



SUBCOMMITTEE ON MATERIALS
101st Annual Meeting – Pittsburgh, Pennsylvania
Monday, August 3, 2015
1:00 pm – 3:00 pm EST

TECHNICAL SECTION 4c
COATINGS, PAINTS, PRESERVATIVES, BONDING AGENTS AND TRAFFIC MARKINGS

I. Call to Order and Opening Remarks

II. Roll Call

Voting Members:

Name	State	Present
Steve Ingram(Robert)	AL	
Phil Stolarski	CA	
Bob Lauzon	CT	X
Rick Douds	GA	X
Rick Kreider	KS	
Derrick Castle	KY	
Jason Davis	LA	
Clement Fung	MA	
Woody Hood (proxy – Sejal Barot)	MD	X
Matt Strizich (proxy – Ross Metcalfe)	MT	X
Denis Boisvert	NH	
Eileen Sheehy	NJ	X
Tim Ramirez	PA	X
Dave Kuniega, Chair	PA	X
Danny Lane	TN	X
Darren Hazlett	TX	X
Scott Andrus	UT	X
Bill Bailey	VA	X
Bill Ahearn	VT	X
Brandi Mitchell	KY	X

Non-Voting Members:

Name	Affiliation	Present
Evan Rothblatt	AASHTO	
Henry Lacinak	AASHTO	X

Bob Lutz	AMRL	
Maria Knake	AMRL	X
Tracy Barnhart	AMRL	X
Steven Lenker	AMRL	
Paul Virmani	FHWA	

Friends:

Name	Affiliation	Present
Gene Carlson	3M Company	X
Richard Baker	DBI Services	X
Al Innis	Holcim Inc.	
Robert Dingess	Mercer	X
Andy Anderson	Potters	
Paul Carlson	TTI	X
Greg Freeman	Kwik-Crete Polymers	X

III. Approval of Technical Section Minutes

A. Minutes approved Motion by Bailey (Va) second by Hazlett (Tx) passed unanimously

IV. Old Business

- A. SOM Ballot Items - no negatives
- B. TS ballots

- i. TP 106 negative TX regarding P&B; traceable standards; equipment specification for method
 - 1. There is a question about the variability of this test method using various devices.
 - 2. Background: This came out of some research by Rowan University through the NJ DOT. XRF was intended to be a safer, easier, more consistent method than the method EPA specified. The concern from the manufacturers is in sampling (how representative the results are going to be in judging the content of the entirety of the materials).
- ii. This is a reconfirmation of a provisional standard. Motion: VA: Find the negative persuasive and form a task group to determine the precision and bias through a round-robin through AMRL. NJ: 2nd. The test will remain as a provisional standard while the P&B statement is being developed. The sampling question will be addressed as a separate action. TASK FORCE 15A FORMED: Bill Bailey (VA), Arturo Perez (TX), Sheehy designee (NJ), Jerry McMahan (VT), Sejal Barot (MD), Dingess

C. Task Force Reports

- i. TF 04-D status update regarding accelerated aging for galvanized or metalized coatings affecting R 31-09 (D. Castle KY Chair) – He was not in attendance. This will be postponed.
- ii. TF 11-C develop an unambiguous determination of transparent, clean, colorless as informed by NCHRP Report 743 (Rob Dingess, Gene Carlson, Tony Wade, Jim Swisher, Dave Kuniega PA and Jerry McMahan- VT) affecting M247 – 13 – There is an NCHRP report, 743, which includes a draft AASHTO standard, will be reviewed for a potential TS ballot in this cycle. ASTM D01 has interest in taking this standard over and publishing it. TS BALLOT.
- iii. TF 11-D address wet weather performance and FAA color requirements CEI table requirements affecting M249-12 (Bob Lauzon CT, Rob Dingess, Paul Carlson) – This continues to be worked on. Paul is working with FAA on color requirements. FAA may be shifting color requirements which may be bringing more compatibility between the FAA and highway specs.

