Warm Mix Asphalt (WMA) & Anti-Strip Additives (ASA) Technical Committee Meeting Agenda

Working Session # 8

Thursday, June 18, 2020 11:00AM – 12:30PM Eastern

1) **11:00AM-11:05AM: Call to Order and Introductions**

2) **11:05AM-11:10AM: Review of Current Technical Committee Members**

3) **11:10AM-11:15AM: Brief summary of the Technical Committee (for those states not participating in quarterly calls or who are new to NTPEP)**

The Warm Mix Asphalt Technologies technical committee serves to evaluate different warm mix additives and processes. The use of warm mix has expanded annually over the past decade as a way to reduce energy use, enhance compaction, while still placing a pavement designed to perform. The purpose of this committee is to help states evaluate the various additives and processes used, and to help them determine which products and processes may work for their state.

The work plan and technical committee have been set up to handle both laboratory produced and plant produced mixes. The work plan highlights the testing that will occur as part of the program to help states evaluate the performance of various additives and technologies.

- Asphalt Binder Evaluation
  - With or without the additive
- Basic Control Mix Properties (2 mixes – Granite & Limestone)
  - ESAL's, VMA, VFA, Gyrations…
- Control Mix Aggregate Properties
  - Limestone & Granite
- Tensile Strength Ratio (TSR – T 283)
  - With or without the additive – aggregate type
- Hamburg Wheel (T 324)
  - With or without the additive – aggregate type

- Boil Test (ASTM D3625)
    - With or without the additive – aggregate type

4) **11:15AM-11:25AM: Review of how to access data in DataMine for this specific Technical Committee – Share DataMine to show program changes & data format**
    a) Are any PPA modifiers included?
        i) Not included; program tries to keep it the base standard grade.
    b) ASA test data entry is live on DataMine
    c) Hamburg wheel graphical raw data is available
    d) **Action Item –** FTIR needs to be available to State DOT users (Vince Glick / Jonathan Sirianni)
    e) **Action Item –** Datamine does not display products "In Progress" – need to fix this glitch.

5) **11:25AM-11:35AM: Review of Outstanding Action Items**
    a) Update FTIR language and ballot change – Done
    b) Include TSR & HW photos in DataMine - Done
    c) **Action Item -** PPA Compatibility Checkbox needs to be added (Jonathan Sirianni / Barry Paye)
    d) Implementation toolbox – Done
    e) Rejuvenator Task Force – Today
    f) **Action Item** – Check to confirm if the dosage rate is visible in DataMine (Jonathan Sirianni)

6) **11:35AM-11:45AM: Update - Program Status**
    a) Work Plan updated
    b) NCAT started as the test lab
    c) 7 products tested in 2019
    d) 2 applied to be tested in 2020

7) **11:45AM-Noon: New Business Items**

- **Rejuvenator Task Force Establishment**
    - Need volunteers
        - John Blakely
        - See poll question for more names.
    - Develop Work Plan
- **Need to change committee name – Asphalt Additives?**
    - Warm Mix, Anti-Strip & Rejuvenators is too long
    - Asphalt Additives?

        - Highest approval rating during the session
    - Ideas?
- If a retest is requested:
    - Manufacturer is to provide the evidentiary basis for retest with the intent those results will supersede the previous.

8) **Noon-12:15PM: Industry Discussion**
   a) Victoria Woods (Ingevity) – DataMine Question
      i) Action Item - TSR Data – enhance for full visibility of the table(s); implement the SSC full screen function (Vince Glick / Jonathan Sirianni)

9) **12:15PM-12:30PM: Open Discussion**
   a) Program has transitioned from open submission cycles to quarterly
      i) Current Cycle ends 6/26, next cycle opens 10/5
   b) Rejuvenator task force's developments will be assessed to whether any of the implementations should carry over to WMA or ASA

Action Items (from above)

a) **Action Item –** FTIR needs to be available to State DOT users (Vince Glick / Jonathan Sirianni)
b) **Action Item -** PPA Compatibility Checkbox needs to be added (Jonathan Sirianni / Barry Paye)
c) **Action Item** – Check to confirm if the dosage rate is visible in DataMine (Jonathan Sirianni)
d) Action Item - TSR Data – enhance for full visibility of the table(s); implement the SSC full screen function (Vince Glick / Jonathan Sirianni)

NTPEP

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Warm Mix Asphalt and Anti-Strip Additives Program (for now!)

