat you get into stability issues
  - Chip seal need it thicker to get initial chip depth
  - Pretty much stopped testing viscosity, residue focus using moisture balance

Additional thoughts?

RNS #2: Combination treatment overview

- Title: “Guidance for the Construction of Flexible Pavement Combination Treatments” → this is one document, propose “bins” of combination treatments
- Objective: develop construction guides and quality guides for the construction of flexible pavement combination treatments
  - Double chip seal, triple chip seal (a.k.a. Armor Coat), double micro surfacing
  - Chip seal or scrub seal followed by fog seal
  - Chip seal or scrub seal followed by slurry seal or micro surfacing (cape seal)
  - Chip seal or micro surfacing rut fill followed by surface treatment
  - Chip seal or scrub seal followed by thin lift (SAMI) or HMA overlays
- Final product: proposed AASHTO formatted construction guide and quality assurance guide for flexible pavement combination treatments
- Four yeas
- Include HIR/CIR/CCPR/FDR as treatments
- Go through Amy Biese (North Dakota), COMP 5b (Andrew will work with Larry)

See Word document

RNS #2: Combo treatment initial discussion points

- Consider CIR and CCPR and what treatment to put on top of that?
  - HIR, FDR?
- NCAT/MnROAD test sections have some age to them
  - Cost analysis for each?
  - Compare it to a standard HMA/WMA mill and fill or thin overlay?
- State APAs against emulsion treatments
- Section 5, 3rd bullet, then last bullet: “Think” should be “thin”.

Additional thoughts?

Other ideas?

- Topics in the hopper
  - Research: Sampling from Micro Surfacing and Slurry Seal Pavers for Quality Assurance Testing (not
    - ISSA did a pooled fund study through NCAT, poor findings from binder content in field test
    - Also tried to do field wet tracks – revised TB100 might correlate better?
    - Feedback last time: equipment manufacturer issue
    - Concern from contractors: when you are pulling material out of the machine before the box, not fully mixed. Need (but this requires handwork). Could pull it off manhole covers. One contractor did work within 1-2 hours of their r always practical for all contractors.
    - If materials burned, need correction factors from aggregate
    - We'll take the comments from the review and see if we should move forward
    - Take the equipment out. Start with mixes, then identify how to sample them from equipment (safety) – two stages
  - Synthesis: Pavement Preservation Equipment and Quality Assurance (submitted 2025, not accepted
    - Synthesis topics due April (probably not tomorrow, but soon…)
  - Synthesis: Alternatives to chlorinated solvents for use in asphalt solubility testing, extraction, and oth give update tomorrow, B there or B^2)
- Others?
  - Synthesizing AASHTO documents: material standard, mix design standard, construction guides, QA → put side by side to ensure consistency
- HiMOD treatments, can "HiMOD" from the asphalt mix world be translated to emulsion forward with material standard/design/construction/quality/etc