- iv. TF 12-01 evaluate techniques to find depth of penetration of concrete sealers affecting PP 73-13 Quality Assurance, Job-site Quality Control and Reapplication of Protective Sealers on Portland Cement Concrete (Dave Kuniega PA, Jerry McMahan VT) – **This is now closed.**
- v. TF 13 A elimination of benzene dissolution in M235-13 – **PennDOT has a draft standard that AASHTO publications can be converted to AASHTO format. Then it will be distributed to the group for review and comment.**
- vi. TF 13 E evaluate the development and use of NIST reference standards for TP 106-13*** (see new business below) to compete round robin and Precision and Bias statement – **This will be combined with the newly formed task force that will address the negative (15A) on TP 106's P&B statement.**
- vii. TF 14- 1 evaluate pavement marking friction tests and report back to TS on efficacy and recommended practice for friction measurement – **This task force will continue to work on this issue by review of work from NCAT, FDOT; PSU and ATTSA.**

V. New Business

- A. Research Proposals
 - i. How Thermal Compatibility (TC) Affects Polymer –Aggregate Systems - **Scott Andrus (UT) is recommending that the TS look at this proposal to develop criteria that will look at the compatibility of the deck surface with the polymer overlay. TC would appear to be a contributing factor in pavement failure. There is a question about how much this should cost and the scope. The goal is to come up with a test and specification. A task force will be created to fine-tune this recommended 20-7 research proposal. (Embed the research proposal in the minutes.) There could be a more expensive field study performed as an alternative to this smaller-scale lab study. Motion: 1. UT, 2. TN, motion carried to propose this as a 20-7 research proposal to the full SOM. Appended**
- B. AASHTO Issues - **None**
- C. NCHRP Issues - **None**
- D. Correspondence, calls, meetings/ Presentation by Industry
 - i. Select a date for Mid-Year Web Meeting – **1/14/16 proposed – there is a conflict with TRB so the TS would like to propose sending out a survey proposing a new date. It should be the week prior to TRB because there is a tight deadline to get negatives addressed.**
 - ii. Civjan question about adequacy of test protocol when no failure is detected based on low load application TP84 – **Items included the length of anchor elongation; applied epoxy never developing full elongation and potential limitations in the method. Task Force formed to look at this: James Wild (VT), Andrus (UT). There is hesitation to join this task force because it may sound like an endorsement of a practice (use of epoxy anchors in sustained tension) that is reported to be prohibited by code. This will be TF 15B.**
 - iii. **WAQTC request for re-adoption of M-144 (resolved 2014)**
- E. Proposed New Standards
 - i. **Task force proposed to work on establishing a standard specification on green bike lane materials. Friction and color box are key issues. Lane (TN), Mitchell (KY), Greg Freeman, Richard Baker, Mike Stenko. This will be TF 15C.**
- F. Proposed New Task Forces – **15A, 15B, 15C**
- G. Standards Requiring Reconfirmation
 - i. **M 133-12 Preservatives and Pressure Treatment Processes for Timber – Scott Andrus (UT)**
 - ii. **M 249-12 White and Yellow Reflective Thermoplastic Striping Material (Solid Form) – Rick Douds (GA)**
 - iii. **MP 24-15 Waterborne White and Yellow Traffic Paints – Dave Kuniega (PA)**
 - iv. **PP079-14 High-Friction Surface Treatment for Asphalt and Concrete Pavements – Danny Lane (TN)**
 - v. **TP 84-11 (2010) Evaluation of Adhesive Anchors in Concrete under Sustained Loading Conditions (Consider balloting as full standard) - VT**

- vi. **TP111-14** Retroreflectivity of Pavement Marking Materials Using a Mobile Retroreflectivity Unit – Bob Lauzon (CT)
- H. SOM Ballot Items (including any ASTM changes)
 - i. There will be reconfirmation ballots put forward by AASHTO on 10/15/15
 - ii. M 235-13 is due for reconfirmation next year. There was a change in ASTM that warrants examination for modification of M 235 for discussion at the mid-year meeting. Eileen Sheehy (NJ) will work on this. Ballot for Tech section review only.

