Version: V03.40

Oklahoma Department of Transportation Mix Design Report

Asphalt Concrete, Type S3 (PG 76-28 OK) Mat'l. Code: asco007
(Material Full Name and Material Code)

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

J & R Sand Co P/S # m00560
(Producer/Supplier Name and Producer/Supplier Code)

WS3qc0611800301
(Mix ID)

J & R Sand #AP 40 (Portable) - 400TPH PLANT ID # m00560-03
(Plant Name and Plant ID)

Aggregate	Producer/Supplier	% USED
3/4" Chips	Klotz Sand and Gravel (Lakin, KS) P/S # m008758021	35
Scrns.	Klotz Sand and Gravel (Lakin, KS) P/S # m008758021	33
Stone Sand	Dolese Co. (Roosevelt, OK) P/S # m010483804	5
Sand	J & R Sand Co, Winchell Pit (Beaver Co., OK) P/S # m002050402	12
Coarse R.A.P.	Contractor / Project Site P/S # Contractor	15

Warm Mix Asphalt (WMA) Technology: EVOTHERM M1A (Chem. Add.) qual028 Ingevity m00941
(Product Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)

Asphalt Cement: Asphaltic Cement Type PG 76-28 OK, acem001, Valero (Halstead, KS), m00964
(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	Producer/Supplier: Klotz Sand and Gravel (Lakin, KS) P/S # m008758021 — 3/4" Chips	Klotz Sand and Gravel (Lakin, KS) P/S # m008758021 — Scrns.	Dolese Co. (Roosevelt, OK) P/S # m010483804 — Stone Sand	J & R Sand Co, Winchell Pit (Beaver Co., OK) P/S # m002050402 — Sand	Contractor / Project Site P/S # Contractor — Coarse R.A.P.				Comb. Agg.	JMF	Min.	Max.	% Tol. (±)
1 in (25 mm)	100	100	100	100	100				100	**100**	100	100	0
3/4 in (19 mm)	100	100	100	100	100				100	**100**	93	100	7
1/2 in (12.5 mm)	60	100	100	100	96				85	**85**	78	92	7
3/8 in (9.5 mm)	32	100	100	100	90				75	**75**	68	82	7
#4 (4.75 mm)	5	85	96	99	74				58	**58**	51	65	7
#8 (2.36 mm)	3	57	70	88	59				43	**43**	38	48	5
#16 (1.18 mm)	2	41	49	60	47				31	**31**	27	35	4
#30 (.600 mm)	2	31	32	36	36				22	**22**	18	26	4
#50 (.300 mm)	2	21	19	14	24				14	**14**	10	18	4
#100 (.150 mm)	1	14	9	3	14				8	**8**	5	11	3
#200 (.075 mm)	1.0	9.3	4.1	2.0	9.2				5.2	**5.2**	3.2	7.2	2
AC Content %					5.0				4.4	**4.8**	4.4	5.2	0.4

x

Warm Mix Asphalt (WMA) Additive % 0.4

	°F (°C)	Required
Mix temperature @ discharge from mixer:	285 (141)	± 20 °F (± 10 °C)
Optimum roadway compaction temperature:	245 (118)	
Laboratory mixing temperature:	275 (135)	
Laboratory compaction temperature:	235 (113)	

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	8	88.9	85.5 - 89.0
Ndes	80		96.0

Tests on Aggregates		Required		Units
Durability Index	96	40	min.	%
F.A.A. %U		N/A		%
Flat and Elongated	0	10	max.	%
Fractured Faces	99/96	98/95	min.	%
Insoluble Residue	83	N/A		%
LA Abrasion	30	40	max.	%
Micro-Deval	5.9	25	max.	%
Permeability	1.3	12.5	max.	10^{-5}cm/s
Sand Equivalent	73	50	min.	%
Pba	0.25			
IOC	0.15			%
Gse	2.632			
Gsb	2.615			
Specimen Weight	4750			g

Tests on Compressed Mixtures

%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA	% VFA Required
4.1	2.353	2.469	95.3	Design / Field	13.7	Design / Field	65.7	
4.6	2.362	2.451	96.4	96.0 / 94.5 - 97.4	13.8	13.5 / 13.0	73.9	70 - 75
5.1	2.384	2.433	98.0		13.5		85.2	

Dust Prop.	Dust Prop. Req.
1.3	0.6 - 1.6
1.2	
1.1	

ITS (PSI) 405 75 min.
TSR 0.84 0.80 / 0.75 min. (Design / Field)
Compacted Wt. (lbs/sy/1" thick) = 107.5 @ 4.4 % Asphalt Cement
3.6 % New Asphalt Cement

x 1st JMF Revision

Hamburg Rut Test Depth (mm) 6.44 12.50 max. @ 20,000 cycles

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

Comments: Revised JMF by contractor: Effective 10/17/2018

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

Date: 10/29/2018
(mm/dd/yyyy)