

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-02

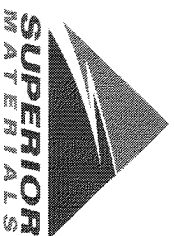
Sample Date: 10/21/24

Dates Test Represents: 10/22/2024 through 10/28/2024

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 ³	Specific Gravity	Contribution %
GAA	71-47	Presque Isle	1470	8.99	2.62	48.2
26A	71-47	Presque Isle	350	2.14	2.62	11.5
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
			Total Wt	3050	18.57	100.0

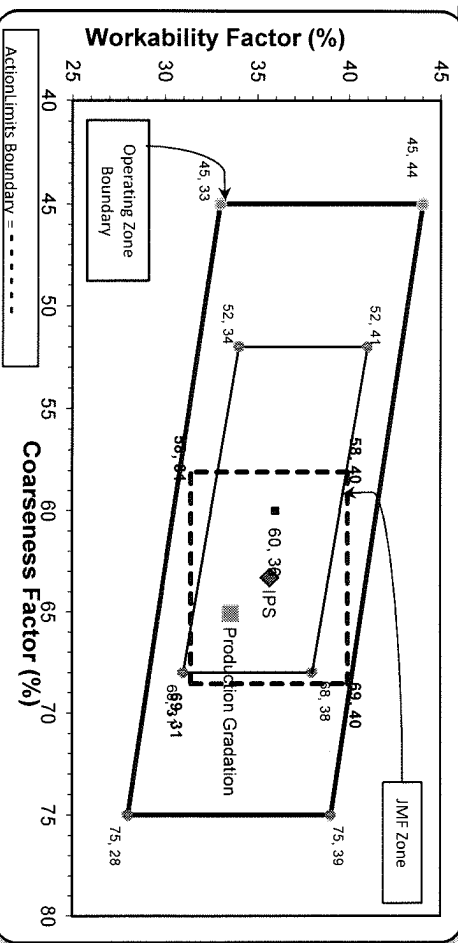
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	98.9	100.0	100.0	99.5	0.5	0.5
3/4"	75.9	100.0	100.0	88.4	11.1	11.6
1/2"	30.8	98.7	100.0	66.5	21.9	33.5
3/8"	13.6	86.2	100.0	56.8	9.7	43.2
#4	2.5	18.7	94.4	41.4	15.4	58.6
#8	2.0	6.2	79.1	33.6	7.8	66.4
#16	1.7	3.9	65.1	27.5	6.1	72.5
#30	1.7	3.3	51.3	21.9	5.6	78.1
#50	1.6	3.1	29.1	12.9	9.0	87.1
#100	1.5	2.8	7.8	4.2	8.7	95.8
LBW	1.3	2.3	1.1	1.3	2.9	98.7

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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 65 **Workability Factor:** 34



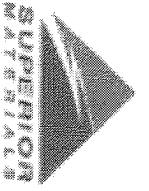
Initial Production Sample (IPS)

Sieve	% 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"	95.6	4.4	4.4
1/2"	73.1	22.6	26.9
3/8"	59.3	13.8	40.7
#4	42.8	16.5	57.2
#8	35.7	7.1	64.3
#16	28.9	6.8	71.1
#30	20.7	8.2	79.3
#50	9.9	10.8	90.1
#100	2.1	7.8	97.9
LBW	0.9	1.2	99.1

Coarseness Factor: 63 **Workability Factor:** 36

PREPARED BY:
SM, LLC Technical Service

Approved By:



Daily Summary Report

Date Wednesday, October 23, 2024

Sample Id	Plant	Product	Specification	Sample Type	Time
674929173		1051 6AA LS	6AA LS	QA	14:20
-1989624687		1067 26A Mod LS	26A Mod LS Spec	QA	14:25
-674953263		1022 2NS GR	2NS GR Spec	QA	14:27
2"					
1 1/2" (37.5mm)					
1" (25mm)					
3/4" (19mm)					
1/2" (12.5mm)					
3/8" (9.5mm)					
#4 (4.75mm)					
#8 (2.36mm)					
#16 (1.18mm)					
#30 (.6mm)					
#50 (.3mm)					
#100 (.15mm)					
#200 (75µm)					
Pan					
FM					
Wash Loss (#200/75µm)					
Total Moisture					

