



# Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S3 (PG 64-22 OK) Mat'l. Code: asco009  
 (Material Full Name and Material Code)

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

Cummins Const Co P/S # m00556

WS3qc0101300201  
 (Mix ID)

(Producer/Supplier Name and Producer/Supplier Code)

Cummins Const Co (Woodward, OK) - 12000 lb Batch PLANT ID # m00556-14  
 (Plant Name and Plant ID)

Aggregate	Producer/Supplier	% USED
#67 Rock	Dolese Co (Cooperton, OK) P/S # m002723801	33
3/8" Chips	Dolese Co (Cooperton, OK) P/S # m002723801	10
Man. Sand	Martin-Marietta (Snyder, OK) P/S # m002323802	10
Scrns.	Dolese Co (Cooperton, OK) P/S # m002723801	12
Sand (Unlisted Source)	Kline Sand (Camargo, 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, Asphalt Terminals and Transp LLC (Muskogee, OK), m00783  
 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)

Producer/Supplier:	Dolese Co (Cooperton, OK) P/S # m002723801	Dolese Co (Cooperton, OK) P/S # m002723801	Martin-Marietta (Snyder, OK) P/S # m002323802	Dolese Co (Cooperton, OK) P/S # m002723801	Kline Sand (Camargo, OK)	Contractor / Project Site P/S # Contractor	Requires Form 93-E0 signed by the Department for production use. -Oklahoma D.O.T. Materials-						
	#67 Rock	3/8" Chips	Man. Sand	Scrns.	Sand (Unlisted Source)	Fine R.A.P.	Comb. Agg.	JMF	Min.	Max.	Tol. (%)		
Sieve Size													
1 in (25 mm)	100	100	100	100	100	100	100	100	100	100	100	0	
3/4 in (19 mm)	98	100	100	100	100	100	99	99	92	100	7		
1/2 in (12.5 mm)	59	100	100	100	100	97	86	89	82	96	7	x	
3/8 in (9.5 mm)	31	95	100	100	100	85	73	78	71	85	7	x	
#4 (4.75 mm)	5	12	95	91	100	75	52	57	50	64	7	x	
#8 (2.36 mm)	3	3	70	59	100	55	39	43	38	48	5	x	
#16 (1.18 mm)	2	2	45	37	100	42	30	33	29	37	4	x	
#30 (.600 mm)	1	1	27	25	94	30	23	27	23	31	4	x	
#50 (.300 mm)	1	1	14	18	47	20	14	17	13	21	4	x	
#100 (.150 mm)	1	1	8	14	3	15	7	7	4	10	3		
#200 (.075 mm)	0.6	1.3	4.0	12.5	2.2	9.5	4.8	4.8	2.8	6.8	2		
AC Content %						4.0	4.3	4.3	3.9	4.7	0.4		

Warm Mix Asphalt (WMA) Additive % 2.0

Mix temperature @ discharge from mixer: 275 (135) ± 20 °F (± 10 °C) **Required**  
 Optimum roadway compaction temperature: 260 (127)  
 Laboratory mixing temperature: 300 (149)  
 Laboratory compaction temperature: 300 (149)

Tests on Aggregates	Required	Units
Durability Index	40 min.	%
F.A.A. %U	N/A	%
Flat and Elongated	10 max.	%
Fractured Faces	85/80 min.	%
Insoluble Residue	8.2	%
LA Abrasion	40 max.	%
Micro-Deval	12.2	%
Permeability	7.7	10 <sup>-5</sup> cm/s
Sand Equivalent	40 min.	%
Pba	0.33	
IOC	0.28	%
Gse	2.674	
Gsb	2.651	
Specimen Weight	4800	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	88.3	85.5 - 91.5
Ndes	50		96.0

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density		% VMA	% VMA Required	% VFA
			of Gmm	% Density Required			
3.8	2.389	2.516	95.0	Design / Field	13.3	Design / Field	62.4
4.3	2.397	2.497	96.0	96.0 / 94.5 - 97.4	13.5	13.5 / 13.0	70.4
4.8	2.410	2.478	97.3		13.5		80.0

Dust Prop. 1.4 1.2 1.1  
 Dust Prop. Req. 0.6 - 1.6  
 ITS (PSI) 237.3 N/A min.  
 TSR 1.00 0.80 / 0.75 min. (Design / Field)  
 Compacted Wt. (lbs/sy/1" thick) = 109.9 @ 4.3 % Asphalt Cement 3.3 % New Asphalt Cement

Hamburg Rut Test Depth (mm) 1.63 12.50 max. @ 10,000 cycles

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

Comments:

Last Modified By: Schratwieser, Edward P. eschratw  
 (User Name and User ID)

Date: 6/15/2016  
 (mm/dd/yyyy)