



# Oklahoma Department of Transportation Mix Design Report

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

Binder - Recycled ID: B2

(Material Full Name and Material Code)

(Design Type and Design Type ID)

Cummins Const Co P/S # m00556

WS3qc0101792500

(Producer/Supplier Name and Producer/Supplier Code)

(Mix ID)

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	25
3/8" Chips	Dolese Co (Cooperton, OK) P/S # m002723801	8
Man. Sand	Martin-Marietta (Snyder, OK) P/S # m002323802	20
Scrns.	Dolese Co (Cooperton, OK) P/S # m002723801	14
Sand (Unlisted Source)	Loomis Sand Cleo Springs, OK	8
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, HollyFrontier (Catoosa, OK), m01028 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)		

Sieve Size	Producer/Supplier:							Comb. Agg.	Requires Form 93-E0 signed by the Department for production use. -Oklahoma D.O.T. Materials-			
	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	Loomis Sand Cleo Springs, OK	Contractor / Project Site P/S # Contractor			JMF	Min.	Max.	% Tol. (±)
#67 Rock	100	100	100	100	100	100	100	100	100	100	0	
3/4 in (19 mm)	98	100	100	100	100	100	100	100	100	93	7	
1/2 in (12.5 mm)	59	100	100	100	100	97	89	89	82	96	7	
3/8 in (9.5 mm)	31	95	100	100	100	85	79	79	72	86	7	
#4 (4.75 mm)	5	12	95	91	100	75	61	61	54	68	7	
#8 (2.36 mm)	3	4	70	59	100	55	45	45	40	50	5	
#16 (1.18 mm)	2	2	41	37	100	42	33	33	29	37	4	
#30 (.600 mm)	1	1	22	25	100	30	24	24	20	28	4	
#50 (.300 mm)	1	1	10	18	80	20	16	16	12	20	4	
#100 (.150 mm)	1	1	3	14	19	15	8	8	5	11	3	
#200 (.075 mm)	0.9	1.3	2.6	12.1	4.5	9.5	5.3	5.3	3.3	7.3	2	
AC Content %						4.5	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	80	40 min. %
F.A.A. %U	N/A	%
Flat and Elongated	10	max. %
Fractured Faces	100/100	85/80 min. %
Insoluble Residue	11.8	N/A %
LA Abrasion	26	40 max. %
Micro-Deval	9.8	N/A %
Permeability	2.5	12.5 max. 10 <sup>-5</sup> cm/s
Sand Equivalent	73	40 min. %
Pba	0.27	%
IOC	0.34	%
Gse	2.682	
Gsb	2.663	
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)			
	% Density		% Density Required
	# Gyr.	of Gmm	
Nini	6	89.7	85.5 - 91.5
Ndes	50		96.0

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA
3.8	2.371	2.523	94.0	Design / Field	14.3	Design / Field	58.0
4.3	2.404	2.504	96.0	96.0 / 94.5 - 97.4	13.6	13.5 / 13.0	70.6
4.8	2.418	2.485	97.3		13.6		80.1

**Dust Prop.**  
 1.5 **Dust Prop. Req.**  
 1.3 0.6 - 1.6  
 1.2

**ITS (PSI)** 144.4 N/A min.  
**TSR** 0.85 0.80 / 0.75 min. (Design / Field)  
 Compacted Wt. (lbs/sy/1" thick) = 110.1 @ 4.3 % Asphalt Cement  
 3.2 % New Asphalt Cement

Hamburg Rut Test Depth (mm) 2.53 12.50 max. @ 10,000 cycles

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

Comments:

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

Date: 3/13/2018 (mm/dd/yyyy)