Program Update & Report – June 18, 2020

11 AM Eastern

Barry Paye, WI DOT –Chair
Heather Hall, TN DOT- Vice Chair

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Today's Topics

- TC Members
- WMA & ASA Program Description
- Datamine & Program Updates
- Outstanding Action Items
- New Business
- Industry Discussion
- Open Discussion

Technical Committee Membership

Name	Affiliation	TC Role	Voting?
Sirianni, Jonathan	American Association of State Highway and Transportation Officials	Liaison	Non-Voting
Corrigan, Matthew	Federal Highway Administration	Ex Officio	None
Paye, Barry C	Wisconsin Department of Transportation	Technical Committee Chair	Voting
Hall, Heather	Tennessee Department of Transportation	Technical Committee Vice Chair	Voting
Ingram, Steven	Alabama Department of Transportation	Technical Committee Member	Voting
Armstead, William Chance	Alabama Department of Transportation	Technical Committee Member	Non-Voting
Saboundjian, Steve	Alaska Department of Transportation and Public Facilities	Technical Committee Member	Voting
Rilko, Wayne Andrew	Florida Department of Transportation	Technical Committee Member	Voting
Sholar, Gregory A	Florida Department of Transportation	Technical Committee Member	Non-Voting
Bandoh, Alexander	Georgia Department of Transportation	Technical Committee Member	Voting
Davis, Jason	Louisiana Department of Transportation and Development	Technical Committee Member	Voting

Technical Committee Membership

Name	Affiliation	TC Role	Voting?
Charoenpap, Richie	Louisiana Department of Transportation and Development	Technical Committee Member	Voting
Brum, Mark John	Massachusetts Department of Transportation	Technical Committee Member	Voting
Meyerhoff, Mike	Missouri Department of Transportation	Technical Committee Member	Voting
Oesch, Dan	Missouri Department of Transportation	Technical Committee Member	Non-Voting
Metcalfe, Ross Oak	Montana Department of Transportation	Technical Committee Member	Voting
Pan, Changlin	Nevada Department of Transportation	Technical Committee Member	Voting
Colgate, Charles Richard	North Carolina Department of Transportation	Technical Committee Member	Voting
Collins, Tony D	North Carolina Department of Transportation	Technical Committee Member	Non-Voting
Ilg, Larry D	Oregon Department of Transportation	Technical Committee Member	Voting
Short, Temple	South Carolina Department of Transportation	Technical Committee Member	Non-Voting
Selkinghaus, Cliff B	South Carolina Department of Transportation	Technical Committee Member	Voting

Technical Committee Membership

Name	Affiliation	TC Role	Voting?
Motamed, Arash	Texas Department of Transportation	Technical Committee Member	Voting
Shi, Bin	Utah Department of Transportation	Technical Committee Member	Voting
Yin, Fan	National Center for Asphalt Technology at Auburn University	Testing Facility	Non-Voting
Woods, Victoria Lynn	InVia Pavement Technology	Industry Participant	Non-Voting

Program Description (11:10)

- Warm Mix Asphalt Technologies
  - Asphalt Binder Evaluation
    - With and without the additive
  - Basic Control Mix Properties
    - ESAL's, VMA, VFA, Gyrations….
  - Compactability
  - Control Mix Aggregate Properties
    - Limestone for WMA Program
  - Tensile Strength Ratio (TSR – T 283)
    - With and without the additive
  - Hamburg Wheel (T 324)
    - With and without the additive

Program Description

- Anti Strip Additive
  - Asphalt Binder Evaluation
    - With and without the additive
  - Basic Control Mix Properties (2 mixes – Granite and Limestone)
    - ESAL's, VMA, VFA, Gyrations….
  - Control Mix Aggregate Properties
    - Limestone and Granite
  - Tensile Strength Ratio (TSR – T 283)
    - With and without the additive – each aggregate type
  - Hamburg Wheel (T 324)
    - With and without the additive – each aggregate type
  - Boil Test (ASTM D3625)
    - With and without the additive – each aggregate type

Datamine – WMA & ASA (11:15)

- Product Information
- Vendor Information
- Product Usage
- Product Literature
  - Mixing & Instructions
  - SDS
  - Technical Literature
- Dosage Rate
- Poll Question 1: Do you use the data from this program?

