



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 (Portable)- 400TPH PLANT ID # m00556-16
 (Plant Name and Plant ID)

Binder - Recycled ID: B2
 (Design Type and Design Type ID)
 WS4qc0101680500
 (Mix ID)

Aggregate	Producer/Supplier	% USED
5/8" Chips	Dolese Co (Ardmore, OK) P/S # m002701001	20
3/8" Chips	Dolese Co (Ardmore, OK) P/S # m002701001	15
Stone Sand	Martin-Marietta (Davis, OK) P/S # m002285005	20
Scrns.	Dolese Co (Ardmore, OK) P/S # m002701001	10
Sand (Unlisted Source)	Flume Sand (Thackerville, OK)	10
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, Valero (Ardmore, OK), m00352
 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)

Sieve Size	Producer/Supplier:							Comb. Agg.	% Tol. (±)			
	5/8" Chips	3/8" Chips	Stone Sand	Scrns.	Sand (Unlisted Source)	Fine R.A.P.			JMF	Min.	Max.	
3/4 in (19 mm)	100	100	100	100	100	100		100	100	100	100	0
1/2 in (12.5 mm)	95	100	100	100	100	98		99	99	92	100	7
3/8 in (9.5 mm)	55	97	100	100	100	96		90	90	83	97	7
#4 (4.75 mm)	9	27	89	90	100	80		63	63	56	70	7
#8 (2.36 mm)	3	6	52	59	100	62		43	43	38	48	5
#16 (1.18 mm)	2	3	29	35	100	48		32	32	28	36	4
#30 (.600 mm)	2	3	18	23	98	38		26	26	22	30	4
#50 (.300 mm)	2	2	11	18	68	26		18	18	14	22	4
#100 (.150 mm)	1	2	8	16	23	14		10	10	7	13	3
#200 (.075 mm)	1.1	1.9	5.1	13.1	3.9	8.5		5.4	5.4	3.4	7.4	2
AC Content %						5.0		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: 300 (149)
 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	87.7	85.5 - 91.5
Ndes	50		96.0

Tests on Aggregates	Required	Units
Durability Index	40	min. %
F.A.A. %U	N/A	%
Flat and Elongated	0	10 max. %
Fractured Faces	100/100	85/80 min. %
Insoluble Residue	1.6	N/A %
LA Abrasion	27	40 max. %
Micro-Deval	12.1	N/A %
Permeability	7.2	12.5 max. 10 ⁻⁵ cm/s
Sand Equivalent	80	40 min. %
Pba	0.47	
IOC	0.31	%
Gse	2.691	
Gsb	2.658	
Specimen Weight	4850	g

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA
4.4	2.350	2.507	93.7	Design / Field	15.5	Design / Field	59.4
4.9	2.388	2.488	96.0	96.0 / 94.5 - 97.4	14.6	14.5 / 14.0	72.6
5.4	2.403	2.469	97.3		14.5		81.4

ITS (PSI) 155.5 N/A min.
 TSR 0.81 0.80 / 0.75 min. (Design / Field)
 Compacted Wt. (lbs/sy/1" thick) = 109.5 @ 4.9 % Asphalt Cement
 3.6 % New Asphalt Cement

Hamburg Rut Test Depth (mm) 6.58 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: 11/6/2018
 (mm/dd/yyyy)