

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

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
CA	71-47	Presque Isle	1070	6.54	2.62	34.9
IA	71-47	Presque Isle	800	4.89	2.62	26.1
2NS	75-051	Mid Michigan	1200	7.23	2.66	39.1
Total Wt			3070	18.67		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"	42.5	100.0	100.0	80.0	20.0	20.0
3/4"	15.3	97.7	100.0	69.9	10.1	30.1
1/2"	6.0	77.8	100.0	61.5	8.4	38.5
3/8"	4.4	55.9	100.0	55.2	6.3	44.8
#4	2.6	12.6	96.6	41.9	13.2	58.1
#8	2.2	4.6	81.6	33.9	8.1	66.1
#16	2.1	3.2	67.7	28.0	5.8	72.0
#30	2.1	2.9	53.6	22.4	5.6	77.6
#50	2.0	2.8	28.6	12.6	9.8	87.4
#100	1.9	2.6	8.4	4.6	8.0	95.4
LBW	1.5	2.2	1.1	1.5	3.1	98.5

*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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

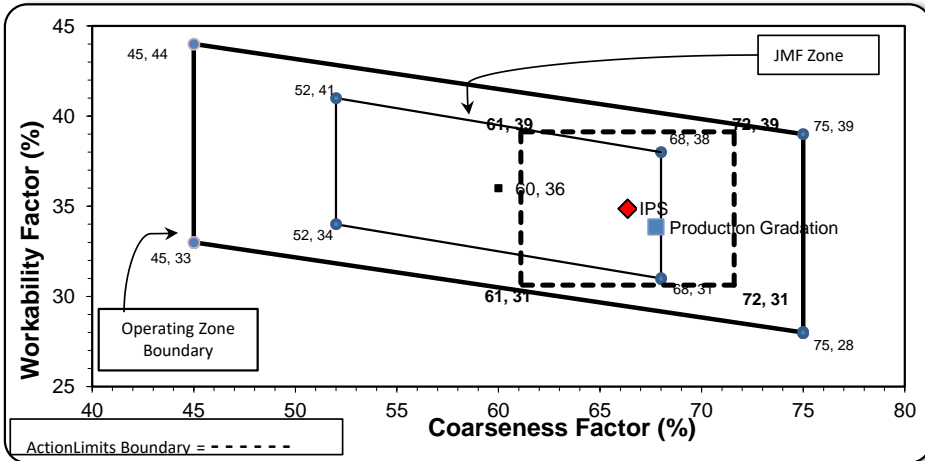
Coarseness Factor: **68** **Workability Factor:** **34**

Initial Production Sample (IPS)

Coarseness Factor: **66**

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"	84.3	15.3	15.7
3/4"	74.8	9.6	25.2
1/2"	64.3	10.4	35.7
3/8"	56.8	7.5	43.2
#4	43.0	13.8	57.0
#8	34.9	8.1	65.1
#16	26.4	8.5	73.6
#30	19.9	6.5	80.1
#50	10.4	9.5	89.6
#100	3.4	7.0	96.6
LBW	1.2	2.2	98.8



PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



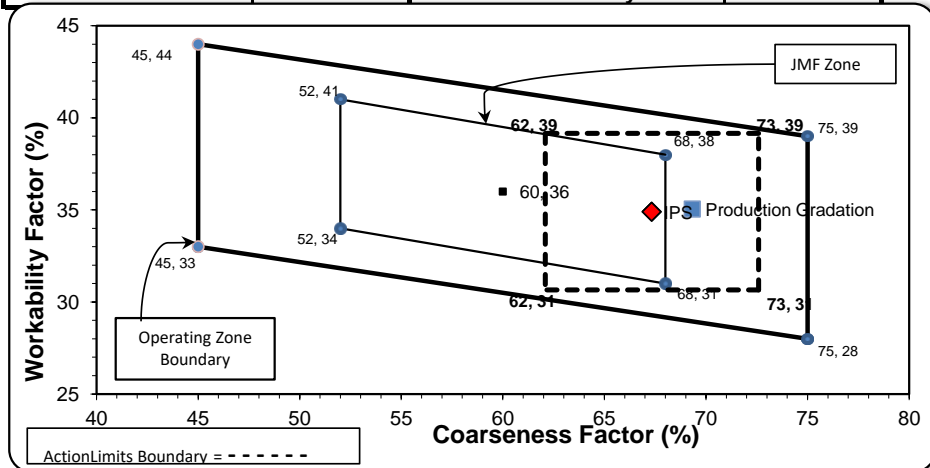
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	66.0	100.0	100.0	84.0	16.0	16.0
3/4"	40.6	100.0	100.0	72.0	12.0	28.0
1/2"	17.4	93.7	100.0	60.2	11.8	39.8
3/8"	10.4	80.5	100.0	55.0	5.2	45.0
#4	4.7	24.0	98.9	43.7	11.3	56.3
#8	2.5	7.6	85.2	35.0	8.7	65.0
#16	1.9	3.4	67.8	27.5	7.6	72.5
#30	1.4	2.2	48.8	19.7	7.7	80.3
#50	1.2	1.9	18.8	8.1	11.7	91.9
#100	1.2	1.7	3.0	2.0	6.1	98.0
LBW	1.1	1.4	0.5	0.9	1.1	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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

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



Initial 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:

Aggregate Optimization Chart

PLANT #: **P-103**

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 5/28/2024 through 6/3/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



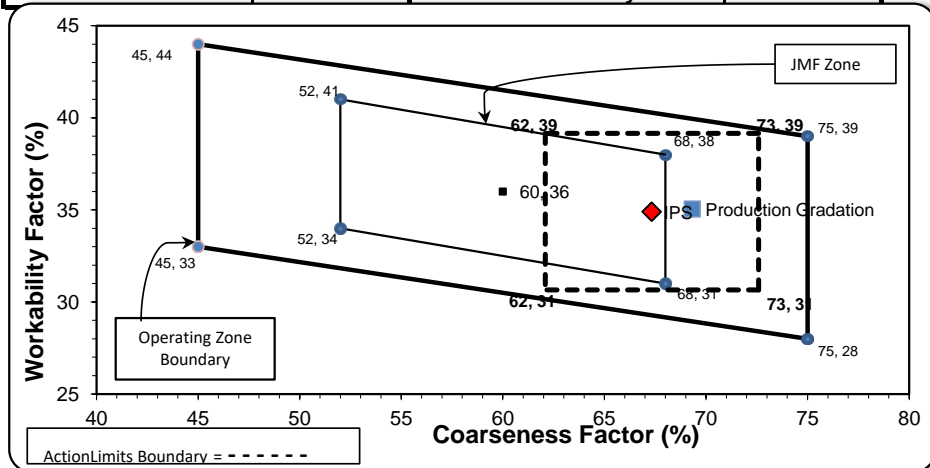
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	66.0	100.0	100.0	84.0	16.0	16.0
3/4"	40.6	100.0	100.0	72.0	12.0	28.0
1/2"	17.4	93.7	100.0	60.2	11.8	39.8
3/8"	10.4	80.5	100.0	55.0	5.2	45.0
#4	4.7	24.0	98.9	43.7	11.3	56.3
#8	2.5	7.6	85.2	35.0	8.7	65.0
#16	1.9	3.4	67.8	27.5	7.6	72.5
#30	1.4	2.2	48.8	19.7	7.7	80.3
#50	1.2	1.9	18.8	8.1	11.7	91.9
#100	1.2	1.7	3.0	2.0	6.1	98.0
LBW	1.1	1.4	0.5	0.9	1.1	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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	69	Workability Factor:	35
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Initial 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:
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Aggregate Optimization Chart