Datamine – Temperatures

WMA Testing | ASA Testing | Additional Documentation

Release Status: **Public**

Sample Properties	Control	WMA
Aggregate Type.		
Mixing Temp.	310	275
Compaction Temp.	290	275
Plant/Lab	Lab	Lab
WMA Technology (if applicable)	None	

Release Status: **Public**

Asphalt Properties (M 320 & M 332)			
Attributes	**Unit**	**Control**	**WMA**
Viscosity (T 316)	**Pa*s**	0.445	0.44
Original DSR Temp (T 315)	**°C**	67	67
Original DSR G * / sin delta (T315)	**kPa**	1.37	1.4
Original DSR phase angle (T315)	**degrees**	87.2	87
RTFO DSR Temp (T 315)	**°C**	67	67
RTFO DSR G*/sin delta (T315)	**kPa**	2.97	2.94
RTFO MSCR, Jnr 0.1 (T 350)	**kPa^{-1}**	3.33	3.29

Datamine – Binder Properties

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Release Status: **Public**

Asphalt Properties (M 320 & M 332)			
Attributes	**Unit**	**Control**	**WMA**
Viscosity (T 316)	**Pa*s**	0.445	0.44
Original DSR Temp (T 315)	**°C**	67	67
Original DSR G * / sin delta (T315)	**kPa**	1.37	1.4
Original DSR phase angle (T315)	**degrees**	87.2	87
RTFO DSR Temp (T 315)	**°C**	67	67
RTFO DSR G*/sin delta (T315)	**kPa**	2.97	2.94
RTFO MSCR, Jnr 0.1 (T 350)	**kPa^{-1}**	3.33	3.29
RTFO MSCR, Jnr 3.2 (T 350)	**kPa^{-1}**	3.68	3.82
RTFO MSCR, Jnr Diff (T 350)	**%**	10.67	16.08
RTFO MSCR, Recovery 3.2 (T 350)	**%**	-0.18	0.69
PAV DSR Temp (T 315)	**°C**	25	25
PAV DSR G*sin delta (T315)	**kPa**	4890	4939
Stiffness (T 313)	**MPa**	221	209
m-value (T 313)		0.313	0.316
True PG Grade		68.6-23.5	68.6-23.8

Release Status: **Public**

Mixture Properties

Datamine – Mix Properties

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m-value (T 313)		0.313	0.316
True PG Grade		68.6-23.5	68.6-23.8

Release Status: **Public**

Mixture Properties		
Attributes	**Unit**	**Control**
NMAS (R 35 and Appendix X2 of R 35)	**mm**	12.5
ESAL Category (R 35)	**Million ESAL's**	
Maximum Specific Gravity (T 209)		2.634
Bulk Specific Gravity (T 166)		2.528
Air Voids (T 269)	**%**	4
VMA (M 323)	**%**	14.3
VFA (M 323)	**%**	72
Gyrations (M 323)	**gyrations**	60
Ndes (R 35)	**gyrations**	60
Nmax (R 35)	**gyrations**	

Release Status: **Public**

Aggregate Properties			
Attributes	**Unit**	**Control**	**WMA**
Percent Passing 3/4" (T 27)	**%**	100	100
Percent Passing 1/2" (T 27)	**%**	96.9	96.9

Datamine – Aggregate Properties

Aggregate Properties			
Attributes	**Unit**	**Control**	**WMA**
Percent Passing 3/4" (T 27)	%	100	100
Percent Passing 1/2" (T 27)	%	96.9	96.9
Percent Passing 3/8" (T 27)	%	89	89
Percent Passing #4 (T 27)	%	47.7	47.7
Percent Passing #8 (T 27)	%	29.3	29.3
Percent Passing #16 (T 27)	%	22.1	22.1
Percent Passing #30 (T 27)	%	16.2	16.2
Percent Passing #50 (T 27)	%	10.6	10.6
Percent Passing #100 (T 27)	%	7.2	7.2
Percent Passing #200 (T 27)	%	5	5
Minus #200 (T 27)	%	5	5
Coarse Aggregate Gsb (T 85)		2.758	2.758
Gravity of Aggregate Gse (T 85)		2.828	2.825
Absorption of Coarse Aggregate (T 85)	%	1.4	1.4
Fine Aggregate Gsb (T 84)	%		
Absorption of Fine Aggregate (T 84)	%	0.4	0.4
Flat & Elongated Particles (D4791)	%	0.3	0.3
Sand Equivalent (T 176)	%	44	44

