

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **p11**

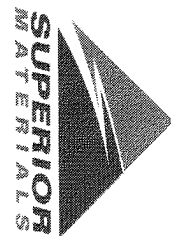
Sample Date: **11/16/23**

Dates Test Represents: **11/17/2023** through **11/13/2023**

Concrete Grade: **S2M, 3500HP**

Contractor: _____

MDOT No.: _____



Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
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Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1500	9.17	2.62	49.2
26A	71-47	Presque Isle	320	1.96	2.62	10.5
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
		Total Wt	3050	18.57		100.0

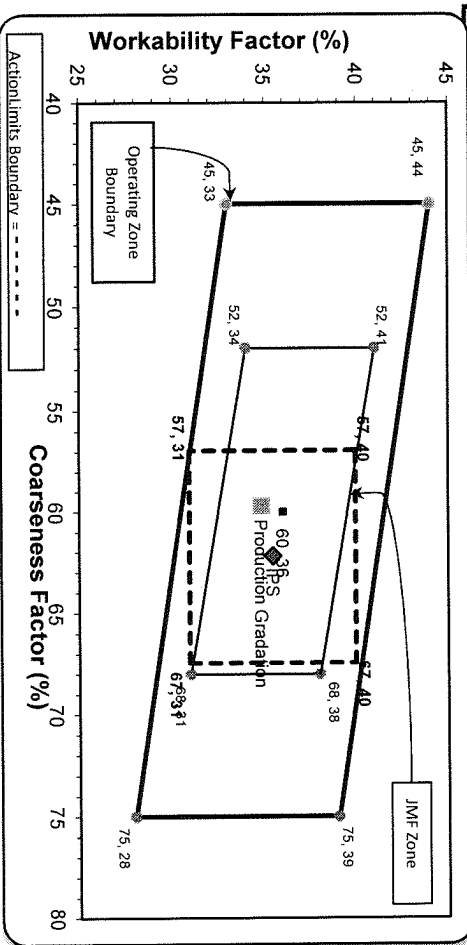
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	78.6	100.0	100.0	89.5	10.2	10.5
1/2"	40.5	95.7	100.0	70.3	19.2	29.7
3/8"	23.9	86.0	100.0	61.1	9.2	38.9
#4	4.0	24.0	97.0	43.6	17.5	56.4
#8	2.5	6.7	81.6	34.8	8.8	65.2
#16	2.2	3.5	66.1	28.1	6.7	71.9
#30	2.2	2.7	49.8	21.4	6.7	78.6
#50	2.1	2.4	25.1	11.4	10.0	88.6
#100	2.0	2.2	5.5	3.4	8.0	96.6
LBW	1.7	1.9	0.8	1.4	2.1	98.6

Verify this number is 100%

*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
 at 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **60** Workability Factor: **35**



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

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Basic Statistical Summary Report

Plant S11-Onsite Jefferson
Product 1051-6AA LS
Specification 6AA LS
Period 11/05/2023 - 11/11/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			100-100
1" (25mm)	1	99.4			95-100
3/4" (19mm)	1	78.6			
1/2" (12.5mm)	1	40.5			30-60
3/8" (9.5mm)	1	23.9			
#4 (4.75mm)	1	4.0			0-8
#8 (2.36mm)	1	2.5			
#16 (1.18mm)	1	2.2			
#30 (.6mm)	1	2.2			
#50 (.3mm)	1	2.1			
#100 (.15mm)	1	2.0			
#200 (75µm)	1	1.86			
Pan	1	0.00			
Wash Loss (#200/75µm)	1	1.7			0-2
Total Moisture	1	3.67			



Basic Statistical Summary Report

Plant S11-Onsite Jefferson
Product 1067-26A Mod LS
Specification 26A LS Spec
Period 11/05/2023 - 11/11/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			
1" (25mm)	1	100.0			
3/4" (19mm)	1	100.0			100-100
1/2" (12.5mm)	1	95.7			95-100
3/8" (9.5mm)	1	86.0			60-95
#4 (4.75mm)	1	24.0			5-30
#8 (2.36mm)	1	6.7			0-12
#16 (1.18mm)	1	3.5			
#30 (.6mm)	1	2.7			
#50 (.3mm)	1	2.4			
#100 (.15mm)	1	2.2			
#200 (75µm)	1	2.0			
Pan	1	0.0			
Wash Loss (#200/75µm)	1	1.9			0-3
Total Moisture	1	3.72			



Basic Statistical Summary Report

Plant S11-Onsite Jefferson
Product 1022-2NS GR
Specification 2NS GR Spec
Period 11/05/2023 - 11/11/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
3/8" (9.5mm)	1	100.0			100-100
#4 (4.75mm)	1	97.0			95-100
#8 (2.36mm)	1	81.6			65-95
#16 (1.18mm)	1	66.1			35-75
#30 (.6mm)	1	49.8		40-50	20-55
#50 (.3mm)	1	25.1			10-30
#100 (.15mm)	1	5.5			0-10
#200 (75µm)	1	0.9			
Pan	1	0.0			
FM	1	2.75		2.7-2.9	2.6-3
Wash Loss (#200/75um)	1	0.8			0-3
Total Moisture	1	4.26			

Aggregate Optimization Chart

PLANT #: **P-32**

Sample Date: 11/6/23

Dates Test Represents: 11/7/2023 through 11/13/2023

Concrete Grade: **S2M, 3500HP**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1500	9.17	2.62	49.2
26A	71-47	Presque Isle	320	1.96	2.62	10.5
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

