



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)
 WS4qc0101793300
 (Mix ID)

Aggregate	Producer/Supplier	% USED
5/8" Chips	Dolese Co. (Roosevelt, OK) P/S # m010483804	20
1/2" Chips	Western Aggregates, LLC (Carnegie, OK) P/S # m006583803	15
Stone Sand	Dolese Co. (Richards Spur, OK) P/S # m002761601	35
Scrns.	Western Aggregates, LLC (Carnegie, OK) P/S # m006583803	20
Sand (Unlisted Source)	GMI Sand OKC, OK	10
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, Valero (Ardmore, OK), m00352 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)		

Sieve Size	Producer/Supplier:					Sand (Unlisted Source)	Comb. Agg.	%			Tol. (±)
	5/8" Chips	1/2" Chips	Stone Sand	Scrns.	GMI Sand OKC, OK			JMF	Min.	Max.	
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	98	98	91	100	7	
3/8 in (9.5 mm)	55	84	100	99	100	88	88	81	95	7	
#4 (4.75 mm)	3	4	97	79	99	61	61	54	68	7	
#8 (2.36 mm)	2	2	68	55	99	45	45	40	50	5	
#16 (1.18 mm)	2	2	32	33	97	28	28	24	32	4	
#30 (.600 mm)	1	1	17	21	91	20	20	16	24	4	
#50 (.300 mm)	1	1	8	16	59	12	12	8	16	4	
#100 (.150 mm)	1	1	5	14	12	6	6	3	9	3	
#200 (.075 mm)	0.9	0.9	4.1	13.1	2.5	4.6	4.6	2.6	6.6	2	
AC Content %						4.9	4.9	4.5	5.3	0.4	

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

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: 325 (163)
 Laboratory compaction temperature: 300 (149)

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

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Tests on Compressed Mixtures (@ Design AC)			
	# Gyr.	% Density of Gmm	% Density Required
Nini	6	88.1	85.5 - 91.5
Ndes	50		96.0

Tests on Aggregates	Required	Units
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	37.3	30 min. %
LA Abrasion	29	40 max. %
Micro-Deval	12.7	N/A %
Permeability	9.7	12.5 max. 10 ⁻⁵ cm/s
Sand Equivalent	75	40 min. %
Pba	0.43	
IOC	0.22	%
Gse	2.704	
Gsb	2.673	
Specimen Weight	4800	g

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA
4.4	2.334	2.518	92.7	Design / Field	16.5	Design / Field	55.8
4.9	2.398	2.499	96.0	96.0 / 94.5 - 97.4	14.7	14.5 / 14.0	72.8
5.4	2.415	2.479	97.4		14.5		82.1

ITS (PSI) 100.9 N/A min.
 TSR 0.87 0.80 / 0.75 min. (Design / Field)
 Compacted Wt. (lbs/sy/1" thick) = 109.9 @ 4.9 % Asphalt Cement

Hamburg Rut Test Depth (mm) 4.63 12.50 max. @ 10,000 cycles

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

Comments: Similar to WS4qc0101703300 (AC Source Change)

Last Modified By: Suitor, Kevin ksutor (User Name and User ID)

Date: 2/16/2018 (mm/dd/yyyy)