Datamine – Tensile Strength

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Release Status: **Public**

TSR (T283)									
Attributes	**Unit**	**Control**				**WMA**			
					Average				**Average**
Dry Set Specimen Number		10	11	12		22	23	24	
Gmm (T 209)		2.634	2.634	2.634	2.634	2.627	2.627	2.627	2.627
Dry Gmb (T 166)		2.447	2.454	2.453	2.451	2.437	2.451	2.445	2.444
Dry Air Voids (T 269)	%	7.1	6.8	6.9	6.9	7.2	6.7	6.9	6.9
Diameter - Dry	In	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91
Thickness - Dry	In	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74
Dry ITS (T 283)	lbs	4739.3	4692.5	4532.7	4654.8	3832.5	3966.2	3992.2	3930.3
Conditioned Set Specimen Number		14	15	16		19	20	21	
Conditioned Gmb (T 166)		2.453	2.453	2.448	2.451	2.447	2.446	2.448	2.447
Conditioned Air Voids (T 269)	%	6.9	6.9	7.1	6.9	6.9	6.9	6.8	6.9
Saturation (T 283)	%	79	75.3	75.7	76.7	79.6	75.2	78.6	77.8
Diameter - Conditioned	In	5.91	5.91	5.91	5.91	5.91	5.91	5.91	5.91
Thickness - Conditioned	In	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74
Conditioned ITS (T 283)	lbs	3509.4	3586.5	3665.2	3587	3447.9	3483.8	3334.5	3422.1
TSR (T 283)	%				77.1				87.1

TSR(T238) - Dry and Moisture Conditioned Sample Photos

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UNCONDITIONED

CONDITIONED

Datamine – Hamburg Wheel

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Release Status: **Public**

Perfomance Testing			
Attributes	**Unit**	**Control**	**WMA**
Hamburg (T324) Rut Depth -- 5000 Passes	**mm**	2	3.01
Hamburg (T324) Rut Depth -- 10000 Passes	**mm**	2.74	4.05
Hamburg (T324) Rut Depth -- 15000 Passes	**mm**	3.59	5.65
Hamburg (T324) Rut Depth -- 20000 Passes	**mm**	6.15	9.63
Hamburg (T324) Rut Depth -- Final	**mm**	6.15	9.63
Hamburg (T324) Cycles	**Cycles**	20000	20000
Stripping Inflection Point (SIP)		16100	18000
Bulk Specific Gravity (T166) Gmb		2.451	2.443
Air Voids (T 269)	**%**	6.9	7

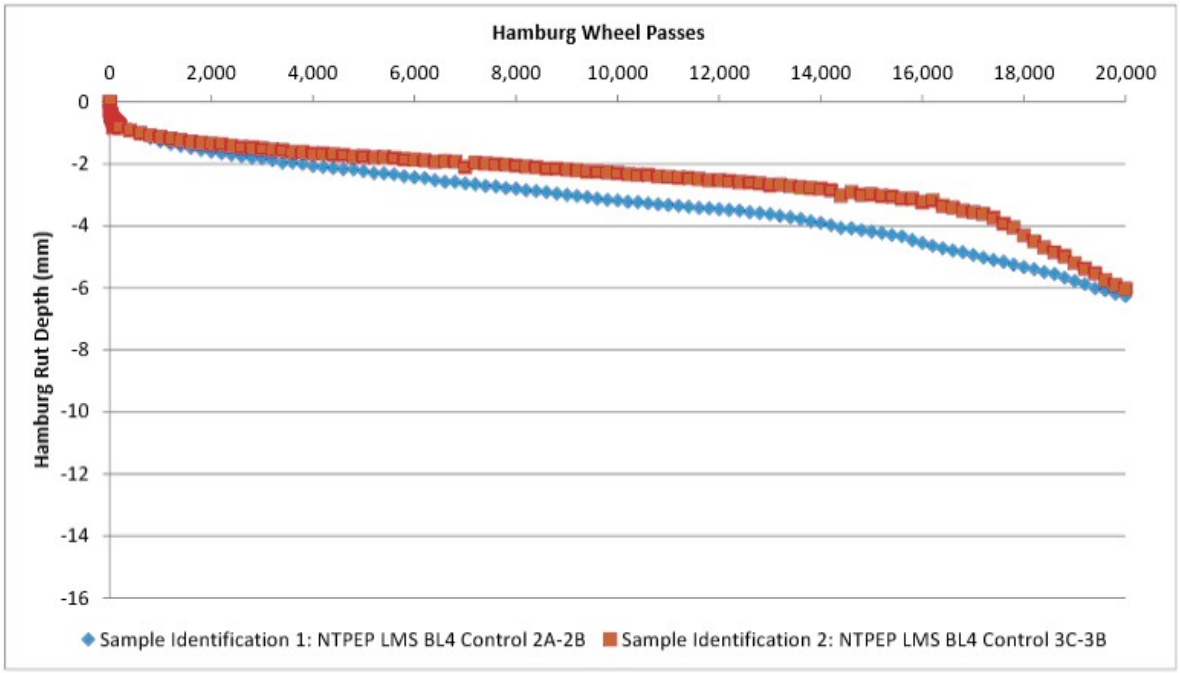
PDF Plot

PDF Plot	Document
HMA Control_HWTT Plot	LMS Control HWTT Plot.pdf
WMA_HWTT_Fastac Plot	WMA_HWTT

