

# Aggregate Optimization Chart

# Production Gradation Report

PLANT #: p11

Sample Date: 2/5/24

Dates Test Represents: 2/6/2024 through 2/12/2024

Concrete Grade: S2M, 3500HP

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

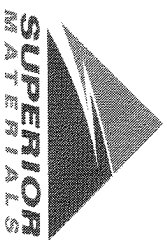
MDOT No.: \_\_\_\_\_

Agg. 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
Total Wt			3050	18.57		100.0

Verify this number is 100%

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"	96.4	100.0	100.0	98.0	2.0	2.0
3/4"	79.6	100.0	100.0	88.8	9.2	11.2
1/2"	35.3	96.8	100.0	64.4	24.4	35.6
3/8"	21.1	86.8	100.0	56.1	8.3	43.9
#4	3.6	23.8	97.1	42.3	13.8	57.7
#8	2.2	6.4	84.3	35.5	6.8	64.5
#16	2.0	3.4	69.4	29.2	6.3	70.8
#30	2.0	3.1	51.4	22.0	7.3	78.0
#50	2.0	2.9	25.1	11.4	10.6	88.6
#100	1.9	2.7	6.0	3.6	7.8	96.4
LBW	1.9	2.5	1.3	1.7	1.9	98.3

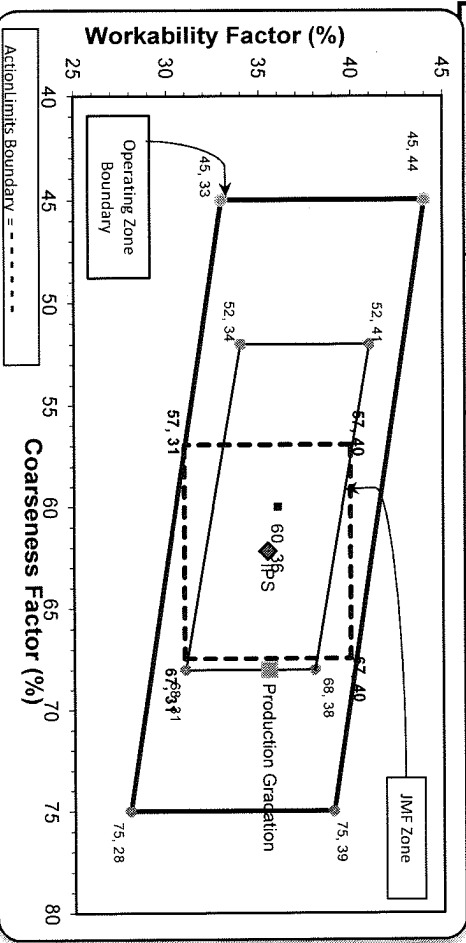
\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max.  
 nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 4% for each sieve except max.  
 nom. max., #100 and #200 sieves.  
 \*% Retained must be at least 4% for the 3/4" sieve when  
 a 1.5" max. size (nom. Max. 1.0") aggregate is used.



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

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"	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

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

PREPARED BY:  
 SM, LLC Technical Service

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



Plant S11-Onsite Jefferson

**Product** 1051-6AA LS

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

**Period:** 02/04/2024 - 02/10/2024

**Report Date** 02/09/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	96.4	%	95-100
	3/4" (19mm)	79.6	%	
	1/2" (12.5mm)	35.3	%	30-60
	3/8" (9.5mm)	21.1	%	
	#4 (4.75mm)	3.6	%	0-8
	#8 (2.36mm)	2.2	%	
	#16 (1.18mm)	2.0	%	
	#30 (.6mm)	2.0	%	
	#50 (.3mm)	2.0	%	
	#100 (.15mm)	1.9	%	
	#200 (75µm)	1.88	%	
	Wash Loss (#200/75um)	1.9	%	0-2
	Total Moisture	1.80	%	



Plant S11-Onsite Jefferson

Product 1067-26A Mod LS

Period: 02/04/2024 - 02/10/2024

Name/Title Doug Storey / QC Technician

Report Date 02/09/2024

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)	96.8	%	95-100
	3/8" (9.5mm)	86.8	%	60-95
	#4 (4.75mm)	23.8	%	5-30
	#8 (2.36mm)	6.4	%	0-12
	#16 (1.18mm)	3.4	%	
	#30 (.6mm)	3.1	%	
	#50 (.3mm)	2.9	%	
	#100 (.15mm)	2.7	%	
	#200 (75µm)	2.6	%	
	Wash Loss (#200/75um)	2.5	%	0-3
	Total Moisture	1.53	%	



Plant S11-Onsite Jefferson

Product 1022-2NS GR

Period: 02/04/2024 - 02/10/2024

Name/Title Doug Storey / QC Technician

Report Date 02/09/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.1	%	95-100
	#8 (2.36mm)	84.3	%	65-95
	#16 (1.18mm)	69.4	%	35-75
	#30 (.6mm)	51.4	%	20-55
	#50 (.3mm)	25.1	%	10-30
	#100 (.15mm)	6.0	%	0-10
	#200 (75µm)	1.4	%	
	FM	2.67		2.6-3
	Wash Loss (#200/75µm)	1.3	%	0-3

