



Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S4 (PG 64-22 OK) Mat'l. Code: asco012

Binder - Recycled ID: B2

(Material Full Name and Material Code)

(Design Type and Design Type ID)

Cummins Const Co P/S # m00556

WS4qc0101395000

(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	10
Man. Sand	TXI Mill Creek Stone Plant P/S # m005253504	25
'D' Sand	Martin-Marietta (Mill Creek, OK) P/S # m002303502	10
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, Lion Oil Co. (Muskogee, OK), m00511 (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-			% Tol. (±)
	5/8" Chips	'D' Rock	Man. Sand	'D' Sand	Sand (Unlisted Source)	Fine R.A.P.	Contractor		JMF	Min.	Max.	
3/4 in (19 mm)	100	100	100	100	100	100	100	100	100	100	0	
1/2 in (12.5 mm)	75	100	100	100	100	98	95	95	88	100	7	
3/8 in (9.5 mm)	40	95	100	100	100	89	85	85	78	92	7	
#4 (4.75 mm)	9	18	95	97	100	72	65	65	58	72	7	
#8 (2.36 mm)	3	5	82	76	100	54	53	53	48	58	5	
#16 (1.18 mm)	2	4	58	52	100	40	41	41	37	45	4	
#30 (.600 mm)	1	3	39	35	99	30	31	31	27	35	4	
#50 (.300 mm)	1	2	25	22	87	20	23	23	19	27	4	
#100 (.150 mm)	1	1	10	13	50	13	12	12	9	15	3	
#200 (.075 mm)	0.8	0.6	5.2	8.4	16.2	7.3	5.8	5.8	3.8	7.8	2	
AC Content %						4.9	4.9	4.9	4.5	5.3	0.4	

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

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	89.8	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	46.8	N/A %
LA Abrasion	23	40 max. %
Micro-Deval	13.2	N/A %
Permeability	3.5	12.5 max. 10 ⁻⁵ cm/s
Sand Equivalent	81	40 min. %
Pba	0.38	
IOC	0.46	%
Gse	2.697	
Gsb	2.670	
Specimen Weight	4800	g

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA
4.4	2.366	2.512	94.2	Design / Field	15.3	Design / Field	62.1
4.9	2.393	2.493	96.0	96.0 / 94.5 - 97.4	14.8	14.5 / 14.0	73.0
5.4	2.401	2.474	97.0		14.9		79.9

Dust Prop.	Dust Prop. Req.	ITS (PSI)	TSR	Compacted Wt. (lbs/sy/1" thick) =	@	% Asphalt Cement
1.5		198.9	0.81	109.7	4.9	
1.3	0.6 - 1.6	N/A min.	0.80 / 0.75 min. (Design / Field)		3.7	% New Asphalt Cement
1.2						

Hamburg Rut Test Depth (mm) 1.50 12.50 max. @ 10,000 cycles

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

Comments:

Last Modified By:

Vivanco, David dvivanco
(User Name and User ID)

Date: 8/6/2018
(mm/dd/yyyy)