



# 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)  
 Cummins Const Co P/S # m00556  
 (Producer/Supplier Name and Producer/Supplier Code)  
 Cummins Const Co #2754 (Binger, OK.) - 300TPH PLANT ID # m00556-15  
 (Plant Name and Plant ID)

Insoluble ID: I1  
 (Design Type and Design Type ID)  
 WS4qc0101802900  
 (Mix ID)

Aggregate	Producer/Supplier	% USED
5/8" Chips	Dolese Co. (Roosevelt, OK) P/S # m010483804	30
1/2" Chips	Western Aggregates, LLC (Carnegie, OK) P/S # m006583803	15
Stone Sand	Dolese Co. (Richards Spur, OK) P/S # m002761601	10
Scrms.	Western Aggregates, LLC (Carnegie, OK) P/S # m006583803	30
Sand (Unlisted Source)	Lightle Sand Hennessey, OK	15
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	Scrms.	Sand (Unlisted Source)		JMF	Min.	Max.	% Tol. (±)
3/4 in (19 mm)	100	100	100	100	100	100	100	100	100	0
1/2 in (12.5 mm)	90	100	100	100	100	97	97	90	100	7
3/8 in (9.5 mm)	55	84	100	99	100	84	84	77	91	7
#4 (4.75 mm)	3	4	97	79	100	50	50	43	57	7
#8 (2.36 mm)	2	2	68	55	100	39	39	34	44	5
#16 (1.18 mm)	2	2	32	33	99	29	29	25	33	4
#30 (.600 mm)	1	1	17	21	77	20	20	16	24	4
#50 (.300 mm)	1	1	8	16	30	11	11	7	15	4
#100 (.150 mm)	1	1	5	14	7	6	6	3	9	3
#200 (.075 mm)	0.9	0.9	4.1	13.1	1.2	4.9	4.9	2.9	6.9	2
AC Content %						4.9	4.9	4.5	5.3	0.4

Warm Mix Asphalt (WMA) Additive %

2.0

Mix temperature @ discharge from mixer: 275 (135) °F (°C) Required ± 20 °F (± 10 °C)  
 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

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	% Density		
	# Gyr.	of Gmm	% Density Required
Nini	6	88.0	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	49.4	30 min. %
LA Abrasion	29	40 max. %
Micro-Deval	12.7	N/A %
Permeability	6.1	12.5 max. 10 <sup>-5</sup> cm/s
Sand Equivalent	74	40 min. %
Pba	0.5	
IOC	0.26	%
Gse	2.707	
Gsb	2.671	
Specimen Weight	4800	g

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density		% VMA	% VMA Required	% VFA
			of Gmm	% Density Required			
4.4	2.334	2.521	92.6	Design / Field	16.5	Design / Field	55.2 % VFA Required
4.9	2.398	2.501	95.9	96.0 / 94.5 - 97.4	14.6	14.5 / 14.0	72 - 77
5.4	2.415	2.482	97.3		14.5		81.4

Dust Prop. 1.3 Dust Prop. Reg. 0.6 - 1.6  
 ITS (PSI) 89.9 N/A min.  
 TSR 1.00 0.80 / 0.75 min. (Design / Field)  
 Compacted Wt. (lbs/sy/1" thick) = 110.0 @ 4.9 % Asphalt Cement  
 Hamburg Rut Test Depth (mm) 6.07 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)