



CONCRETE MIX DESIGN

DarCole Products, Inc.
 1940 US 41 South
 Sebree, KY 42455
 USA (270) 826-6499

Customer:	Fc Mix
Description:	4000PSI with Air

Mix Code:	UTFCM4KEXT101520
Date:	10/15/2020

Air Range:	Minimum	3.0%
	Maximum	7.0%
Slump Range:	Minimum	3"
	Maximum	5"
Aggregate Ratio:	Coarse	57%
	Fine	43%

Compressive Strength:	4000 PSI
Mortar Content %:	57.3%
Paste Content %:	31.2%
Mix Suitability Factor:	24.75
Unit Weight:	141.1
Water/Cement ratio:	0.45

Material Description	Specification	Quantity (lbs)	Density	Volume
Cementious				
Cement	Holcim 1P Blend	564	3.000	3.01
Coarse Aggregates				
Coarse Aggregate 1	Kilgore 21-05014 #67 Washed Rock	1675	2.554	10.51
Fine Aggregates				
Fine Aggregate 1	Kilgore 22-09514 Washed Concrete Sand	1316	2.618	8.06
	Water: 30.4 gallons	253.8	1.000	4.07
	Air Content 5.0%			1.35
Total:		3809		27.00

Admixture(s)	Material Description	Specification	OZ/CWT	Density	OZ/YD
DSA 110	DarCole Synthetic Air 110	AASHTO M-154	1.5 33.84	1.000	8.46
DNL 785	DarCole Products DarNlok 785	AASHTO M-194 Type A	10 169.2	1.030	56.40

Reported by:	Ryan Risley-DarCole Products Inc.	Approval by:	
Date:	10/15/2020	Date:	

Disclaimer: The information in this chart is to the best of our knowledge, reliable. Users should make their own tests to determine the suitability of these for their own particular purposes. DarCole Products, Inc. makes no warranty of any kind, express or implied, including those of merchantable and fitness for purpose.



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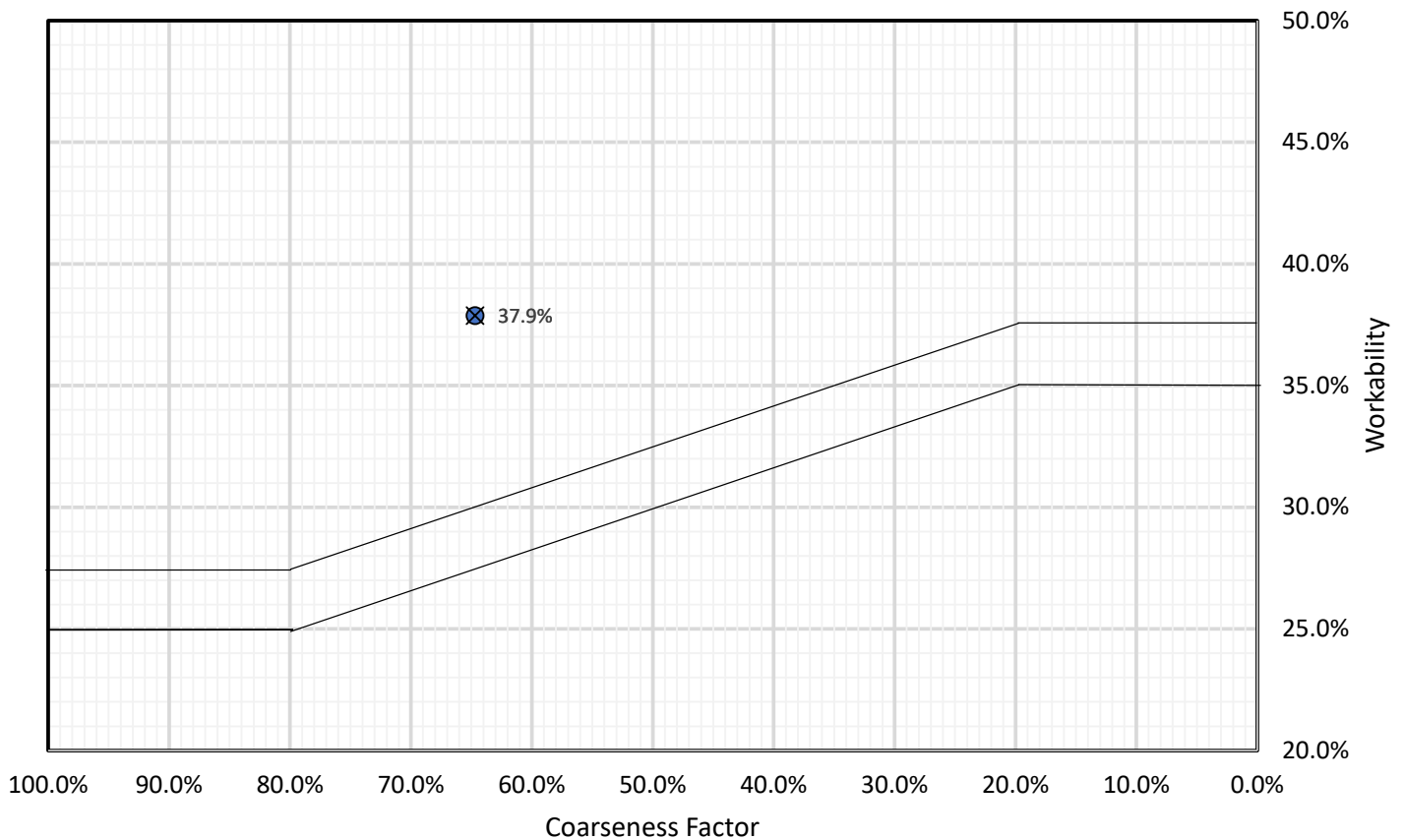
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Mix Analysis							
		Paste & Mortar					
		Vol	%Total	% Agg	%Mortar	%Paste	
57.3%	% Mortar						
40.2%	% Ag Retained on 3/8 Sieve						
21.9%	% Ag Passing 3/8 but Retained on #8 Sieve	+3/8	7.46	27.6%	40.2%		
64.7%	Coarseness Factor	3/8-#8	4.07	15.1%	21.9%		
37.9%	Workability (Paste + Ag < #8 Sieve)	+#8	11.53	42.7%	62.1%		
37.9%	Cement Factor Adjusted Workability	-#8	7.03	26.1%	37.9%	45.5%	
21.20	Modified Specific Surface	Mortar	15.46	57.3%			
24.75	Mix Suitability Factor	Paste	8.43	31.2%		54.5%	
Mix Suitability Factor Guidelines		Slump Range	Powder	3.01	11.2%	19.5%	35.7%
16-20	Unstable, too Harsh	0	Air	1.35	5.0%	8.7%	16.0%
20-22	Harsh Mixes-Heavy Vibration	0-2	Water	4.07	15.1%	26.3%	48.2%
22-25	Hard Wearing-Slabs, Precast	2-3.5	TOTAL	27.00	100.0%	100.0%	100.0%
25-27	Structural Concrete	3-4	Calculated for Total				
26-28	Good Pumpable Concrete=Good Surface	4-5					
27-31	Pumpable, Lightweight, Flowing	>8					

