



# 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

WS4qc0101371300

(Producer/Supplier Name and Producer/Supplier Code)

(Mix ID)

Cummins Const Co (Ada, OK) - 300TPH PLANT ID # m00556-05

(Plant Name and Plant ID)

Aggregate	Producer/Supplier	% USED
5/8" Chips	Martin-Marietta (Mill Creek, OK) P/S # m002303502	20
'D' Rock	Martin-Marietta (North Troy, OK) P/S # m007003506	20
Man. Sand	TXI Mill Creek Stone Plant P/S # m005253504	30
'D' Sand	Martin-Marietta (Mill Creek, OK) P/S # m002303502	20
Sand (Unlisted Source)	Cummins Sand (Ada, 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, Asphalt Terminals and Transp LLC (Muskogee, OK), m00783 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)		

Sieve Size	Producer/Supplier:						Comb. Agg.	Tol. (%)		
	5/8" Chips	'D' Rock	Man. Sand	'D' Sand	Sand (Unlisted Source)	JMF		Min.	Max.	(±)
3/4 in (19 mm)	100	100	100	100	100	100	100	100	100	0
1/2 in (12.5 mm)	75	100	100	100	100	95	95	88	100	7
3/8 in (9.5 mm)	40	95	100	100	100	87	87	80	94	7
#4 (4.75 mm)	9	18	95	97	100	63	63	56	70	7
#8 (2.36 mm)	3	5	82	76	100	51	51	46	56	5
#16 (1.18 mm)	2	4	58	52	100	39	39	35	43	4
#30 (.600 mm)	1	3	39	35	99	29	29	25	33	4
#50 (.300 mm)	1	2	25	22	87	21	21	17	25	4
#100 (.150 mm)	1	1	10	13	50	11	11	8	14	3
#200 (.075 mm)	0.8	0.6	5.2	8.4	16.2	5.1	5.1	3.1	7.1	2
AC Content %						4.9	4.9	4.5	5.3	0.4

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Warm Mix Asphalt (WMA) Additive %

2.0

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 Aggregates	Required	Units
Durability Index	67	40 min. %
F.A.A. %U	N/A	%
Flat and Elongated	10	max. %
Fractured Faces	100/100	85/80 min. %
Insoluble Residue	50.6	30 min. %
LA Abrasion	23	40 max. %
Micro-Deval	13.2	N/A %
Permeability	2.1	12.5 max. 10 <sup>-5</sup> cm/s
Sand Equivalent	78	40 min. %
Pba	0.46	%
IOC	0.50	%
Gse	2.741	
Gsb	2.707	
Specimen Weight	4850	g

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	89.8	85.5 - 91.5
Ndes	50		96.0

Tests on Compressed Mixtures								
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA	% VFA Required
4.4	2.377	2.549	93.3	Design / Field	16.1	Design / Field	58.4	72 - 77
4.9	2.427	2.529	96.0	96.0 / 94.5 - 97.4	14.7	14.5 / 14.0	72.8	
5.4	2.433	2.509	97.0		15.0		80.0	

**Dust Prop.**  
 1.3  
 1.1  
 1.0

**Dust Prop. Req.**  
 0.6 - 1.6

ITS (PSI) 210.9 N/A min.  
 TSR 0.86 0.80 / 0.75 min. (Design / Field)  
 Compacted Wt. (lbs/sy/1" thick) = 111.2 @ 4.9 % Asphalt Cement

Hamburg Rut Test Depth (mm) 2.80 #N/A

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

Comments: \_\_\_\_\_

Last Modified By: Suito, Kevin ksuito  
 (User Name and User ID)

Date: 12/11/2017  
 (mm/dd/yyyy)