



# 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)  
 Cummins Const Co P/S # m00556  
 (Producer/Supplier Name and Producer/Supplier Code)  
 Cummins Const Co (Ada, OK) - 300TPH PLANT ID # m00556-05  
 (Plant Name and Plant ID)

Binder - Recycled ID: B2  
 (Design Type and Design Type ID)  
 WS3qc0101391200  
 (Mix ID)

Aggregate	Producer/Supplier	% USED
#67 Rock	TXI Mill Creek Stone Plant P/S # m005253504	25
'D' Rock	Martin-Marietta (North Troy, OK) P/S # m007003506	15
Man. Sand	TXI Mill Creek Stone Plant P/S # m005253504	10
'D' Sand	Martin-Marietta (Mill Creek, OK) P/S # m002303502	15
Sand (Unlisted Source)	Cummins Sand (Ada, 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)		

Sieve Size	Producer/Supplier:							Comb. Agg.	%			Tot. (±)
	#67 Rock	'D' Rock	Man. Sand	'D' Sand	Sand (Unlisted Source)	Fine R.A.P.	JMF		Min.	Max.		
1 in (25 mm)	100	100	100	100	100	100	100	100	100	100	0	
3/4 in (19 mm)	96	100	100	100	100	100	99	99	92	100	7	
1/2 in (12.5 mm)	52	100	100	100	100	98	88	88	81	95	7	
3/8 in (9.5 mm)	28	95	100	100	100	89	79	79	72	86	7	
#4 (4.75 mm)	4	18	95	97	100	72	56	56	49	63	7	
#8 (2.36 mm)	2	5	82	76	100	54	44	44	39	49	5	
#16 (1.18 mm)	2	4	58	52	100	40	35	35	31	39	4	
#30 (.600 mm)	2	3	39	35	99	30	28	28	24	32	4	
#50 (.300 mm)	1	2	25	22	87	20	20	20	16	24	4	
#100 (.150 mm)	1	1	10	13	50	13	12	12	9	15	3	
#200 (.075 mm)	0.2	0.6	5.2	8.4	16.2	7.3	5.4	5.4	3.4	7.4	2	
AC Content %						4.2	4.4	4.4	4.0	4.8	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) ± 20 °F (± 10 °C) **Required**  
 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

Requires Form 93-E0 signed by the Department for production use. -Oklahoma D.O.T. Materials-

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	67	40 min. %
F.A.A. %U		N/A %
Flat and Elongated		10 max. %
Fractured Faces	100/100	85/80 min. %
Insoluble Residue	13	N/A %
LA Abrasion	23	40 max. %
Micro-Deval	13.2	N/A %
Permeability	8.1	12.5 max. 10 <sup>-5</sup> cm/s
Sand Equivalent	76	40 min. %
Pba	0.36	
IOC	0.72	%
Gse	2.730	
Gsb	2.704	
Specimen Weight	4850	g

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA
3.9	2.428	2.560	94.8	Design / Field	13.7	Design / Field	62.0
4.4	2.439	2.540	96.0	96.0 / 94.5 - 97.4	13.8	13.5 / 13.0	71.0
4.9	2.488	2.520	98.7		12.5		89.6

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

**ITS (PSI)** 219.8 N/A min.  
**TSR** 0.82 0.80 / 0.75 min. (Design / Field)  
 Compacted Wt. (lbs/sy/1" thick) = 111.7 @ 4.4 % Asphalt Cement  
 3.3 % New Asphalt Cement

**Hamburg Rut Test Depth (mm)** 1.92 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: 5/14/2015  
 (mm/dd/yyyy)