

# Aggregate Optimization Chart

# Production Gradation Report

PLANT #: p11

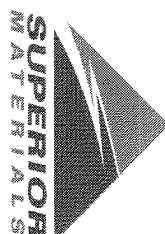
Sample Date: 3/1/24

Dates Test Represents: 3/12/2024 through 3/18/2024

Concrete Grade: S2M 3500HP

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

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



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

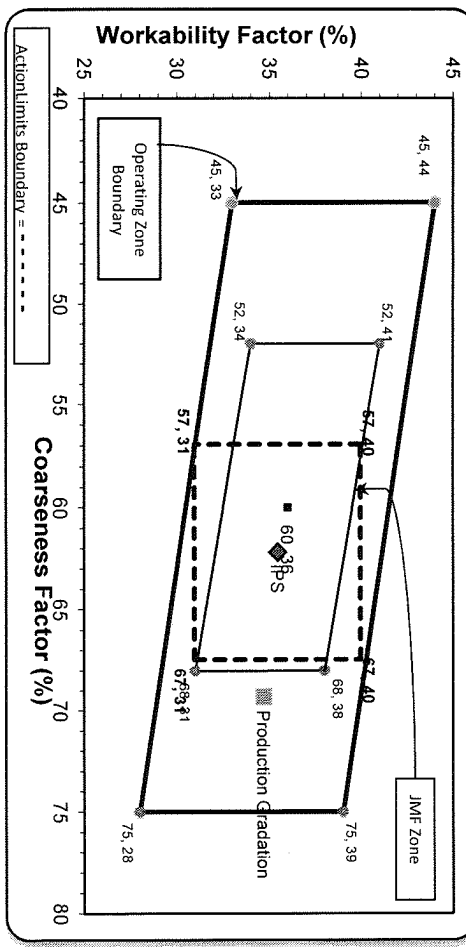
Aggr. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1670	10.21	2.62	54.8
26A	71-47	Presque Isle	150	0.92	2.62	4.9
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
			<b>Total Wt</b>	<b>3050</b>		<b>100.0</b>

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	97.5	100.0	100.0	98.6	1.4	1.4
3/4"	70.1	100.0	100.0	83.6	15.0	16.4
1/2"	30.5	95.5	100.0	61.7	21.9	38.3
3/8"	18.5	87.2	100.0	54.7	7.0	45.3
#4	2.5	22.0	97.0	41.6	13.2	58.4
#8	1.1	6.2	83.8	34.7	6.9	65.3
#16	1.0	3.2	68.7	28.4	6.3	71.6
#30	0.9	2.8	51.3	21.3	7.1	78.7
#50	0.9	2.6	25.5	10.9	10.4	89.1
#100	0.8	2.4	5.5	2.8	8.1	97.2
LBW	0.7	2.2	1.3	1.0	1.8	99.0

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: **69** Workability Factor: **35**



Initial Production Sample (IPS)

Coarseness Factor: **62** Workability Factor: **35**

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	100.0	0.0	0.0
3/4"	94.0	6.0	6.0
1/2"	70.2	23.7	29.8
3/8"	59.9	10.4	40.1
#4	42.7	17.2	57.3
#8	35.5	7.2	64.5
#16	28.4	7.0	71.6
#30	19.2	9.2	80.8
#50	8.9	10.3	91.1
#100	3.1	5.9	96.9
LBW	1.4	1.7	98.6

\*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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

PREPARED BY:  
SM, LLC Technical Service

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



Plant S11-Onsite Jefferson

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 03/10/2024 - 03/16/2024

Report Date 03/16/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	97.5	%	95-100
	3/4" (19mm)	70.1	%	
	1/2" (12.5mm)	30.5	%	30-60
	3/8" (9.5mm)	18.5	%	
	#4 (4.75mm)	2.5	%	0-8
	#8 (2.36mm)	1.1	%	
	#16 (1.18mm)	1.0	%	
	#30 (.6mm)	0.9	%	
	#50 (.3mm)	0.9	%	
	#100 (.15mm)	0.8	%	
	#200 (75µm)	0.76	%	
	Wash Loss (#200/75um)	0.7	%	0-2
	Total Moisture	2.92	%	



Plant S11-Onsite Jefferson

Product 1067-26A Mod LS

Period: 03/10/2024 - 03/16/2024

Name/Title Doug Storey / QC Technician

Report Date 03/16/2024

Procedure	Sieve/Test	Result	Unit	26A Mod LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	95.5	%	95-100
	3/8" (9.5mm)	87.2	%	60-95
	#4 (4.75mm)	22.0	%	5-30
	#8 (2.36mm)	6.2	%	0-12
	#16 (1.18mm)	3.2	%	
	#30 (.6mm)	2.8	%	
	#50 (.3mm)	2.6	%	
	#100 (.15mm)	2.4	%	
	#200 (75µm)	2.3	%	
	Wash Loss (#200/75um)	2.2	%	0-3
	Total Moisture	1.92	%	



Plant S11-Onsite Jefferson

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 03/10/2024 - 03/16/2024

Report Date 03/16/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.0	%	95-100
	#8 (2.36mm)	83.8	%	65-95
	#16 (1.18mm)	68.7	%	35-75
	#30 (.6mm)	51.3	%	20-55
	#50 (.3mm)	25.5	%	10-30
	#100 (.15mm)	5.5	%	0-10
	#200 (75µm)	1.5	%	
	FM	2.68		2.6-3
	Wash Loss (#200/75um)	1.3	%	0-3
	Total Moisture	3.31	%	