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **p11**

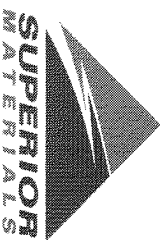
Sample Date: 10/21/24

Dates Test Represents: 10/22/2024 through 10/28/2024

Concrete Grade: **S2M, 3500HP**

Contractor: _____

MDOT No.: _____



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

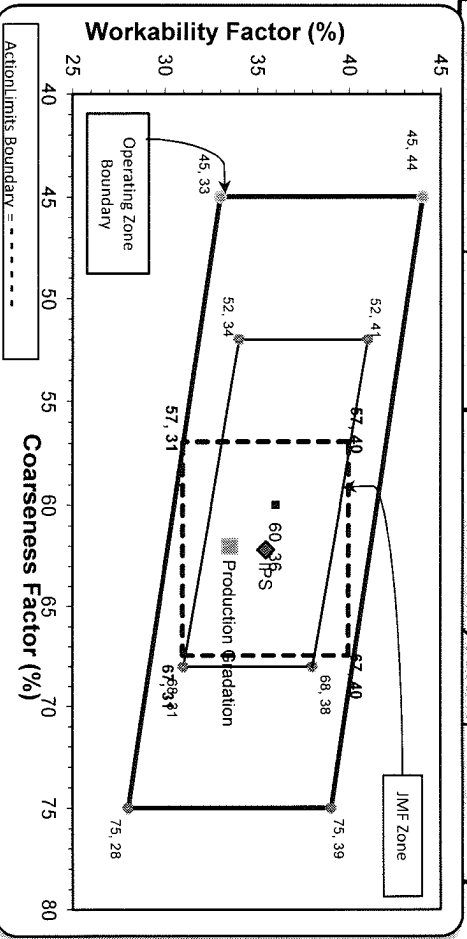
Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Cumulative Contribution %
GAA	71-47	Presque Isle	1420	8.69	2.62	46.6
26A	71-47	Presque Isle	400	2.45	2.62	13.1
ZNS	63-115	Ray Rd	1230	7.44	2.65	40.3
		Total Wt	3050	18.57		100.0

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"	95.5	100.0	100.0	97.9	2.1	2.1
3/4"	78.0	100.0	100.0	89.8	8.1	10.2
1/2"	37.5	92.4	100.0	69.9	19.9	30.1
3/8"	17.8	77.4	100.0	58.8	11.1	41.2
#4	2.7	16.5	95.7	42.0	16.8	58.0
#8	1.9	4.8	79.3	33.5	8.5	66.5
#16	1.7	3.2	63.9	27.0	6.5	73.0
#30	1.6	2.9	48.9	20.8	6.1	79.2
#50	1.5	2.7	25.9	11.5	9.3	88.5
#100	1.4	2.5	6.7	3.7	7.8	96.3
LBW	1.1	2.3	1.1	1.3	2.4	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: **62** Workability Factor: **33**



Initial Production Sample (IPS)

Sieve	Coarseness Factor:	Workability Factor:	Cumulative % Passing	% Retained	Cumulative % Retained
2"	62	35	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: _____

