

KIEWIT INFRASTRUCTURE CO. ASPHALT CONCRETE MIX DESIGN

DATE 4/4/2021
 DESIGN METHOD CPL 5115 Superpave
 COMPACTION LEVEL Ndes=75, External Angle @ 1.25°
 MIXING TEMPERATURE 163°C (325°F)
 MOLDING TEMPERATURE 149°C (300°F)

MIX DESIGNATION 1222-CL-21
 PLANT Colorado Springs
 ASPHALT CEMENT PG 64-22
 Sinclair
 SPECIFIC GRAVITY AC 1.004

AGGREGATE PHYSICAL PROPERTIES

PRODUCT		Tezak #7	Tezak 3/8" Chips	Tezak Crushed Fines	Baculite Crushed Fines	Baculite Sand	KIC RAP	LIME Pete Lien	ACTUAL GRADING	Grade SX	
DESCRIPTION		1/2" CA	3/8" CA	-3/8" Fines	-#4 Fines	-#4 Fines	4.70% AC		% PASSING		
PERCENT OF BLEND		23%	9%	24%	8%	15%	20%	1%	100%	Min.	Max.
GRADATIONS	1 1/2 in.	100	100	100	100	100	100	100	100		
SIEVE SIZES	1 in.	100	100	100	100	100	100	100	100		
	3/4 in.	100	100	100	100	100	100	100	100	100	
	1/2 in.	94	100	100	100	100	99	100	98	90	100
	3/8 in.	57	100	100	100	100	95	100	89		
	#4	8	80	85	89	94	81	100	68		
	#8	5	33	56	33	71	65	100	45	28	58
	#16	4	18	41	18	47	49	100	32		
	#30	4	14	30	11	30	37	100	23		
	#50	3	10	20	6	15	25	100	15		
	#100	2	7	13	4	8	15	98	10		
#200	1.7	4.6	8.2	2.7	5.0	9.0	97.0	6.5	2	10	
BULK SPECIFIC GRAVITY*		2.633	2.630	2.627	2.541	2.540	2.661	2.350	2.613		
SSD SPECIFIC GRAVITY		2.652	2.652	2.650	2.564	2.568		2.350	2.636		
EFFECTIVE SPECIFIC GRAVITY							2.705		2.654		
APPARENT SPECIFIC GRAVITY		2.685	2.689	2.687	2.603	2.614		2.350	2.679		
H ₂ O ABSORPTION		0.70%	0.80%	0.90%	1.00%	1.10%	1.30%		1.0%		
FINE AGGREGATE SPECIFIC GRAVITY									2.592		
FINE AGGREGATE ANGULARITY									46	45	
FLAT & ELONGATED PARTICLES									0		10%
L.A. ABRASION		33	36	35	34	35			34		45
MICRO-DEVAL									12		18
SOUNDNESS									3		12
SAND EQUIVALENT									72	45	
PLASTICITY INDEX		NP	NP	NP	NP	NP			NP	NP	
FRACTURED FACES (2+)									100	75	
ADHERENT COATING									0.2		0.5