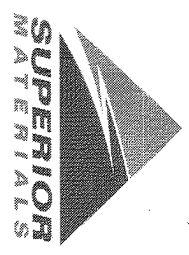
# Aggregate Optimization Chart

# Production Gradation Report

PLANT #: **P-102**

Sample Date: **3/11/24**  
 Dates Test Represents: **3/12/2024** through **3/18/2024**  
 Concrete Grade: **S2M, 3500HP**

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



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

Agg. Class	Pit #	Source	Weight (ssd)	ft <sup>3</sup>	Specific Gravity	Contribution %
6AA	58-003	Stonoco	1550	9.23	2.69	50.0
26A	58-003	Stonoco	350	2.09	2.69	11.3
2NS	63-114	Highland	1200	7.26	2.65	38.7
Total Wt			<b>3100</b>	<b>18.58</b>		<b>100.0</b>

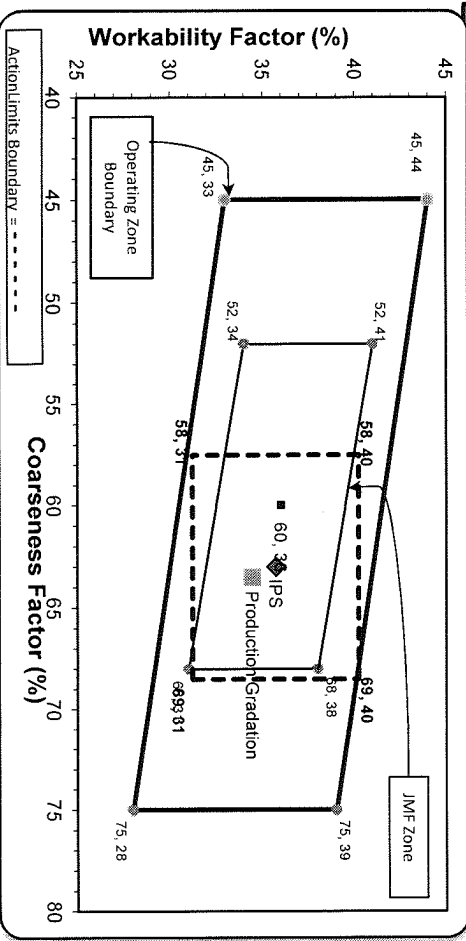
  

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.2	100.0	100.0	99.6	0.4	0.4
3/4"	83.6	100.0	100.0	91.8	7.8	8.2
1/2"	40.2	98.0	100.0	69.9	21.9	30.1
3/8"	20.0	85.6	100.0	58.4	11.5	41.6
#4	4.5	12.7	98.9	42.0	16.4	58.0
#8	2.3	4.6	84.7	34.5	7.5	65.5
#16	1.8	3.0	65.4	26.6	7.9	73.4
#30	1.6	2.6	45.6	18.7	7.8	81.3
#50	1.5	2.3	18.4	8.1	10.6	91.9
#100	1.4	2.2	4.0	2.5	5.6	97.5
LBW	1.2	2.0	1.1	1.3	1.2	98.7

\*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 4% for the 3/4" sieve when  
 a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: **64** Workability Factor: **34**



Initial Production Sample (IPS)

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:  
 SM, LLC Technical Service

Approved By:



**Plant** S102-Superior Novi

**Product** 1051-6AA LS

**Period:** 03/10/2024 - 03/16/2024

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

**Report Date** 03/16/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	99.2	%	95-100
	3/4" (19mm)	83.6	%	
	1/2" (12.5mm)	40.2	%	30-60
	3/8" (9.5mm)	20.0	%	
	#4 (4.75mm)	4.5	%	0-8
	#8 (2.36mm)	2.3	%	
	#16 (1.18mm)	1.8	%	
	#30 (.6mm)	1.6	%	
	#50 (.3mm)	1.5	%	
	#100 (.15mm)	1.4	%	
	#200 (75µm)	1.34	%	
	Wash Loss (#200/75um)	1.2	%	0-2
	Total Moisture	1.78	%	



Plant S102-Superior Novi

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 03/10/2024 - 03/16/2024

Report Date 03/16/2024

Procedure	Sieve/Test	Result	Unit	26A Mod LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	98.0	%	95-100
	3/8" (9.5mm)	85.6	%	60-95
	#4 (4.75mm)	12.7	%	5-30
	#8 (2.36mm)	4.6	%	0-12
	#16 (1.18mm)	3.0	%	
	#30 (.6mm)	2.6	%	
	#50 (.3mm)	2.3	%	
	#100 (.15mm)	2.2	%	
	#200 (75µm)	2.1	%	
	Wash Loss (#200/75um)	2.0	%	0-3
	Total Moisture	2.10	%	



Plant S102-Superior Novi

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 03/10/2024 - 03/16/2024

Report Date 03/16/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.9	%	95-100
	#8 (2.36mm)	84.7	%	65-95
	#16 (1.18mm)	65.4	%	35-75
	#30 (.6mm)	45.6	%	20-55
	#50 (.3mm)	18.4	%	10-30
	#100 (.15mm)	4.0	%	0-10
	#200 (75µm)	1.3	%	
	FM	2.83		2.6-3
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	2.16	%	