



HOT MIX ASPHALT JOB MIX FORMULAS

COMPANY: TL Edwards CITY: Avon
 PLANT LOCATION: Avon

DATE: 3/14/2019
 REVISION # _____
 DATE OF REVISION: _____
 TELEPHONE #: 508-583-2029

RMS043 Revised 1/21/2017

PLANTS																			
ID #	Batch/Drum Size			Automatic Controls (X)					PG Binder Tanks			Mix Silos, Insulation / Heated (X)							
1	tons/	400	Tph	part	full	x	w/printer	x	3	@	20k	gals.	3	@	200	ton, ins.	x	htd	x
	tons/		Tph	part	full		w/printer			@		gals.		@		ton, ins.		htd	
	tons/		Tph	part	full		w/printer			@		gals.		@		ton, ins.		htd	

COARSE AGGREGATE					FINE AGGREGATE				
Nom size	Producer & City				%	Type	Producer & City		
1 1/2", 3/4"	TL Edwards Stoughton MA				60	Screenings	TL Edwards Stoughton MA		
1/2", 3/8"	TL Edwards Stoughton MA					Stone Sand			
					40	Natural Sand	TL Edwards Plymouth MA		

RAP AMOUNT							Mineral Filler		PG Binder/Modifier		
Mix Type	Amount	Size	Binder				% and Kind	Grade	Producer & City		
Base***	25	%	1/2"	.w/PG	64-28	modifier	2	%	64-28 Bitumar Providence RI		
Intermediate***	25	%	1/2"	.w/PG	64-28	modifier	Baghouse Fines	Kind	64-28 Aggregate Industries Everett MA		
Surface	15	%	1/2"	.w/PG	64-28	modifier					

Special Material:					Anti-Strip:					PG Binder/Modifier				
OGFC: Polymer	3	%	Kind	Ultrapave Latex	0.75	% of Binder	Kind:	Parakoate						
Warm Mix Technology:	0.4	%	Kind	Evothem	Silicone:	1	oz per	5000	gals.					
					Mix Temp Range:	304-315	*F	Compact Temp Range:	283-292	*F				

ALLOWABLE TOLERANCES									
Sieve Designation/ Binder Content	Eng. Limit All Mixes	Eng. Limit for OGFC							
Passing No. 4 and larger sieve sizes	JMF Target +/- 7 %	JMF Target +/- 5 %							
Passing No. 8 through No. 100	JMF Target +/- 4 %	JMF Target +/- 3 %							
Passing No. 200	JMF Target +/- 2 %	JMF Target +/- 1 %							
% Binder	JMF Target +/- 0.4 %	JMF Target +/- 0.3 %							

NOTE LIMITATIONS	
(Unless Data Approved)	
Unless authorized by the Engineer, no Job Mix formula for mixes containing RAP will be approved which specifies:	
* Less than 6% binder for HMA Surface Course - Standard Top	
** Less than 5.5% binder for HMA Surf. Course - Dense Binder and Mod Top	
*** Batch plants may not exceed 20% RAP	
**** RAP is not allowed in OGFC	

*** Warm mix additives are only to be used as a compaction aide and not to lower the target production or compaction temperatures.
 Additives shall be listed on the NEAUPG website at <http://www.neaupg.uconn.edu/welcome-to-the-neaupg-website/warm-mix-asphalt-wma-information>.

FORMULAS
 (DR = Design Range of Specifications, JM = Job Mix Formula)
 Aggregate Percentages below are proportional percentages of total aggregate for the mix.

