

# Aggregate Optimization Chart

# Production Gradation Report

PLANT #: **P-20**

Sample Date: **9/21/20**

Dates Test Represents: **9/22/2020**

through **9/28/2020**

Concrete Grade: **P1M**

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

Aggr. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	Contribution %
CA	71-47	Presque Isle	870	5.32	2.62	28.3
IA	71-47	Presque Isle	1000	6.12	2.62	32.6
NNS	63-92	Grange Hall	1200	7.26	2.65	39.1
<b>Total Wt</b>						<b>100.0</b>

Sieve	CA	IA	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	97.2	100.0	100.0	99.2	0.8	0.8
1"	45.0	100.0	100.0	84.4	14.8	15.6
3/4"	11.0	100.0	100.0	74.5	25.5	25.5
1/2"	4.3	89.8	100.0	69.6	4.9	30.4
3/8"	3.3	70.4	100.0	63.0	6.6	37.0
#4	2.5	21.5	97.2	45.7	17.2	54.3
#8	2.2	7.3	85.2	36.3	9.4	63.7
#16	2.1	4.0	70.9	29.6	6.7	70.4
#30	1.9	3.3	49.9	21.1	8.5	78.9
#50	1.8	2.9	19.9	9.2	11.9	90.8
#100	1.6	2.5	3.1	2.5	6.8	97.5
LBW	1.1	1.4	0.9	1.1	1.4	98.9



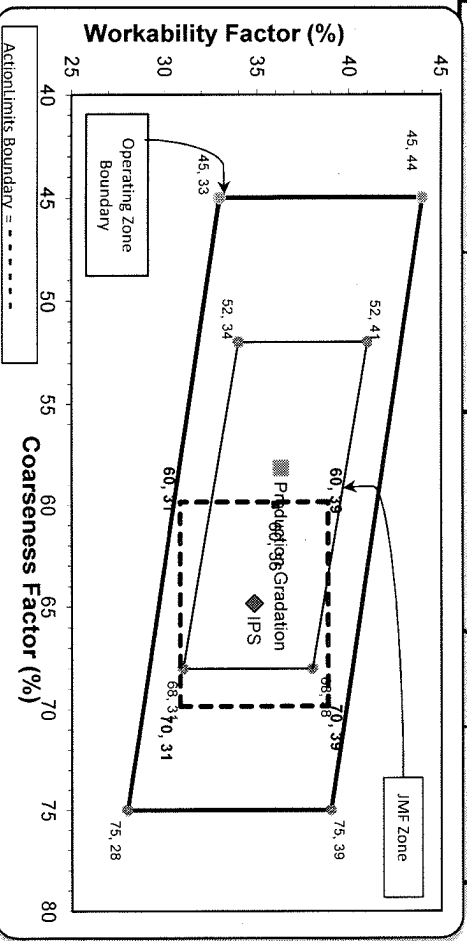
Superior Materials, LLC  
30701 W. 10 Mile Rd.  
Suite 500  
Farmington Hills, MI 48336

Sieve	CA	IA	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	97.2	100.0	100.0	99.2	0.8	0.8
1"	45.0	100.0	100.0	84.4	14.8	15.6
3/4"	11.0	100.0	100.0	74.5	25.5	25.5
1/2"	4.3	89.8	100.0	69.6	4.9	30.4
3/8"	3.3	70.4	100.0	63.0	6.6	37.0
#4	2.5	21.5	97.2	45.7	17.2	54.3
#8	2.2	7.3	85.2	36.3	9.4	63.7
#16	2.1	4.0	70.9	29.6	6.7	70.4
#30	1.9	3.3	49.9	21.1	8.5	78.9
#50	1.8	2.9	19.9	9.2	11.9	90.8
#100	1.6	2.5	3.1	2.5	6.8	97.5
LBW	1.1	1.4	0.9	1.1	1.4	98.9

\*Maximum % Retained must be above the 3/8" sieve.  
\*Any two adjacent sieves must equal 10% except max.  
nom. max. #100 and #200 sieves.  
\*% Retained must be at least 4% for each sieve except max.  
nom. max. #100 and #200 sieves.  
\*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. 1.5") aggregate is used.

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: **58** Workability Factor: **36**



Initial Production Sample (IPS)

Coarseness Factor: **65** Workability Factor: **35**

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.1	0.9	0.9
1"	80.8	18.2	19.2
3/4"	71.3	9.6	28.7
1/2"	64.0	7.3	36.0
3/8"	57.7	6.2	42.3
#4	42.8	15.0	57.2
#8	34.8	7.9	65.2
#16	28.4	6.4	71.6
#30	20.2	8.2	79.8
#50	7.6	12.6	92.4
#100	1.6	6.0	98.4
LBW	1.0	0.6	99.0

PREPARED BY:  
SM, LLC Technical Service

Approved By: \_\_\_\_\_



Plant S20-Superior Flint

Product 7919-COARSE AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 09/20/2020 - 09/26/2020

Report Date 09/25/2020

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	97.2	%	
	1" (25mm)	45.0	%	
	3/4" (19mm)	11.0	%	
	1/2" (12.5mm)	4.3	%	
	3/8" (9.5mm)	3.3	%	
	#4 (4.75mm)	2.5	%	
	#8 (2.36mm)	2.2	%	
	#16 (1.18mm)	2.1	%	
	#30 (.6mm)	1.9	%	
	#50 (.3mm)	1.8	%	
	#100 (.15mm)	1.6	%	
	#200 (75µm)	1.2	%	
	Wash Loss (#200/75um)	1.1	%	0-2
	Total Moisture	1.27	%	



Plant S20-Superior Flint

Product 7920-INTERMED AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 09/20/2020 - 09/26/2020

Report Date 09/25/2020

Procedure	Sieve/Test	Result	Unit	Intermed Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	99.0	%	
	1/2" (12.5mm)	89.8	%	
	3/8" (9.5mm)	70.4	%	
	#4 (4.75mm)	21.5	%	
	#8 (2.36mm)	7.3	%	
	#16 (1.18mm)	4.0	%	
	#30 (.6mm)	3.3	%	
	#50 (.3mm)	2.9	%	
	#100 (.15mm)	2.5	%	
	#200 (75µm)	1.8	%	
	Wash Loss (#200/75um)	1.4	%	0-3
	Total Moisture	6.90	%	



Plant S20-Superior Flint

Product 1022-2NS GR

Period: 09/20/2020 - 09/26/2020

Name/Title Doug Storey / QC Technician

Report Date 09/25/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.2	%	95-100
	#8 (2.36mm)	85.2	%	65-95
	#16 (1.18mm)	70.9	%	35-75
	#30 (.6mm)	49.9	%	20-55
	#50 (.3mm)	19.9	%	10-30
	#100 (.15mm)	3.1	%	0-10
	#200 (75µm)	0.9	%	
	FM	2.74		2.6-3
	Wash Loss (#200/75µm)	0.9	%	0-3
	Total Moisture	3.51	%	