# Aggregate Optimization Chart

# Production Gradation Report

PLANT #: **P-02**

Sample Date: **2/5/24**

Dates Test Represents: **2/6/2024** through **2/12/2024**

Concrete Grade: **S2M, 3500HP**

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

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



**Superior Materials, LLC**  
30701 W. 10 Mile Rd.  
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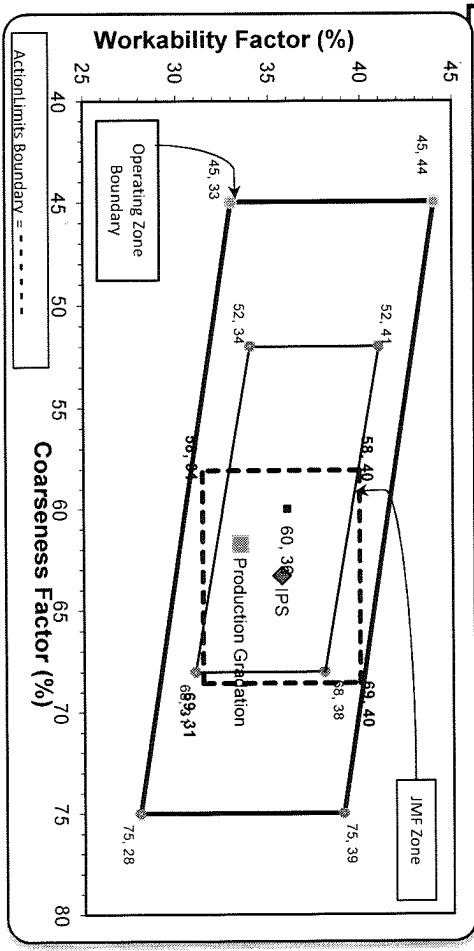
Agg. Class	Pit #	Source	Weight (ssd)	ft <sup>3</sup>	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1550	9.48	2.62	50.8
26A	71-47	Presque Isle	270	1.65	2.62	8.9
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			<b>3050</b>	<b>18.57</b>		<b>100.0</b>

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"	97.2	100.0	100.0	98.6	1.4	1.4
3/4"	80.3	100.0	100.0	90.0	8.6	10.0
1/2"	39.3	100.0	100.0	68.6	21.4	31.4
3/8"	22.5	80.9	100.0	58.9	9.7	41.1
#4	3.3	15.5	96.4	41.9	17.0	58.1
#8	2.1	4.1	79.4	33.5	8.5	66.5
#16	1.9	2.7	64.5	27.2	6.2	72.8
#30	1.8	2.4	49.7	21.2	6.0	78.8
#50	1.7	2.3	24.7	11.0	10.1	89.0
#100	1.7	2.2	4.2	2.8	8.3	97.2
LBW	1.5	2.1	0.8	1.3	1.5	98.7

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: **62** Workability Factor: **33**



Initial Production Sample (IPS)

Sieve	Coarseness Factor:	Workability Factor:	% Retained	Cumulative % Retained
2"	63	36	0.0	0.0
1.5"			0.0	0.0
1"			0.0	0.0
3/4"			4.4	4.4
1/2"			22.6	26.9
3/8"			13.8	40.7
#4			16.5	57.2
#8			7.1	64.3
#16			6.8	71.1
#30			8.2	79.3
#50			10.8	90.1
#100			7.8	97.9
LBW			1.2	99.1

\*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 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 S02-Superior Hoover

**Product** 1051-6AA LS

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

**Period:** 02/04/2024 - 02/10/2024

**Report Date** 02/09/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	97.2	%	95-100
	3/4" (19mm)	80.3	%	
	1/2" (12.5mm)	39.3	%	30-60
	3/8" (9.5mm)	22.5	%	
	#4 (4.75mm)	3.3	%	0-8
	#8 (2.36mm)	2.1	%	
	#16 (1.18mm)	1.9	%	
	#30 (.6mm)	1.8	%	
	#50 (.3mm)	1.7	%	
	#100 (.15mm)	1.7	%	
	#200 (75µm)	1.55	%	
	Wash Loss (#200/75um)	1.5	%	0-2
	Total Moisture	3.28	%	



Plant S02-Superior Hoover

Product 1067-26A Mod LS

Period: 02/04/2024 - 02/10/2024

Name/Title Doug Storey / QC Technician

Report Date 02/09/2024

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)	93.9	%	95-100
	3/8" (9.5mm)	80.9	%	60-95
	#4 (4.75mm)	15.5	%	5-30
	#8 (2.36mm)	4.1	%	0-12
	#16 (1.18mm)	2.7	%	
	#30 (.6mm)	2.4	%	
	#50 (.3mm)	2.3	%	
	#100 (.15mm)	2.2	%	
	#200 (75µm)	2.1	%	
	Wash Loss (#200/75µm)	2.1	%	0-3
	Total Moisture	2.94	%	



Plant S02-Superior Hoover

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 02/04/2024 - 02/10/2024

Report Date 02/09/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	96.4	%	95-100
	#8 (2.36mm)	79.4	%	65-95
	#16 (1.18mm)	64.5	%	35-75
	#30 (.6mm)	49.7	%	20-55
	#50 (.3mm)	24.7	%	10-30
	#100 (.15mm)	4.2	%	0-10
	#200 (75µm)	0.9	%	
	FM	2.81		2.6-3
	Wash Loss (#200/75um)	0.8	%	0-3
	Total Moisture	3.62	%	