Sieve Size	HMA Base		HMA Binder		HMA Interm. Dense Binder		HMA Surface Dense Binder		HMA Surface Std. Top		HMA Surface Mod. Top		HMA Dense Mix		HMA Surf. Tmt.		HMA OGFC****		HMA		HMA		
	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	
	2"	100	100																				
1"	64-80	80	100	100	100	100	100	100			100	100											
3/4"			87-93	93	87-93	93	87-93	93			95-100	98											
5/8"									100	100													
1/2"	47-58	58	62-68	68	72-73	73	72-73	73	95-100	98	86-93	92	100	100			100	100					
3/8"									87-93	88	75-81	81	87-93	93	100	100	95-100	95					
#4	27-38	36	35-43	39	55-58	55	55-58	55	57-69	61	55-61	55	62-73	73	94-100	94	35-45	45					
#8	19-29	27	24-34	30	41-45	41	41-45	41	41-45	41	37-42	41	52-55	53	68-81	72	8-12	11					
#16									30-36	31	24-36	31	40-45	40	50-64	55							
#30	12-13	13	12-18	14	21-26	21	21-26	21	21-25	22	18-26	21	28-34	28	30-46	39							
#50	8	8	9-11	9	14-18	14	14-18	14	14-17	14	13-17	13	18-23	18	17-27	22							
#100									9-12	9	10-12	10	10-14	10	11-13	12							
#200	2	2	2-3	3	2-4	4	2-4	4	4-5	4	4	4	6	6	5-6	6	2	2					
% Binder	4.4-4.6	4.5	4.9-5.1	5.0	5.4-5.6	5.5	** 5.4-5.6	5.5	* 5.9-6.6	6.0	** 5.4-5.6	5.5	7.4-7.6	7.4	7.4-7.6	7.5	6.3-6.7	6.3					
Max. Theo Sp. Gr.	2.534		2.527		2.516		2.516		2.431		2.439		2.416		2.411								

We agree to furnish mixes to MassDOT projects produced from only above referenced materials, within allowable tolerances of the exact formulas given above.
 We also understand that formulas are to be submitted annually, prior to production for MassDOT work, and any subsequent changes in materials or formulation will require resubmission for approval.

Authorized Signature and Title: *Stephen Edwards*

e-mail address: sedwards@tiedwards.net

MassDOT Approval: Mark Brum

Digitally signed by Mark Brum
 DN: cn=Mark Brum, o=MassDOT, ou=Research & Materials, email=Mark.Brums@state.ma.us, c=US
 Date: 2019.03.14 15:21:00 -0400



HOT MIX ASPHALT JOB MIX FORMULAS

COMPANY: TL Edwards
 PLANT LOCATION: Avon

CITY: Avon

DATE: 3/14/2019
 REVISION # _____
 DATE OF REVISION: _____
 TELEPHONE #: 508-583-2029

RMS-043 Revised 1/21/2017

PLANTS																			
ID #	Batch/Drum Size				Automatic Controls (X)					PG Binder Tanks			Mix Silos, Insulation / Heated (X)						
2	4	tons/	Tph	part	full	x	w/printer	x	3	@	20k	gals.	3	@	200	ton, ins.	x	htd	x
		tons/	Tph	part	full		w/printer			@		gals.		@		ton, ins.		htd	
		tons/	Tph	part	full		w/printer			@		gals.		@		ton, ins.		htd	

COARSE AGGREGATE					FINE AGGREGATE					
Nom size	Producer & City				%	Type	Producer & City			
1 1/2", 3/4"	TL Edwards Stoughton MA				60	Screenings	TL Edwards Stoughton MA			
1/2", 3/8"	TL Edwards Stoughton MA					Stone Sand				
					40	Natural Sand	TL Edwards Plymouth MA			

RAP AMOUNT							Mineral Filler			PG Binder/Modifier		
Mix Type	Amount	Size	Binder				% and Kind	Grade	Producer & City			
Base***	20	%	1/2"	.w/PG	64-28	modifier	2	%	64-28	Bitumar Providence RI		
Intermediate***	20	%	1/2"	.w/PG	64-28	modifier	Baghouse Fines	Kind	64-28	Aggregate Industries Everett MA		
Surface	15	%	1/2"	.w/PG	64-28	modifier						

Special Material:					Anti-Strip:					Parakoate				
OGFC: Polymer	3	%	Kind	Ultrapave Latex	0.75	% of Binder	Kind:	Parakoate						
Warm Mix Technology:	0.4	%	Kind	Evotherm	Silicone:	1	oz per	5000	gals.					
					Mix Temp Range:	304-315	*F	Compact Temp Range:	283-292	*F				

*** Warm mix additives are only to be used as a compaction aide and not to lower the target production or compaction temperatures.
 Additives shall be listed on the NEAUPG website at <http://www.neaupg.uconn.edu/welcome-to-the-neaupg-website/warm-mix-asphalt-wma-information>.

