



Oklahoma Department of Transportation Mix Design Report

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

Insoluble ID: I1

(Material Full Name and Material Code)

(Design Type and Design Type ID)

Cummins Const Co P/S # m00556

WS4qc0101580100

(Producer/Supplier Name and Producer/Supplier Code)

(Mix ID)

Cummins Const Co #2728 (Sawyer, OK) - 300TPH PLANT ID # m00556-03

(Plant Name and Plant ID)

Aggregate	Producer/Supplier	% USED
Pile # 5	Martin-Marietta (Sawyer, OK) P/S # m002311206	20
'D' Rock	Martin-Marietta (Sawyer, OK) P/S # m002311206	20
Man. Sand	Martin-Marietta (Sawyer, OK) P/S # m002311206	15
Scrns.	Martin-Marietta (Sawyer, OK) P/S # m002311206	30
Sand (Unlisted Source)	Drake Sand (Gay, 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, Valero (Ardmore, OK), m00352 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)		

Sieve Size	Producer/Supplier:					Sand (Unlisted Source)	Comb. Agg.	Requirements			% Tol. (±)
	Martin-Marietta (Sawyer, OK) P/S # m002311206	Martin-Marietta (Sawyer, OK) P/S # m002311206	Martin-Marietta (Sawyer, OK) P/S # m002311206	Martin-Marietta (Sawyer, OK) P/S # m002311206	Drake Sand (Gay, 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)	74	100	100	100	100	95	95	88	100	7	
3/8 in (9.5 mm)	17	94	100	100	100	82	82	75	89	7	
#4 (4.75 mm)	3	29	99	100	100	66	66	59	73	7	
#8 (2.36 mm)	3	8	70	74	99	50	50	45	55	5	
#16 (1.18 mm)	2	3	47	52	98	38	38	34	42	4	
#30 (.600 mm)	2	3	34	42	90	32	32	28	36	4	
#50 (.300 mm)	1	2	25	36	46	22	22	18	26	4	
#100 (.150 mm)	1	2	12	23	3	10	10	7	13	3	
#200 (.075 mm)	0.5	1.2	3.5	14.8	1.1	5.5	5.5	3.5	7.5	2	
AC Content %						5.7	5.7	5.3	6.1	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

	°F (°C)	Required
Mix temperature @ discharge from mixer:	275 (135)	± 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	90.3	85.5 - 91.5
Ndes	50		96.0

Tests on Aggregates	Required	Units
Durability Index	90	40 min. %
F.A.A. %U	N/A	min. %
Flat and Elongated	0	10 max. %
Fractured Faces	100/100	85/80 min. %
Insoluble Residue	98.3	30 min. %
LA Abrasion	24	40 max. %
Micro-Deval	8.6	N/A %
Permeability	2.4	12.5 max. 10 ⁻⁵ cm/s
Sand Equivalent	61	40 min. %
Pba	1.16	
IOC	0.25	%
Gse	2.614	
Gsb	2.538	
Specimen Weight	4655	g

Tests on Compressed Mixtures								
%AC	Gmb	Gmm	% Density		% VMA	% VMA Required		% VFA Required
			of Gmm	% Density Required		Design / Field	Design / Field	
5.2	2.247	2.415	93.0	96.0 / 94.5 - 97.4	16.1	14.5 / 14.0	56.5	72 - 77
5.7	2.300	2.397	96.0		14.5		72.4	
6.2	2.310	2.380	97.1		14.6		80.1	

Dust Prop.	Dust Prop. Req.	ITS (PSI)	TSR	Compacted Wt. (lbs/sy/1" thick) =	@	% Asphalt Cement
1.3	0.6 - 1.6	208.1	0.81	105.4	5.7	N/A min. 0.80 / 0.75 min. (Design / Field)

Hamburg Rut Test Depth (mm) 0.85 12.50 max. @ 10,000 cycles

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

Comments:

Last Modified By:

Williams, Bobby Ray bwilli01
(User Name and User ID)

Date:

2/6/2017
(mm/dd/yyyy)