Version: V03.40

Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S4 (PG 70-28 OK) Mat'l. Code: asco011
(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)

WS4qc0101371100
(Mix ID)

Cummins Const Co (Woodward, OK) - 12000 lb Batch PLANT ID # m00556-14
(Plant Name and Plant ID)

Aggregate	Producer/Supplier	% USED
5/8" Chips	Dolese Co (Cooperton, OK) P/S # m002723801	30
'D' Rock	Martin-Marietta (Snyder, OK) P/S # m002323802	20
Man. Sand	Martin-Marietta (Snyder, OK) P/S # m002323802	15
Scrns.	Dolese Co (Cooperton, OK) P/S # m002723801	20
Sand	Kline Sand (Camargo, OK) P/S # m005932206	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)

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

Sieve Size	Dolese Co (Cooperton, OK) P/S # m002723801	Martin-Marietta (Snyder, OK) P/S # m002323802	Martin-Marietta (Snyder, OK) P/S # m002323802	Dolese Co (Cooperton, OK) P/S # m002723801	Kline Sand (Camargo, OK) P/S # m005932206				Comb. Agg.	JMF	Min.	Max.	% Tol. (±)
	5/8" Chips	'D' Rock	Man. Sand	Scrns.	Sand								
3/4 in (19 mm)	100	100	100	100	100				100	100	100	100	0
1/2 in (12.5 mm)	98	99	100	100	100				99	99	92	100	7
3/8 in (9.5 mm)	57	82	100	100	100				84	84	77	91	7
#4 (4.75 mm)	3	20	95	91	100				52	52	45	59	7
#8 (2.36 mm)	2	4	70	59	100				39	39	34	44	5
#16 (1.18 mm)	1	2	47	37	100				30	30	26	34	4
#30 (.600 mm)	1	1	25	25	94				23	23	19	27	4
#50 (.300 mm)	1	1	14	20	47				14	14	10	18	4
#100 (.150 mm)	1	1	8	15	3				5	5	2	8	3
#200 (.075 mm)	0.9	1.1	4.0	12.5	2.2				3.9	3.9	1.9	5.9	2
AC Content %									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

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Tests on Compressed Mixtures (@ Design AC)	# Gyr.	% Density of Gmm	% Density Required
Nini	7	89.7	85.5 - 90.5
Ndes	65		96.0

Tests on Aggregates		Required		Units
Durability Index	81	40	min.	%
F.A.A. %U		N/A		%
Flat and Elongated		10	max.	%
Fractured Faces	100/100	95/90	min.	%
Insoluble Residue	41.2	40	min.	%
LA Abrasion	24.7	40	max.	%
Micro-Deval	10.7	N/A		%
Permeability	4.1	12.5	max.	10^{-5}cm/s
Sand Equivalent	79	45	min.	%
Pba	0.44			
IOC	0.22			%
Gse	2.674			
Gsb	2.643			
Specimen Weight	4800			g

Tests on Compressed Mixtures

%AC	Gmb	Gmm	% Density of Gmm	% Density Required Design / Field	% VMA	% VMA Required Design / Field	% VFA	% VFA Required
4.4	2.359	2.493	94.6	96.0 / 94.5 - 97.4	14.7	14.5 / 14.0	63.3	72 - 77
4.9	2.374	2.474	96.0		14.6		72.6	
5.4	2.395	2.456	97.5		14.3		82.5	

Dust Prop.	Dust Prop. Req.
1.0	0.6 - 1.6
0.9	
0.8	

ITS (PSI) 152.4 N/A min.
TSR 0.90 0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = 108.8 @ 4.9 % Asphalt Cement

Hamburg Rut Test Depth (mm) 2.33 12.50 max. @ 15,000 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: 6/15/2016
(mm/dd/yyyy)