Aggregate Optimization Chart

Production Gradation Report

PLANT #: P11

Sample Date: 7/15/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 7/16/2024 through 7/22/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1020	6.24	2.62	33.2
IA	71-47	Presque Isle	850	5.20	2.62	27.7
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

<----- Verify this number is 100%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	92.7	100.0	100.0	97.6	2.4	2.4
1"	37.9	100.0	100.0	79.4	18.2	20.6
3/4"	11.4	98.6	100.0	70.2	9.2	29.8
1/2"	2.0	65.0	100.0	57.7	12.4	42.3
3/8"	1.3	33.9	100.0	48.9	8.8	51.1
#4	1.0	4.5	95.5	38.9	10.0	61.1
#8	1.0	1.5	79.2	31.7	7.2	68.3
#16	1.0	1.1	64.4	25.8	5.9	74.2
#30	1.0	1.0	49.0	19.8	6.0	80.2
#50	0.9	1.0	26.8	11.1	8.7	88.9
#100	0.8	0.9	6.5	3.1	8.0	96.9
LBW	0.6	0.7	0.6	0.6	2.4	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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
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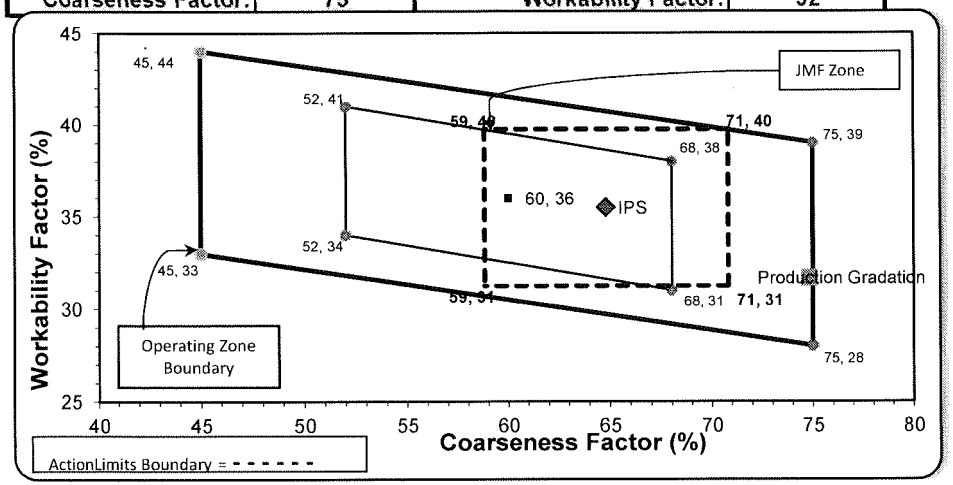
Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	75	Workability Factor:	32



Intial Production Sample (IPS)

Coarseness Factor:	65
Workability Factor:	36

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:

Daily Summary Report

Date Tuesday, July 16, 2024

Sample Id	- 674968320	-674949644	-1989664792	-1018110563	-674967447
Plant	S11	S11	S11	S11	S11
Product	1022 2NS GR	7919 COARSE AGG P1M LS	7920 INTERMED AGG P1M LS	1067 26A Mod LS	1051 6AA LS
Specification	2NS GR Spec	Coarse Agg P1M LS Target	Intermed Agg P1M LS Target	26A Mod LS Spec	6AA LS
Sample Type	QA	QA	QA	QA	QA
Time	13:57	14:00	14:00	14:15	14:25
2" (50mm)		100.0	100.0	100.0	100.0
1 1/2" (37.5mm)		92.7	100.0	100.0	100.0
1" (25mm)		37.9	100.0	100.0	94.9
3/4" (19mm)		11.4	98.6	100.0	79.3
1/2" (12.5mm)		2.0	65.0	93.0	47.4
3/8" (9.5mm)	100.0	1.3	33.9	80.3	28.6
#4 (4.75mm)	95.5	1.0	4.5	15.5	5.7
#8 (2.36mm)	79.2	1.0	1.5	4.5	2.6
#16 (1.18mm)	64.4	1.0	1.1	3.0	2.2
#30 (.6mm)	49.0	1.0	1.0	2.6	1.9
#50 (.3mm)	26.8	0.9	1.0	2.3	1.8
#100 (.15mm)	6.5	0.8	0.9	2.1	1.7
#200 (75µm)	1.0	0.7	0.8	1.9	1.58
Pan	0.0	0.0	0.0	0.0	0.00
FM	2.78				
Wash Loss (#200/75um)	0.6	0.6	0.7	1.8	1.4
Total Moisture	7.03	3.19	4.27	6.60	5.92

Aggregate Optimization Chart

Production Gradation Report

PLANT #: 12

Sample Date: 7/15/24

Dates Test Represents: 7/16/2024 through 7/22/2024

Concrete Grade: **P1M, 3500HP**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1020	6.24	2.62	33.2
IA	71-47	Presque Isle	850	5.20	2.62	27.7
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

