



# 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)  
 APAC-Oklahoma P/S # m00552  
 (Producer/Supplier Name and Producer/Supplier Code)  
 APAC Central #04054 (Vinita, OK)- 400TPH PLANT ID # m00552-11  
 (Plant Name and Plant ID)

Binder - Recycled ID: B2  
 (Design Type and Design Type ID)  
 S4qc0061300810  
 (Mix ID)

Aggregate	Producer/Supplier	% USED
#67 Rock	APAC-Central #020 (J-6 Quarry @ Vinita, OK) P/S # m001241802	22
Scrns.	APAC-Central #020 (J-6 Quarry @ Vinita, OK) P/S # m001241802	10
Man. Sand	APAC-Central #020 (J-6 Quarry @ Vinita, OK) P/S # m001241802	31
Sand	Holiday Sand & Gravel (Bixby, OK) P/S # m001997212	12
Fine R.A.P.	Contractor / Project Site P/S # Contractor	25
<b>Asphalt Cement:</b> 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.	Tol.			%
	#67 Rock	Scrns.	Man. Sand	Sand	Fine R.A.P.			JMF	Min.	Max.	
3/4 in (19 mm)	100	100	100	100	100		100	100	100	0	
1/2 in (12.5 mm)	67	100	100	100	97		92	85	99	7	
3/8 in (9.5 mm)	35	100	100	100	92		84	77	91	7	
#4 (4.75 mm)	4	89	93	99	70		68	61	75	7	
#8 (2.36 mm)	3	60	49	88	40		42	37	47	5	
#16 (1.18 mm)	2	43	29	68	38		31	27	35	4	
#30 (.600 mm)	2	32	17	42	30		21	17	25	4	
#50 (.300 mm)	2	25	8	16	23		13	9	17	4	
#100 (.150 mm)	2	19	6	2	16		8	5	11	3	
#200 (.075 mm)	1.4	14.9	4.2	0.4	10.7		5.8	3.8	7.8	2	
AC Content %					5.2		5.3	4.9	5.7	0.4	

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

Mix temperature @ discharge from mixer: 305 (152) ± 20 °F (± 10 °C) **Required**  
 Optimum roadway compaction temperature: 290 (143)  
 Laboratory mixing temperature: 325 (163)  
 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	6	88.2	85.5 - 91.5
Ndes	50		96.0

Tests on Aggregates	Required	Units
Durability Index	64	40 min. %
F.A.A. %U		N/A %
Flat and Elongated		10 max. %
Fractured Faces	100/100	85/80 min. %
Insoluble Residue	17	N/A %
LA Abrasion	26.3	40 max. %
Micro-Deval	19.3	N/A %
Permeability	0.2	12.5 max. 10 <sup>-5</sup> cm/s
Sand Equivalent	75	40 min. %
IOC	0.33	%
Gse	2.633	
Gsb	2.609	
Specimen Weight	4700	g

Tests on Compressed Mixtures								
%AC	Gmb	Gmm	% Density		% VMA	% VMA Required		% VFA
			of Gmm	% Density Required		Design / Field	Design / Field	
4.8	2.313	2.444	94.6	Design / Field	15.6	Design / Field	65.4	% VFA Required
5.3	2.325	2.426	95.8	96.0 / 94.5 - 97.4	15.6	14.5 / 14.0	73.1	72 - 77
5.8	2.353	2.409	97.7		15.0		84.7	

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

**ITS (PSI)** 191.6 N/A min.  
**TSR** 0.91 0.80 / 0.75 min. (Design / Field)  
**Compacted Wt. (lbs/sy/1" thick)** = 106.7 @ 5.3 % Asphalt Cement  
 4.0 % New Asphalt Cement

**Hamburg Rut Test Depth (mm)** 2.68 12.50 max. @ 10,000 cycles

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

**Comments:** CORRECTED - Bin Split Percentages on the Man Sand and Natural Sand were reversed

**Last Modified By:** Schratwieser, Edward P. eschratt  
 (User Name and User ID)

**Date:** 5/7/2014  
 (mm/dd/yyyy)