* RAP bulk specific gravity is calculated using CP-52

ASPHALT CEMENT CONTENT DETERMINATION

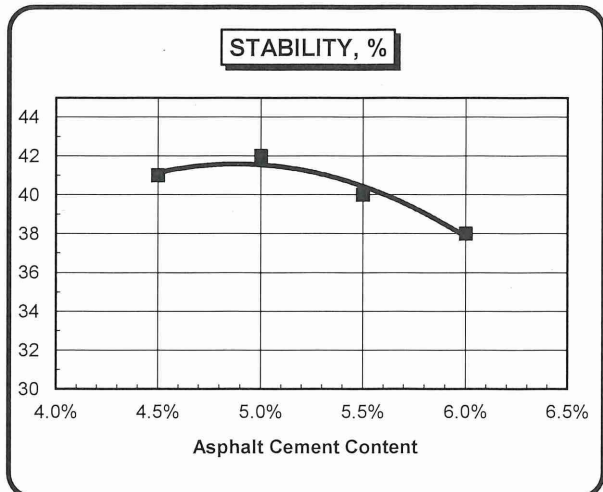
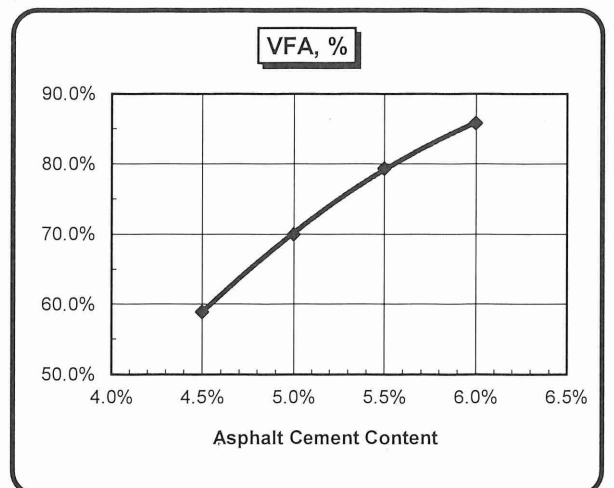
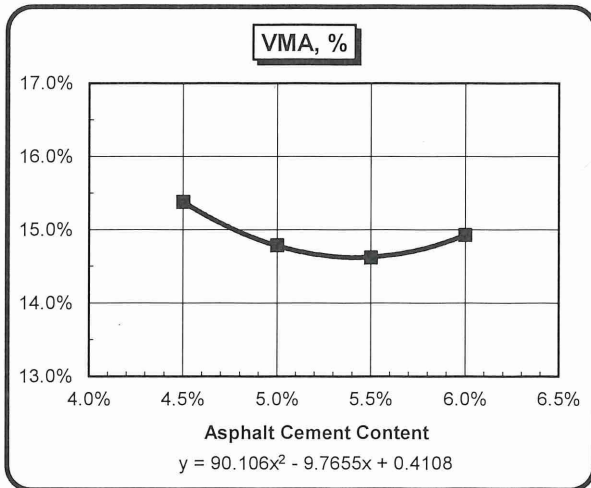
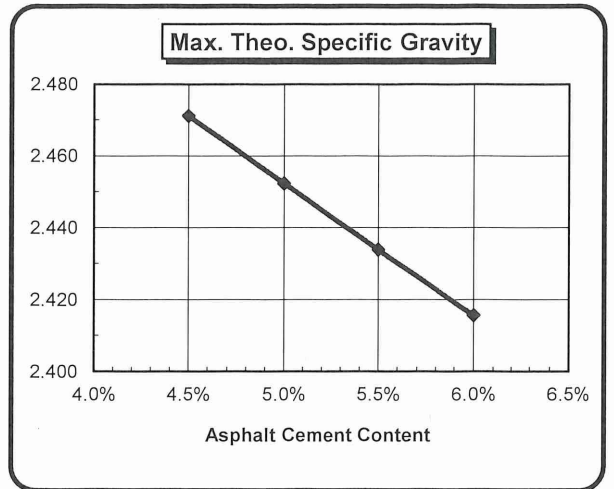
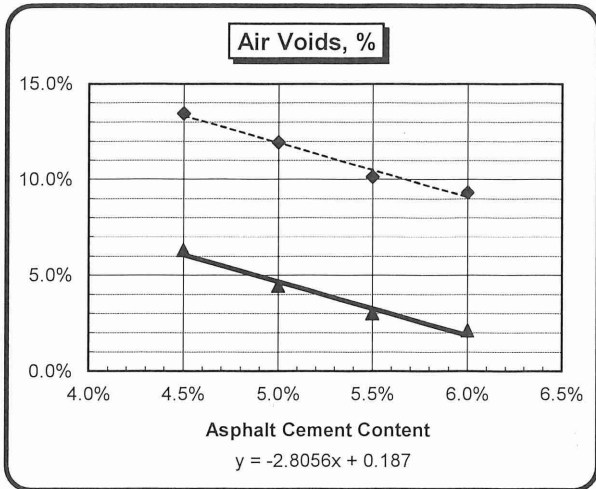
MIXTURE PROPERTIES @ N-Design	ASPHALT CEMENT CONTENT				
	Percent by Total Weight				
	4.50%	5.00%	5.50%	6.00%	
BULK SPECIFIC GRAVITY	2.315	2.344	2.361	2.365	
MAX. THEO. SPECIFIC GRAVITY	2.471	2.452	2.434	2.416	
AIR VOIDS, %	Initial	13.4%	11.9%	10.1%	9.3%
	Design	6.3%	4.4%	3.0%	2.1%
VMA, %		15.4%	14.8%	14.6%	14.9%
VFA, %		58.9%	70.0%	79.4%	85.8%
STABILITY		41	42	40	38
Dust to Asphalt Ratio CP-50		1.40	1.24	1.12	1.01

DESIGN MIXTURE PHYSICAL PROPERTIES

Ndes=75, External Angle @ 1.25°	MIX DESIGN	Min.	Max.
OPTIMUM ASPHALT CONTENT, 4.5% VIRGIN	5.4%		
EFFECTIVE ASPHALT CONTENT	4.9%		
AIR VOIDS, %	Initial (Info)		
	Design	3.0%	4.0%
VMA, %		14.6%	
VFA, %		76%	80
DUST TO ASPHALT RATIO CP-50	1.1	0.6	1.2
MAXIMUM SPECIFIC GRAVITY	2.437		
HVEEM STABILITY	40	28	
LOTTMAN CP-L-5109			
DRY TENSILE STRENGTH, psi	92.4	30	
CONDITIONED TENSILE STRENGTH, psi	92.4		
RETAINED STRENGTH, %	100.0%	80%	
%SATURATION	92.1%		
AVERAGE AIR VOIDS	6.9%	6%	8%



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Gradation Chart
Sieve Sizes Raised to 0.45 Power

