



Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S4 (PG 64-22 OK) Mat'l. Code: asco012
 (Material Full Name and Material Code)

Binder ID: B1
 (Design Type and Design Type ID)

Cummins Const Co P/S # m00556
 (Producer/Supplier Name and Producer/Supplier Code)

WS4qc0101803000
 (Mix ID)

Cummins Const Co #2754 (Binger, OK.) - 300TPH PLANT ID # m00556-15
 (Plant Name and Plant ID)

Aggregate	Producer/Supplier	% USED
5/8" Chips	Western Aggregates, LLC (Carnegie, OK) P/S # m006583803	8
1/2" Chips	Western Aggregates, LLC (Carnegie, OK) P/S # m006583803	18
Stone Sand	Dolese Co. (Richards Spur, OK) P/S # m002761601	33
Scrns.	Western Aggregates, LLC (Carnegie, OK) P/S # m006583803	8
Sand (Unlisted Source)	Lightle Sand	8
Fine R.A.P.	Contractor / Project Site P/S # Contractor	25

Warm Mix Asphalt (WMA) Technology: TEREX (Foaming Process) qual028 Terex Roadbuilding m00801
 (Product Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)

Asphalt Cement: Asphaltic Cement Type PG 64-22 OK, acem003, Coastal Energy (Clinton, OK), m01042
 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)

Sieve Size	Producer/Supplier:							Comb. Agg.	Requires Form 93-E0 signed by the Department for production use. -Oklahoma D.O.T. Materials-			
	5/8" Chips	1/2" Chips	Stone Sand	Scrns.	Sand (Unlisted Source)	Fine R.A.P.	Contractor / Project Site P/S # Contractor		JMF	Min.	Max.	% Tol. (±)
3/4 in (19 mm)	100	100	100	100	100	100	100	100	100	100	100	0
1/2 in (12.5 mm)	35	100	100	100	100	100	95	95	88	100	100	7
3/8 in (9.5 mm)	5	84	100	99	100	95	88	88	81	95	100	7
#4 (4.75 mm)	2	4	97	79	100	83	68	68	61	75	100	7
#8 (2.36 mm)	2	1	68	55	100	67	52	52	47	57	100	5
#16 (1.18 mm)	1	1	32	33	99	46	33	33	29	37	100	4
#30 (.600 mm)	1	1	17	21	77	32	22	22	18	26	100	4
#50 (.300 mm)	1	1	8	16	30	21	12	12	8	16	100	4
#100 (.150 mm)	1	1	5	14	7	14	7	7	4	10	100	3
#200 (.075 mm)	0.9	0.8	4.1	13.1	1.2	8.5	4.8	4.8	2.8	6.8	100	2
AC Content %						5.2	4.9	4.9	4.5	5.3	100	0.4

Warm Mix Asphalt (WMA) Additive % 2.0

Mix temperature @ discharge from mixer: 275 (135) ± 20 °F (± 10 °C) **Required**
 Optimum roadway compaction temperature: 260 (127)
 Laboratory mixing temperature: 300 (149)
 Laboratory compaction temperature: 300 (149)

Tests on Asphalt Cement	Found
Specific Gravity @ 77 °F	1.0100

Requires Form 93-E0 signed by the Department for production use. -Oklahoma D.O.T. Materials-

	Tests on Compressed Mixtures (@ Design AC)		
	# Gyr.	% Density of Gmm	% Density Required
Nini	6	88.9	85.5 - 91.5
Ndes	50		96.0

Tests on Aggregates	Required	Units
Contabro	N/A	%
Durability Index	79	40 min. %
F.A.A. %U	N/A	%
Flat and Elongated	10	max. %
Fractured Faces	100/100	85/80 min. %
Insoluble Residue	18.1	N/A %
LA Abrasion	25	40 max. %
Micro-Deval	12.7	N/A %
Permeability	6.4	12.5 max. 10 ⁻⁵ cm/s
Sand Equivalent	70	40 min. %
Pba	0.35	
IOC	0.25	%
Gse	2.688	
Gsb	2.663	
Specimen Weight	4800	g

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA
4.4	2.385	2.505	95.2	Design / Field	14.4	Design / Field	66.7 % VFA Required
4.9	2.400	2.486	96.5	96.0 / 94.5 - 97.4	14.3	14.5 / 14.0	75.5 72 - 77
5.4	2.418	2.467	98.0		14.1		85.8

Dust Prop.
 1.2 **Dust Prop. Req.**
 1.0 0.6 - 1.6
 0.9

ITS (PSI) 131.4 N/A min.
TSR 0.98 0.80 / 0.75 min. (Design / Field)
 Compacted Wt. (lbs/sy/1" thick) = 109.3 @ 4.9 % Asphalt Cement
 3.6 % New Asphalt Cement

Hamburg Rut Test Depth (mm) 3.14 12.50 max. @ 10,000 cycles

MEETS SPECIFICATION REQUIREMENTS PER SPECIAL PROVISION 708-26(a-f) 09

Comments: _____

Last Modified By: McComack, Hunter J. hmccomac
 (User Name and User ID)

Date: 7/31/2018
 (mm/dd/yyyy)