



Oklahoma Department of Transportation Mix Design Report

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

Insoluble ID: I1
 (Design Type and Design Type ID)

Cummins Const Co P/S # m00556
 (Producer/Supplier Name and Producer/Supplier Code)

WS4qc0101681300
 (Mix ID)

Cummins Const Co (Portable)- 400TPH PLANT ID # m00556-16
 (Plant Name and Plant ID)

Aggregate	Producer/Supplier	% USED
5/8" Chips	Hanson Aggregates, WRP Inc (Davis, OK) P/S # m001985008	20
3/8" Chips	Dolese Co (Ardmore, OK) P/S # m002701001	30
Stone Sand	Martin-Marietta (Davis, OK) P/S # m002285005	10
Scrns.	Dolese Co (Ardmore, OK) P/S # m002701001	25
Sand (Unlisted Source)	Flume Sand (Thackerville, 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 64-22 OK, acem003, Valero (Ardmore, OK), m00352 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)		

Sieve Size	Producer/Supplier:					Sand (Unlisted Source)	Comb. Agg.	% Tol. (±)			
	5/8" Chips	3/8" Chips	Stone Sand	Scrns.	Flume Sand (Thackerville, OK)			JMF	Min.	Max.	% Tol. (±)
3/4 in (19 mm)	100	100	100	100	100	100	100	100	100	0	
1/2 in (12.5 mm)	77	100	100	100	100	95	95	88	100	7	
3/8 in (9.5 mm)	52	97	100	100	100	90	90	83	97	7	
#4 (4.75 mm)	13	27	89	90	100	57	57	50	64	7	
#8 (2.36 mm)	4	6	52	59	100	38	38	33	43	5	
#16 (1.18 mm)	3	3	29	35	100	28	28	24	32	4	
#30 (.600 mm)	3	3	18	23	98	24	24	20	28	4	
#50 (.300 mm)	2	2	11	18	68	17	17	13	21	4	
#100 (.150 mm)	2	2	8	16	23	9	9	6	12	3	
#200 (.075 mm)	1.6	1.9	5.1	13.1	3.9	5.3	5.3	3.3	7.3	2	
AC Content %						5.0	5.0	4.6	5.4	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) °F (°C) Required ± 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	87.3	85.5 - 91.5
Ndes	50		96.0

Tests on Aggregates	Required	Units
Durability Index	74	40 min. %
F.A.A. %U	N/A	%
Flat and Elongated	0	10 max. %
Fractured Faces	100/100	85/80 min. %
Insoluble Residue	31.3	30 min. %
LA Abrasion	27	40 max. %
Micro-Deval	12.1	N/A %
Permeability	2	12.5 max. 10 ⁻⁵ cm/s
Sand Equivalent	72	40 min. %
Pba	0.59	
IOC	0.36	%
Gse	2.711	
Gsb	2.669	
Specimen Weight	4850	g

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA
4.4	2.409	2.524	95.4	Design / Field	13.7	Design / Field	66.4
4.9	2.397	2.504	95.7	96.0 / 94.5 - 97.4	14.6	14.5 / 14.0	70.5
5.4	2.426	2.485	97.6		14.0		82.9

Dust Prop.
 1.4 **Dust Prop. Req.**
 1.2 0.6 - 1.6
 1.1

ITS (PSI) 123.1 N/A min.
TSR 0.96 0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = 110.0 @ 5.0 % Asphalt Cement

Hamburg Rut Test Depth (mm) 7.84 12.50 max. @ 10,000 cycles

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

Comments:

Last Modified By: McComack, Hunter J. hmccomac
 (User Name and User ID)

Date: 11/6/2018
 (mm/dd/yyyy)