

# Aggregate Optimization Chart

# Production Gradation Report

**PLANT #:** P-32

Sample Date: 9/5/22

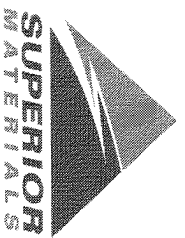
Dates Test Represents: 9/6/2022 through 9/12/2022

Concrete Grade: P1M, 3500HP

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

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

Agg. Class	Pit #	Source	Weight (ssd)	ft <sup>3</sup>	Specific Gravity	Contribution %
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	920	5.63	2.62	30.0
2NS	95-013	Smelter Bay	1250	7.56	2.65	40.7
			<b>Total Wt</b>	<b>3070</b>		<b>100.0</b>



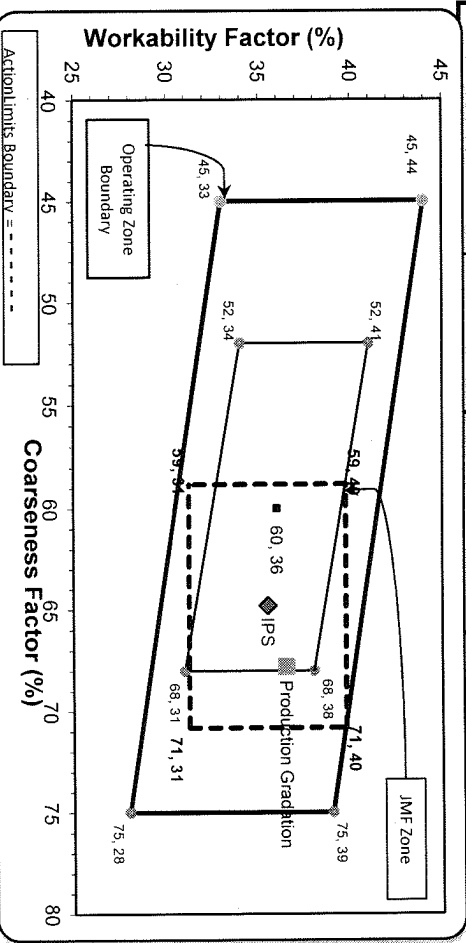
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.5	100.0	100.0	99.6	0.4	0.4
1"	56.4	100.0	100.0	87.2	12.3	12.8
3/4"	17.7	100.0	100.0	75.3	11.9	24.7
1/2"	4.7	75.2	100.0	64.6	10.6	35.4
3/8"	3.1	51.1	100.0	56.9	7.7	43.1
#4	2.4	13.8	95.8	43.8	13.1	56.2
#8	2.3	6.2	83.4	36.5	7.4	63.5
#16	2.3	4.4	67.9	29.6	6.9	70.4
#30	2.3	3.7	49.3	21.9	7.8	78.1
#50	2.2	3.3	23.8	11.3	10.5	88.7
#100	2.1	3.0	6.9	4.3	7.0	95.7
LBW	1.7	2.6	1.5	1.9	2.4	98.1

\*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. Max. 1.5") aggregate is used.

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: 68 Workability Factor: 36



Initial Production Sample (IPS)

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.0	0.6	0.6
1"	84.0	15.3	16.0
3/4"	73.5	10.5	26.5
1/2"	65.2	8.2	34.8
3/8"	58.2	7.1	41.8
#4	44.1	14.1	55.9
#8	35.5	8.6	64.5
#16	29.1	6.4	70.9
#30	21.9	7.3	78.1
#50	9.6	12.2	90.4
#100	2.6	7.1	97.4
LBW	1.0	1.6	99.0

PREPARED BY:  
 SM, LLC Technical Service

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

Plant 958-JMT  
 Product 1022-2NS GR - Smelter Bay  
 Period: 09/04/2022 - 09/10/2022

Name/Title Doug Storey / QC Technician  
 Report Date 09/09/2022

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.8	%	95-100
	#8 (2.36mm)	83.4	%	65-95
	#16 (1.18mm)	67.9	%	35-75
	#30 (.6mm)	49.3	%	20-55
	#50 (.3mm)	23.8	%	10-30
	#100 (.15mm)	6.9	%	0-10
	#200 (75µm)	1.9	%	
	FM	2.73		2.6-3
	Wash Loss (#200/75um)	1.5	%	0-3
	Total Moisture	3.9	%	

Plant 958-JMT  
 Product 7920-INTERMED AGG P1M LS PI  
 Period: 09/04/2022 - 09/10/2022

Name/Title Doug Storey / QC Technician  
 Report Date 09/09/2022

Procedure	Sieve/Test	Result	Unit	Intermed Agg P1M LS PI Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	98.0	%	
	1/2" (12.5mm)	75.2	%	
	3/8" (9.5mm)	51.1	%	
	#4 (4.75mm)	13.8	%	
	#8 (2.36mm)	6.2	%	
	#16 (1.18mm)	4.4	%	
	#30 (.6mm)	3.7	%	
	#50 (.3mm)	3.3	%	
	#100 (.15mm)	3.0	%	
	#200 (75µm)	2.7	%	
	Wash Loss (#200/75um)	2.6	%	0-3
	Total Moisture	2.0	%	

**Plant** 958-JMT

**Product** 7919-COARSE AGG P1M LS PI

**Name/Title** Doug Storey / QC Technician

**Period:** 09/04/2022 - 09/10/2022

**Report Date** 09/09/2022

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS PI Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	98.5	%	
	1" (25mm)	56.4	%	
	3/4" (19mm)	17.7	%	
	1/2" (12.5mm)	4.7	%	
	3/8" (9.5mm)	3.1	%	
	#4 (4.75mm)	2.4	%	
	#8 (2.36mm)	2.3	%	
	#16 (1.18mm)	2.3	%	
	#30 (.6mm)	2.3	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	2.1	%	
	#200 (75µm)	1.9	%	
	Wash Loss (#200/75um)	1.7	%	0-2
	Total Moisture	1.1	%	