Coarseness Factor Chart

● Workability (Paste + Ag < #8 Sieve) × Cement Factor Adjusted Workability





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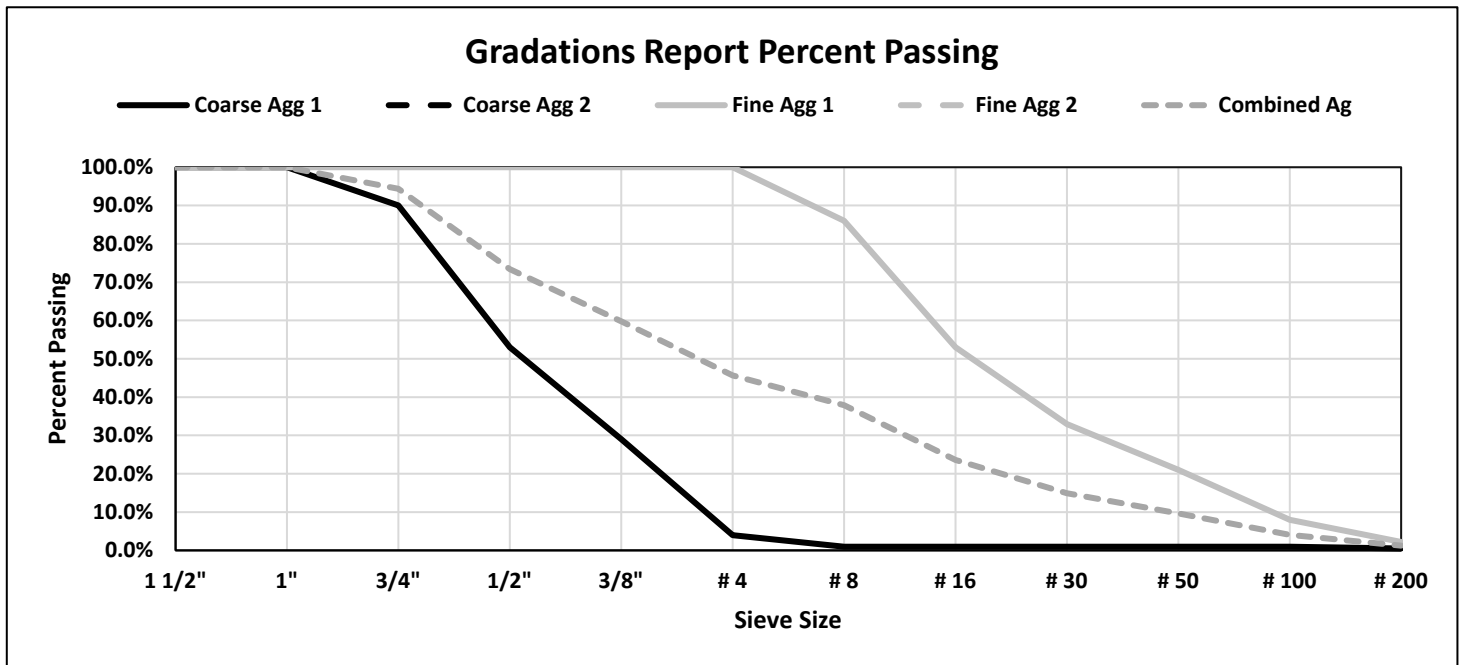
Aggregate Sieve Analysis

