



# 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)  
 J & R Sand Co P/S # m00560  
 (Producer/Supplier Name and Producer/Supplier Code)  
 J & R Sand Co #AP 10 (Portable) - 350TPH PLANT ID # m00560-01  
 (Plant Name and Plant ID)

Binder - Recycled ID: B2  
 (Design Type and Design Type ID)  
 WS3qc0611800400  
 (Mix ID)

Aggregate	Producer/Supplier	% USED
3/4" Chips	Dolese Co (Cooperton, OK) P/S # m002723801	18
3/8" Chips	Dolese Co (Cooperton, OK) P/S # m002723801	16
Scrns.	Dolese Co (Cooperton, OK) P/S # m002723801	20
Stone Sand	Dolese Co. (Roosevelt, OK) P/S # m010483804	19
Sand	Kline Sand (Camargo, OK) P/S # m005932206	12
Coarse R.A.P.	Contractor / Project Site P/S # Contractor	15
Warm Mix Asphalt (WMA) Technology: EVOTHERM (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, Coastal Energy (Clinton, OK), m01042 (Material Full Name, Material Code, Producer/Supplier Name, Producer/Supplier Code)		

Sieve Size	Producer/Supplier:							Comb. Agg.	% Tol. (±)			
	3/4" Chips	3/8" Chips	Scrns.	Stone Sand	Sand	Coarse R.A.P.	JMF		Min.	Max.	% Tol. (±)	
1 in (25 mm)	100	100	100	100	100	100	100	100	100	100	0	
3/4 in (19 mm)	100	100	100	100	100	100	100	100	100	93	7	
1/2 in (12.5 mm)	33	100	100	100	100	95	87	87	80	94	7	
3/8 in (9.5 mm)	7	90	100	100	100	86	80	80	73	87	7	
#4 (4.75 mm)	1	9	88	96	100	65	59	59	52	66	7	
#8 (2.36 mm)	1	2	56	70	100	50	45	45	40	50	5	
#16 (1.18 mm)	1	2	36	49	99	40	35	35	31	39	4	
#30 (.600 mm)	1	1	25	32	89	33	27	27	23	31	4	
#50 (.300 mm)	1	1	18	19	40	23	16	16	12	20	4	
#100 (.150 mm)	1	1	13	9	6	13	7	7	4	10	3	
#200 (.075 mm)	0.4	0.9	10.3	4.1	1.5	6.9	4.3	4.3	2.3	6.3	2	
AC Content %						5.2	4.4	4.4	4.0	4.8	0.4	

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

Warm Mix Asphalt (WMA) Additive % 0.4

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

Tests on Aggregates	Required	Units
Durability Index	84	40 min. %
F.A.A. %U	N/A	%
Flat and Elongated	0	10 max. %
Fractured Faces	100/100	98/95 min. %
Insoluble Residue	1.5	N/A %
LA Abrasion	25.3	40 max. %
Micro-Deval	16.4	25 max. %
Permeability	1.4	12.5 max. 10 <sup>-5</sup> cm/s
Sand Equivalent	77	50 min. %
Pba	0.21	
IOC	0.15	%
Gse	2.718	
Gsb	2.703	
Specimen Weight	4750	g

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	8	88.4	85.5 - 89.0
Ndes	80		96.0

Tests on Compressed Mixtures							
%AC	Gmb	Gmm	% Density of Gmm	% Density Required	% VMA	% VMA Required	% VFA
3.8	2.405	2.554	94.2	Design / Field	14.4	Design / Field	59.7
4.3	2.435	2.534	96.1	96.0 / 94.5 - 97.4	13.8	13.5 / 13.0	71.7
4.8	2.450	2.514	97.5		13.7		81.8

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

**ITS (PSI)** 251.9 75 min.  
**TSR** 0.91 0.80 / 0.75 min. (Design / Field)  
 Compacted Wt. (lbs/sy/1" thick) = 111.3 @ 4.4 % Asphalt Cement  
 3.6 % New Asphalt Cement

Hamburg Rut Test Depth (mm) 3.01 12.50 max. @ 20,000 cycles

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

Comments:

Last Modified By: Smith, Jerry D. jsmith  
 (User Name and User ID)

Date: 6/19/2018  
 (mm/dd/yyyy)