<----- Verify this number is 100%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	96.2	100.0	100.0	98.7	1.3	1.3
1"	27.5	100.0	100.0	75.9	22.8	24.1
3/4"	7.9	99.2	100.0	69.2	6.7	30.8
1/2"	2.6	79.6	100.0	62.0	7.2	38.0
3/8"	2.2	51.9	100.0	54.2	7.8	45.8
#4	1.9	7.9	95.8	40.3	13.9	59.7
#8	1.8	2.4	80.2	32.6	7.7	67.4
#16	1.8	1.9	64.7	26.4	6.2	73.6
#30	1.7	1.8	49.4	20.4	6.0	79.6
#50	1.7	1.7	27.6	11.8	8.5	88.2
#100	1.6	1.7	8.0	4.1	7.7	95.9
LBW	1.3	1.5	1.4	1.4	2.7	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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
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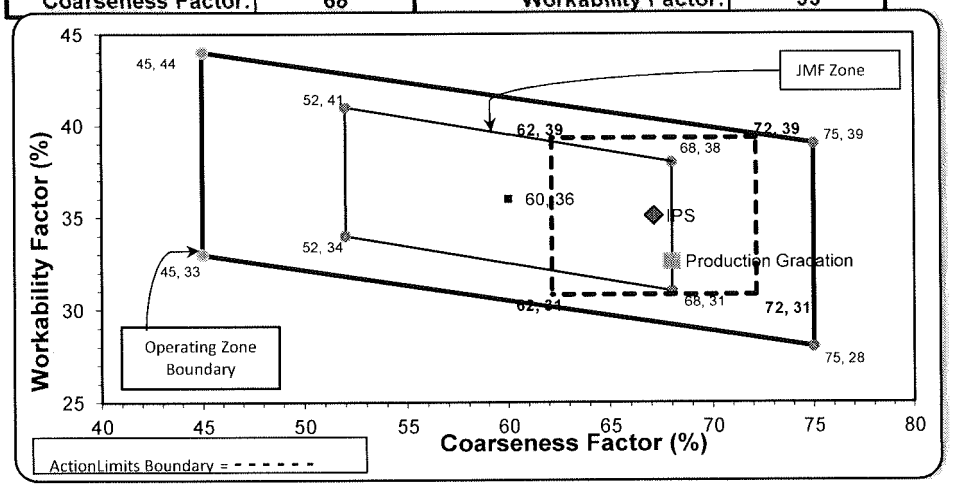
Production Gradation (●) Batch Plant Gradations ( ) Aggregate Supplier Gradations

Coarseness Factor:	68	Workability Factor:	33



Intial Production Sample (IPS)

Coarseness Factor:	67
Workability Factor:	35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.6	0.4	0.4
1"	83.9	15.7	16.1
3/4"	74.0	9.8	26.0
1/2"	63.7	10.3	36.3
3/8"	56.4	7.3	43.6
#4	43.0	13.4	57.0
#8	35.1	7.9	64.9
#16	29.0	6.1	71.0
#30	20.9	8.0	79.1
#50	8.1	12.8	91.9
#100	1.6	6.5	98.4
LBW	0.9	0.8	99.1

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date	Friday, July 19, 2024		
Sample Id	-674953332	-674968042	-1989662411
Plant	S12 Onsite Southfield	S12 Onsite Southfield	S12 Onsite Southfield
Product	7920 INTERMED AGG P1M LS	7919 COARSE AGG P1M LS	1022 2NS GR
Specification	Intermed Agg P1M LS Target	Coarse Agg P1M LS Target	2NS GR Spec
Sample Type	QA	QA	QA
Time	09:00	09:15	09:25
2" (50mm)	100.0	100.0	
1 1/2" (37.5mm)	100.0	96.2	
1" (25mm)	100.0	27.5	
3/4" (19mm)	99.2	7.9	
1/2" (12.5mm)	79.6	2.6	
3/8" (9.5mm)	51.9	2.2	100.0
#4 (4.75mm)	7.9	1.9	95.8
#8 (2.36mm)	2.4	1.8	80.2
#16 (1.18mm)	1.9	1.8	64.7
#30 (.6mm)	1.8	1.7	49.4
#50 (.3mm)	1.7	1.7	27.6
#100 (.15mm)	1.7	1.6	8.0
#200 (75µm)	1.6	1.4	1.7
Pan	0.0	0.0	0.0
FM			2.74
Wash Loss (#200/75um)	1.5	1.3	1.4
Total Moisture	1.97	0.84	3.63

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-102

Sample Date: 7/15/24

Dates Test Represents: 7/16/2024 through 7/22/2024

Concrete Grade: **P1M, 3500HP**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
CA	58-003	Stoneco	1420	8.46	2.69	45.5
IA	58-003	Stoneco	500	2.98	2.69	16.0
2NS	63-114	Highland	1200	7.26	2.65	38.5
		Total Wt	**3120**	**18.70**		100.0