VI. Open Discussion

- A. Machine-readable pavement markings for lane-keeping: NCHRP will fund this research problem statement. They are looking for panel members. There could be a few members of 4c that would actively solicit inclusion on this panel to keep the group involved. Need for a Task Force not necessary at this juncture.
- B. We need a list of the stewards for each of the standards in this TS. Some of them were selected during this meeting. Please volunteer to take stewardship of some of the standards.
- C. Dave Kuniega (PA) is the new chair. Bob Lauzon (CT) will be the new vice-chair.

VII. Adjourn

**AASHTO STANDING COMMITTEE ON RESEARCH
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS**

I. PROBLEM NUMBER

To be assigned by NCHRP

II. PROBLEM TITLE

How Climatic Conditions during the Service Life Effect the Long Term Durability of Polymer Resin Binder Systems for High Friction Surface Treatment (HFST) and Thin-bonded Polymer Bridge Deck Overlay Systems

III. RESEARCH PROBLEM STATEMENT

Many mechanisms can contribute to premature failure of High Friction Surface Treatments and Thin-bonded Polymer Overlay Systems. State, City and County Departments of Transportation regularly specify the material properties for a polymer resin binder used as a key component in an HFST and/or a Thin-bonded Polymer Bridge Deck Overlay System. Thermal incompatibility is a primary contributor to early age failure of such treatments. Along with thermal compatibility, UV stability and glass transition states play a role in the loss and/or increase in the flexibility of the resin binder system.

Specifying agencies need suitable test methods to understand the stresses and strains induced into the pavement and/or concrete bridge deck by the addition of a polymer overlay system bonded to the surface in forming a composite. Specifying agencies are in need of test methods that can determine thermal compatibility of these systems with various pavement types and concrete bridge decks so that early age failures can be minimized.

Although some research has been done to bring light to these various contributors to early failure nothing has been done to develop test methods that correlate how field conditions contribute to these early failures. It can be concluded that these factors play a crucial if not playing a dominate role in such failures such as de-bonding, spalling and cracking of these overlay systems.

IV. LITERATURE SEARCH SUMMARY

V. RESEARCH OBJECTIVE

This project would be used to determine thermal compatibility, loss of flexibility and degradation of such overlay systems with various pavement types and/or concrete bridge decks. Identifying the contribution of thermal stress cycling is critical to the broader application of the technology to high friction course pavements and potentially high friction pavement markings. I propose the following:

- After exposure for 500, 1000 and 1500 hours, specimens will be tested for tensile strength and tensile elongation at break point to demonstrate any substantial gain/loss in tensile strength and flexibility of the binder systems (This testing has been conducted in an ODOT Research Study in conjunction with the FHWA Report #SPR 304-431, published November 2010) Although significant results were attained, recommendations were not made as to how the data could be interpreted and used within a specification.

VI. ESTIMATE OF PROBLEM FUNDING AND RESEARCH PERIOD

\$80,000 12 months

VII. URGENCY, PAYOFF POTENTIAL, AND IMPLEMENTATION

The desired outcome of this study would be to make recommendations for test methods aimed at the development of better standards for polymer resin binder systems used in HFST and Thin-bonded polymer overlay systems. This would also better regulate how the manufacturers of such systems would evaluate the characteristics of the product.

VIII. PERSON(S) DEVELOPING THE PROBLEM

AASHTO SOM Technical Section 4c

IX. PROBLEM MONITOR

To be determined.

X. DATE AND SUBMITTED BY

July 14, 2015

Greg Freeman

Scott Andrus

Kwikbond Polymers

TS 4c Research Liaison

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