



Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S5 (PG 70-28 OK) Mat'l. Code: asco014

Insoluble ID: I1

(Material Full Name and Material Code)

(Design Type and Design Type ID)

Cummins Const Co P/S # m00556

WS5qc0101492600

(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
1/4" 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	25
Scrns.	Martin-Marietta (Mill Creek, OK) P/S # m002303502	20
Sand (Unlisted Source)	Cummins Sand (Ada, 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 70-28 OK, acem002, Lion Oil Co. (Muskogee, OK), m00511 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)		

Sieve Size	Producer/Supplier:						Comb. Agg.	% Tol. (±)			
	Martin-Marietta (Mill Creek, OK) P/S # m002303502	Martin-Marietta (North Troy, OK) P/S # m007003506	TXI Mill Creek Stone Plant P/S # m005253504	Martin-Marietta (Mill Creek, OK) P/S # m002303502	Cummins Sand (Ada, OK)			JMF	Min.	Max.	
1/2 in (12.5 mm)	100	100	100	100	100	100	100	100	100	0	
3/8 in (9.5 mm)	99	94	100	100	100	99	99	92	100	7	
#4 (4.75 mm)	45	30	100	89	100	73	73	66	80	7	
#8 (2.36 mm)	14	5	92	65	100	55	55	50	60	5	
#16 (1.18 mm)	9	3	56	44	100	40	40	36	44	4	
#30 (.600 mm)	7	3	35	29	95	31	31	27	35	4	
#50 (.300 mm)	4	2	11	19	70	18	18	14	22	4	
#100 (.150 mm)	2	1	6	12	32	9	9	6	12	3	
#200 (.075 mm)	1.5	0.9	4.0	8.4	13.5	5.2	5.2	3.2	7.2	2	
AC Content %						5.4	5.4	5.0	5.8	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

	°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	7	89.3	85.5 - 90.5
Ndes	65		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	95/90 min. %
Insoluble Residue	54.1	40 min. %
LA Abrasion	25.3	40 max. %
Micro-Deval	13.2	N/A %
Permeability	1.8	12.5 max. 10 ⁻⁵ cm/s
Sand Equivalent	83	45 min. %
Pba	0.45	
IOC	0.52	%
Gse	2.727	
Gsb	2.694	
Specimen Weight	4800	g

Tests on Compressed Mixtures								
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA	% VFA Required
4.9	2.354	2.517	93.5	Design / Field	16.9	Design / Field	61.5	73 - 78
5.4	2.397	2.498	96.0	96.0 / 94.5 - 97.4	15.8	15.5 / 15.0	74.7	
5.9	2.421	2.478	97.7		15.4		85.1	

Dust Prop.	1.2	Dust Prop. Req.	0.6 - 1.6
	1.0		
	0.9		
	0.9		

ITS (PSI)	132.1	N/A min.
TSR	0.85	0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = <u>109.9</u> @ <u>5.4</u> % Asphalt Cement		

Hamburg Rut Test Depth (mm) 3.89 12.50 max. @ 15,000 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: 4/14/2017
(mm/dd/yyyy)