Performance Testing Photos

Photos

Datamine


Hamburg Wheel Passes
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
20,000
Hamburg Rut Depth (mm)
0
-2
-4
-6
-8
-10
-12
-14
-16
Sample Identification 1: NTPEP LMS BL4 Control 2A-2B
Sample Identification 2: NTPEP LMS BL4 Control 3C-3B

Datamine – Boil Test

Boil Test (ASTM D3625)					
Attributes	**Unit**	**Control1**	**ASA**	**Control2**	**ASA**
Aggregate Type.		**Limestone**	**Limestone**	**Granite**	**Granite**
Percent of Uncoated Particles (By Number of Particles)	%	0	0	100	0

Boil Test (ASTM D3625) Photos

Photos

ASA_Granite_Boil Aft

HMA Control_Granite_Boil After

HMA Control_Limestone_Boil After

ASA_Limestone_Boil A

Release Status: **Restricted**

FTIR Spectroscopy			
Documents	**Rep1**	**Rep2**	**Correlation Coefficient**
Instrument File			
PDF File			

Revert Release

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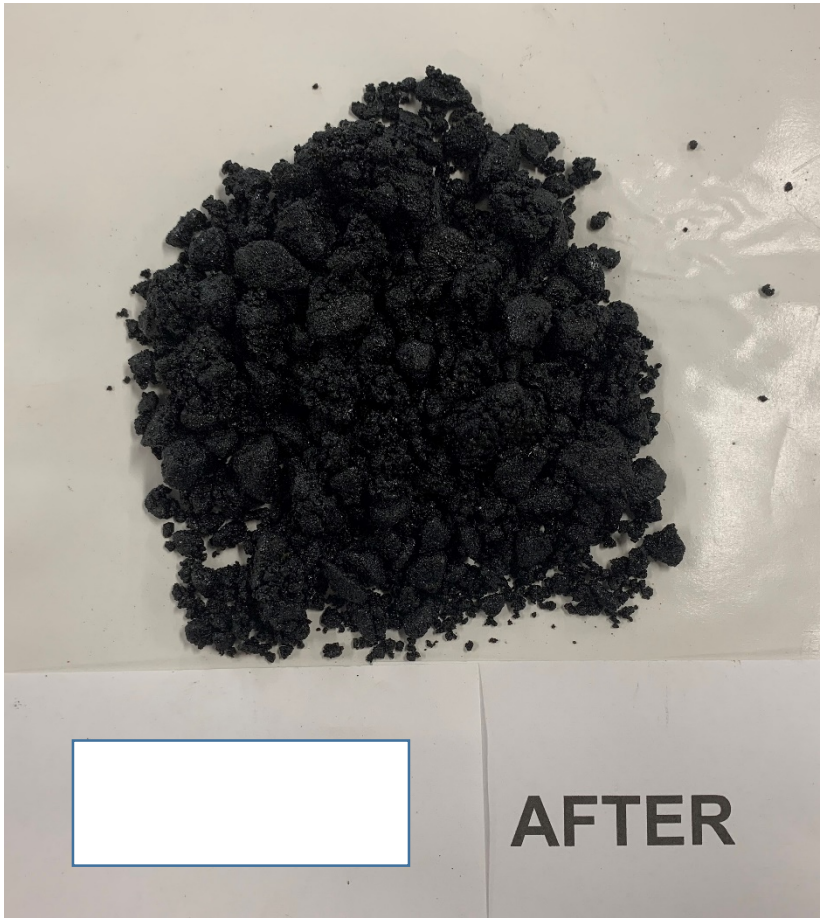
Datamine



Outstanding Items from Big Sky & 10/7/19 meeting (11:25)

- Update FTIR language and ballot change - Done
- Include TSR & HW photos in Datamine - Done
- PPA compatibility checkbox – Not added
- Implementation toolbox – Done
- Rejuvenator Task Force – Today

- Poll Question 2: How many of you plan to use the Anti-strip program?

Program Status (11:35)

- Work plan updated
- NCAT started as the test lab
- 7 products tested in 2019
- 2 applied to be tested in 2020

New Business (11:45)

- Rejuvenator Task Force
  - Need volunteers
  - Develop workplan
  - Poll Question #3 – Who would be interested in participating on this task force?
- New Name
  - Warm Mix, Anti-Strip & Rejuvenators is too long!!
  - Asphalt Additives?
  - Something else?

Industry Questions & Open Discussion (12:00)

- Please type in the Q&A Box so we can open your microphone and answer your questions.

Contact Info

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