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-102**

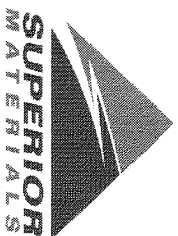
Sample Date: **10/21/24**

Dates Test Represents: **10/22/2024** through **10/28/2024**

Concrete Grade: **S2M, 3500HP**

Contractor: _____

MDOT No.: _____



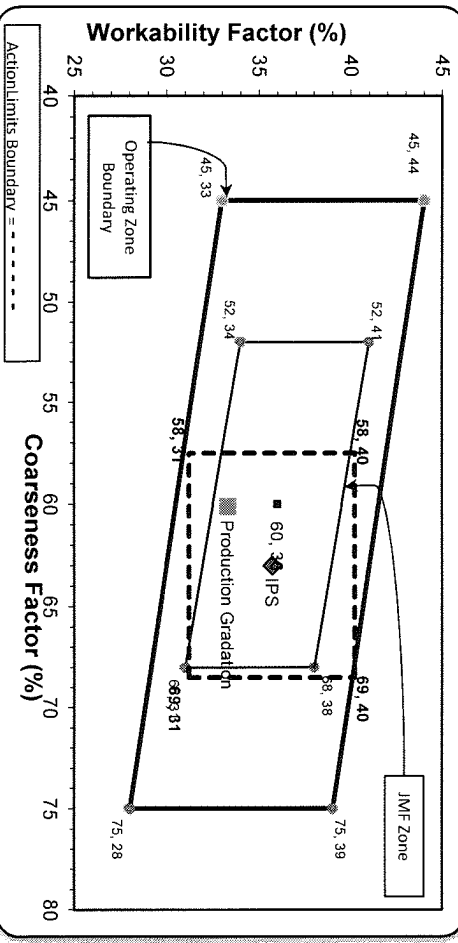
Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	% Contribution
GAA	58-003	Stoneco	1600	9.53	2.69	51.6
26A	58-003	Stoneco	300	1.79	2.69	9.7
ZNS	63-114	Highland	1200	7.26	2.65	38.7
			Total Wt	3100		100.0

Sieve	6AA	26A	ZNS	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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	85.4	100.0	100.0	92.5	7.5	7.5
1/2"	48.2	99.8	100.0	73.2	19.2	26.8
3/8"	24.1	90.7	100.0	59.9	13.3	40.1
#4	5.2	10.5	98.6	41.9	18.1	58.1
#8	2.0	3.2	82.6	33.3	8.6	66.7
#16	1.5	2.4	63.8	25.7	7.6	74.3
#30	1.3	2.2	40.8	16.7	9.0	83.3
#50	1.3	2.0	15.7	6.9	9.7	93.1
#100	1.2	1.9	3.2	2.0	4.9	98.0
LBW	1.1	1.7	0.3	0.8	1.2	99.2

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **60** Workability Factor: **33**



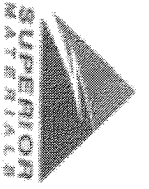
Initial Production Sample (IPS)

Sieve	Coarseness Factor:	Workability Factor:	Cumulative % Passing	% Retained	Cumulative % Retained
2"	63	36	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

*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: _____



Daily Summary Report

Date Monday, October 21, 2024

Sample Id	-674980632	-1989629418	-674965489
Plant	S102 Superior Novi	S102 Superior Novi	S102 Superior Novi
Product	1051 6AA LS	1067 26A Mod LS	1022 2NS GR
Specification	6AA LS	26A Mod LS Spec	2NS GR Spec
Sample Type	QA	QA	QA
Time	11:06	11:07	11:08
2" (50mm)	100.0	100.0	100.0
1 1/2" (37.5mm)	100.0	100.0	98.6
1" (25mm)	100.0	100.0	82.6
3/4" (19mm)	85.4	100.0	63.8
1/2" (12.5mm)	48.2	99.8	40.8
3/8" (9.5mm)	24.1	90.7	15.7
#4 (4.75mm)	5.2	10.5	3.2
#8 (2.36mm)	2.0	3.2	0.0
#16 (1.18mm)	1.5	2.4	0.0
#30 (.6mm)	1.3	2.2	0.0
#50 (.3mm)	1.3	2.0	0.0
#100 (.15mm)	1.2	1.9	0.0
#200 (75µm)	1.11	1.8	0.0
Pan	0.00	0.0	0.0
FM			2.95
Wash Loss (#200/75µm)	1.1	1.7	0.3
Total Moisture	2.80	3.80	3.20