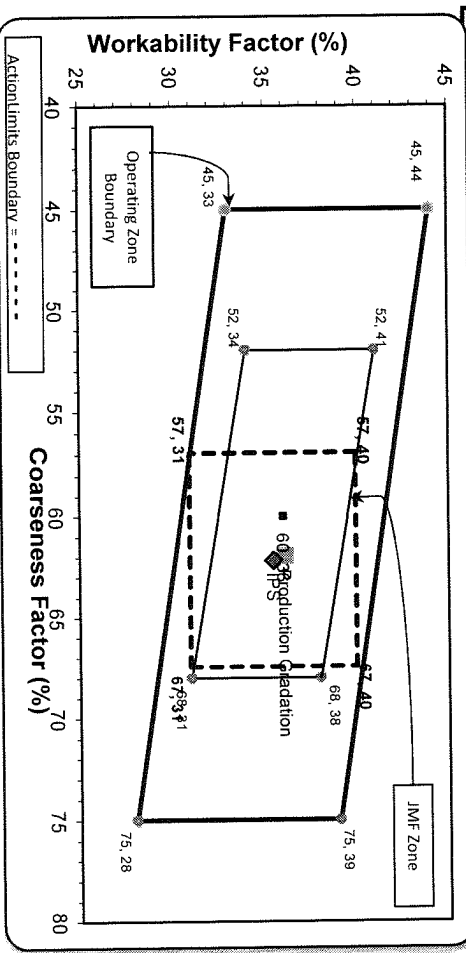
Verify this number is 100%

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"	97.6	100.0	100.0	98.8	1.2	1.2
3/4"	75.5	100.0	100.0	88.0	10.9	12.0
1/2"	34.6	97.3	100.0	67.6	20.4	32.4
3/8"	22.1	87.8	100.0	60.4	7.1	39.6
#4	4.8	22.1	95.9	43.4	17.1	56.6
#8	2.8	4.2	85.0	36.1	7.3	63.9
#16	2.6	2.2	70.9	30.1	6.0	69.9
#30	2.5	1.9	51.7	22.3	7.8	77.7
#50	2.4	1.8	25.6	11.7	10.6	88.3
#100	2.3	1.7	7.7	4.4	7.3	95.6
LBW	1.8	1.6	1.8	1.8	2.6	98.2

*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: **62** Workability Factor: **36**

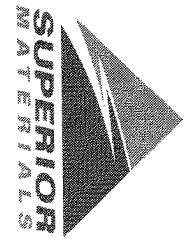


Sieve	% Retained	Cumulative % Retained
2"	0.0	0.0
1.5"	0.0	0.0
1"	0.0	0.0
3/4"	6.0	6.0
1/2"	23.7	29.8
3/8"	10.4	40.1
#4	17.2	57.3
#8	7.2	64.5
#16	7.0	71.6
#30	9.2	80.8
#50	10.3	91.1
#100	5.9	96.9
LBW	1.7	98.6

Initial Production Sample (IPS)
 Coarseness Factor: **62**
 Workability Factor: **35**

PREPARED BY:
 SM, LLC Technical Service

Approved By: _____



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

Basic Statistical Summary Report

Plant 958-JMT
Product 1054-6AA LS PI
Specification 6AA LS PI Spec
Period 11/05/2023 - 11/11/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			100-100
1" (25mm)	1	97.6			95-100
3/4" (19mm)	1	75.5			
1/2" (12.5mm)	1	34.6			30-60
3/8" (9.5mm)	1	22.1			
#4 (4.75mm)	1	4.8			0-8
#8 (2.36mm)	1	2.8			
#16 (1.18mm)	1	2.6			
#30 (.6mm)	1	2.5			
#50 (.3mm)	1	2.4			
#100 (.15mm)	1	2.3			
#200 (75µm)	1	2.0			
Pan	1	0.0			
Wash Loss (#200/75um)	1	1.8			0-2
Total Moisture	1	3.6			

Basic Statistical Summary Report

Plant 958-JMT
Product 1067-26A Mod LS
Specification 26A Mod LS Spec
Period 11/05/2023 - 11/11/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			
1" (25mm)	1	100.0			
3/4" (19mm)	1	100.0			100-100
1/2" (12.5mm)	1	97.3			95-100
3/8" (9.5mm)	1	87.8			60-95
#4 (4.75mm)	1	22.1			5-30
#8 (2.36mm)	1	4.2			0-12
#16 (1.18mm)	1	2.2			
#30 (.6mm)	1	1.9			
#50 (.3mm)	1	1.8			
#100 (.15mm)	1	1.7			
#200 (75µm)	1	1.6			
Pan	1	0.0			
Wash Loss (#200/75um)	1	1.6			0-3
Total Moisture	1	4.2			

Basic Statistical Summary Report

Plant 958-JMT
Product 1022-2NS GR - Smelter Bay
Specification 2NS GR Spec
Period 11/05/2023 - 11/11/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
3/8" (9.5mm)	1	100.0			100-100
#4 (4.75mm)	1	95.9			95-100
#8 (2.36mm)	1	85.0			65-95
#16 (1.18mm)	1	70.9			35-75
#30 (.6mm)	1	51.7			20-55
#50 (.3mm)	1	25.6		18-28	10-30
#100 (.15mm)	1	7.7			0-10
#200 (75µm)	1	2.1			
Pan	1	0.0			
FM	1	2.63		2.7-2.9	2.6-3
Wash Loss (#200/75um)	1	1.8			0-3
Total Moisture	1	4.6			