ALLOWABLE TOLERANCES		
Sieve Designation/ Binder Content	Eng. Limit All Mixes	Eng. Limit for OGFC
Passing No. 4 and larger sieve sizes	JMFTarget +/- 7 %	JMF Target +/- 5 %
Passing No. 8 through No. 100	JMF Target +/- 4 %	JMF Target +/- 3 %
Passing No. 200	JMF Target +/- 2 %	JMF Target +/- 1 %
% Binder	JMF Target +/- 0.4 %	JMF Target +/- 0.3 %

NOTE LIMITATIONS
 (Unless Data Approved)
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 * Less than 6% binder for HMA Surface Course - Standard Top
 ** Less than 5.5% binder for HMA Surf. Course - Dense Binder and Mod Top
 *** Batch plants may not exceed 20% RAP
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FORMULAS
 (DR = Design Range of Specifications, JM = Job Mix Formula)
 Aggregate Percentages below are proportional percentages of total aggregate for the mix.

Sieve Size	HMA Base		HMA Binder		HMA Interm. Dense Binder		HMA Surface Dense Binder		HMA Surface Std. Top		HMA Surface Mod. Top		HMA Dense Mix		HMA Surf. Tmt.		HMA OGFC****		HMA		HMA	
	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM
	2"	100	100																			
1"	64-80	80	100	100	100	100	100	100			100	100										
3/4"			87-93	93	87-93	93	87-93	93			95-100	98										
5/8"									100	100												
1/2"	47-58	58	62-68	68	72-73	73	72-73	73	95-100	98	86-93	92	100	100			100	100				
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#100									9-12	9	10-12	10	10-14	10	11-13	12						
#200	2	2	2-3	3	2-4	4	2-4	4	4-5	4	4	4	6	6	5-6	6	2	2				
% Binder	4.4-4.6	4.5	4.9-5.1	5.0	5.4-5.6	5.5	** 5.4-5.6	5.5	* 5.9-6.6	6.0	** 5.4-5.6	5.5	7.4-7.6	7.4	7.4-7.6	7.5	6.3-6.7	6.3				
Max. Theo Sp. Gr.	2.534		2.527		2.516		2.516		2.431		2.439		2.416		2.411							

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Authorized Signature and Title: *Stephen Edwards* e-mail address: sedwards@tledwards.net MassDOT Approval: Mark Brum



HOT MIX ASPHALT JOB MIX FORMULAS

COMPANY: TL Edwards CITY: Plymouth
 PLANT LOCATION: Plymouth

DATE: 3/14/2019
 REVISION # _____
 DATE OF REVISION: _____
 TELEPHONE #: 508-732-9148

RMS-043 Revised 1/21/2017

PLANTS															ALLOWABLE TOLERANCES																									
ID #	Batch/Drum Size				Automatic Controls [X]					PG Binder Tanks			Mix Silos, Insulation / Heated [X]					Sieve Designation/ Binder Content	Eng. Limit All Mixes	Eng. Limit for OGFC																				
2	4	tons/		Tph	part		full	x	w/printer	x	3	@	20k	gals.	3	@	200	ton, ins.	x	htd	x	Passing No. 4 and larger sieve sizes	JMFTarget +/- 7 %	JMF Target +/- 5 %																
		tons/		Tph	part		full		w/printer			@		gals.		@		ton, ins.		htd		Passing No. 8 through No. 100	JMF Target +/- 4 %	JMF Target +/- 3 %																
		tons/		Tph	part		full		w/printer			@		gals.		@		ton, ins.		htd		Passing No. 200	JMF Target +/- 2 %	JMF Target +/- 1 %																
COARSE AGGREGATE															FINE AGGREGATE					% Binder			NOTE LIMITATIONS																	
Nom size															%					Type					Producer & City			(Unless Data Approved)												
Producer & City																												Unless authorized by the Engineer, no Job Mix formula for mixes containing RAP will be approved which specifies:												
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	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM	DR	JM
2"	100	100																		
1"	64-80	80	100	100	100	100	100	100			100	100								
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3/8"									87-93	88	75-81	81	87-93	93	100	100	95-100	95		
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% Binder	4.4-4.6	4.5	4.9-5.1	5.0	5.4-5.6	5.5	** 5.4-5.6	5.5	* 5.9-6.6	6.0	** 5.4-5.6	5.5	7.4-7.6	7.4	7.4-7.6	7.5	6.3-6.7	6.3		
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