<----- Verify this number is 100%

Sieve	CA	IA	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"	39.2	100.0	100.0	72.3	27.7	27.7
3/4"	6.1	100.0	100.0	57.3	15.1	42.7
1/2"	1.9	95.6	100.0	54.6	2.6	45.4
3/8"	1.4	78.1	100.0	51.6	3.0	48.4
#4	0.8	17.3	98.4	41.0	10.6	59.0
#8	0.8	7.0	85.7	34.4	6.5	65.6
#16	0.8	4.3	70.2	28.1	6.4	71.9
#30	0.8	3.4	50.7	20.4	7.6	79.6
#50	0.8	3.0	19.7	8.4	12.0	91.6
#100	0.7	2.9	3.6	2.2	6.3	97.8
LBW	0.6	2.7	0.7	1.0	1.2	99.0

*Maximum % Retained must be above the 3/8" sieve.

*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.

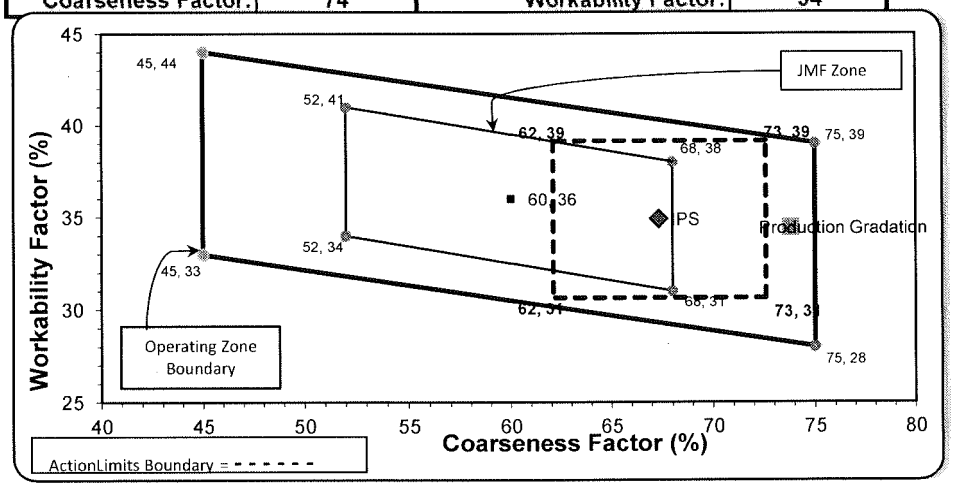
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

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

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	74	Workability Factor:	34



Intial Production Sample (IPS)

Coarseness Factor:	67
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"	85.5	14.5	14.5
3/4"	73.4	12.1	26.6
1/2"	61.0	12.4	39.0
3/8"	56.2	4.8	43.8
#4	43.1	13.1	56.9
#8	34.9	8.2	65.1
#16	29.4	5.5	70.6
#30	21.6	7.8	78.4
#50	8.1	13.4	91.9
#100	2.2	5.9	97.8
LBW	1.4	0.8	98.6

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date	Monday, July 15, 2024				
Sample Id	-674954216	-674908849	-1989638436	-1590544857	-1073647886
Plant	S102 Superior Novi	S102 Superior Novi	S102 Superior Novi	S102 Superior Novi	S102 Superior Novi
Product	7919 COARSE AGG P1M LS	1051 6AA LS	7920 INTERMED AGG P1M LS	1067 26A Mod LS	1022 2NS GR
Specification	Coarse Agg P1M LS Target	6AA LS	Intermed Agg P1M LS Target	26A Mod LS Spec	2NS GR Spec
Sample Type	QA	QA	QA	QA	QA
Time	12:55	12:56	12:57	12:58	12:59
2" (50mm)	100.0	100.0	100.0	100.0	
1 1/2" (37.5mm)	100.0	100.0	100.0	100.0	
1" (25mm)	39.2	100.0	100.0	100.0	
3/4" (19mm)	6.1	86.5	100.0	100.0	
1/2" (12.5mm)	1.9	37.0	95.6	99.7	
3/8" (9.5mm)	1.4	15.1	78.1	90.9	100.0
#4 (4.75mm)	0.8	2.6	17.3	9.5	98.4
#8 (2.36mm)	0.8	1.5	7.0	2.7	85.7
#16 (1.18mm)	0.8	1.3	4.3	1.9	70.2
#30 (.6mm)	0.8	1.2	3.4	1.7	50.7
#50 (.3mm)	0.8	1.2	3.0	1.7	19.7
#100 (.15mm)	0.7	1.1	2.9	1.7	3.6
#200 (75µm)	0.7	1.08	2.8	1.7	0.9
Pan	0.0	0.00	0.0	0.0	0.0
FM					2.72
Wash Loss (#200/75um)	0.6	1.0	2.7	1.7	0.7
Total Moisture	2.05	3.92	5.27	2.79	4.51