Sieve	Coarse Agg 1		Coarse Agg 2		Fine Agg 1		Fine Agg 2		Combined Ag		Paste+Agg	
1 1/2"	100.0%	0.0%			100.0%	0.0%			100.0%	0.0%	100.0%	0.0%
1"	100.0%	0.0%			100.0%	0.0%			100.0%	0.0%	100.0%	0.0%
3/4"	90.0%	10.0%			100.0%	0.0%			94.3%	5.7%	96.1%	3.9%
1/2"	53.0%	47.0%			100.0%	0.0%			73.4%	26.6%	81.7%	18.3%
3/8"	29.0%	71.0%			100.0%	0.0%			59.8%	40.2%	72.4%	27.6%
# 4	4.0%	96.0%			100.0%	0.0%			45.7%	54.3%	62.6%	37.4%
# 8	1.0%	99.0%			86.0%	14.0%			37.9%	62.1%	57.3%	42.7%
# 16	1.0%	99.0%			53.0%	47.0%			23.6%	76.4%	47.4%	52.6%
# 30	1.0%	99.0%			33.0%	67.0%			14.9%	85.1%	41.5%	58.5%
# 50	1.0%	99.0%			21.0%	79.0%			9.7%	90.3%	37.9%	62.1%
# 100	1.0%	99.0%			8.0%	92.0%			4.0%	96.0%	34.0%	66.0%
# 200	0.5%	99.5%			2.2%	97.8%			1.2%	98.8%	21.6%	78.4%
# 325	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		
% Agg	56.6%				43.4%							

Percent Passing
Percent Retained

	Fine Agg 1	Fine Agg 2
F.M.	2.99	
F.M. Guidelines		
	Fine Sand	2.2-2.6
	Medium Sand	2.6-2.9
	Coarse Sand	2.9-3.2

Coarse Aggregate 1 Kilgore 21-05014 #67 Washed Rock
 Coarse Aggregate 2
 Fine Aggregate 1 Kilgore 22-09514 Washed Concrete Sand
 Fine Aggregate 2





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Individual Percent Retained						
Sieve	Coarse Agg 1	Coarse Agg 2	Fine Agg 1	Fine Agg 2	Combined Ag	Paste + Ag
1 1/2"	0.0%		0.0%		0.0%	0.0%
1"	0.0%		0.0%		0.0%	0.0%
3/4"	10.0%		0.0%		5.7%	3.9%
1/2"	37.0%		0.0%		20.9%	14.4%
3/8"	24.0%		0.0%		13.6%	9.3%
# 4	25.0%		0.0%		14.2%	9.7%
# 8	3.0%		14.0%		7.8%	5.3%
# 16	0.0%		33.0%		14.3%	9.8%
# 30	0.0%		20.0%		8.7%	6.0%
# 50	0.0%		12.0%		5.2%	3.6%
# 100	0.0%		13.0%		5.6%	3.9%
# 200	0.5%		5.8%		2.8%	12.4%
% Agg	56.6%		43.4%			

Coarse Aggregate 1 Kilgore 21-05014 #67 Washed Rock

Coarse Aggregate 2

Fine Aggregate 1 Kilgore 22-09514 Washed Concrete Sand

Fine Aggregate 2