PLANT #: 12

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



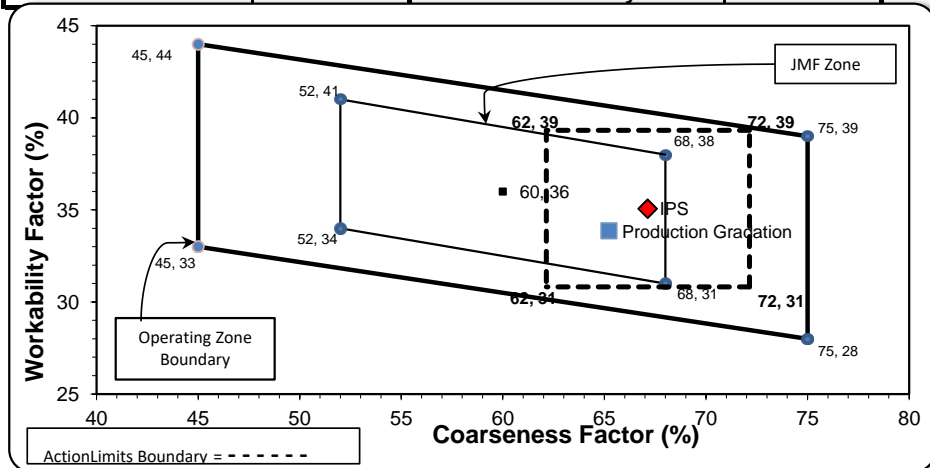
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	42.5	100.0	100.0	81.8	18.2	18.2
3/4"	15.3	97.7	100.0	72.6	9.3	27.4
1/2"	6.0	77.8	100.0	63.8	8.8	36.2
3/8"	4.4	55.9	100.0	56.9	6.9	43.1
#4	2.6	12.6	95.9	42.0	14.9	58.0
#8	2.2	4.6	81.4	33.9	8.1	66.1
#16	2.1	3.2	66.0	27.4	6.5	72.6
#30	2.1	2.9	50.8	21.4	6.0	78.6
#50	2.0	2.8	27.2	12.1	9.3	87.9
#100	1.9	2.6	6.0	3.7	8.4	96.3
LBW	1.5	2.2	0.8	1.4	2.3	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

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



Initial 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

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Aggregate Optimization Chart

PLANT #: 20

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	920	5.63	2.62	30.0
IA	71-47	Presque Isle	950	5.81	2.62	30.9
2NS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



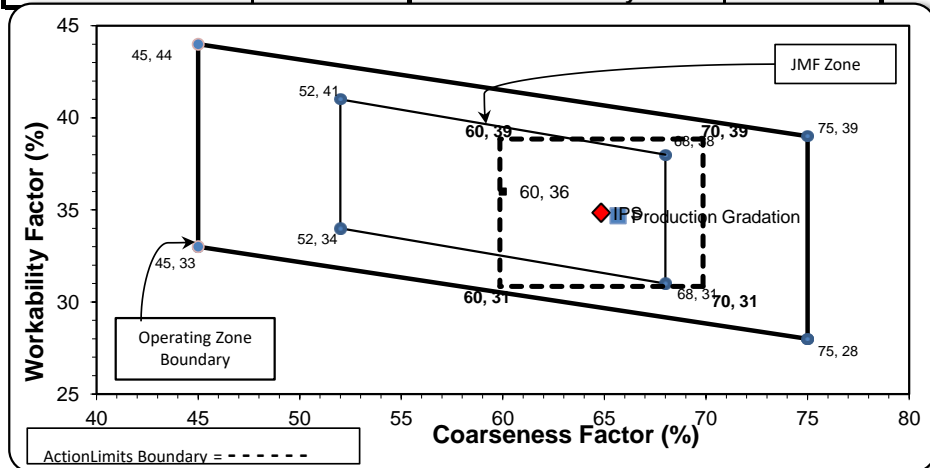
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	97.4	100.0	100.0	99.2	0.8	0.8
1"	35.7	100.0	100.0	80.7	18.5	19.3
3/4"	10.2	99.2	100.0	72.8	7.9	27.2
1/2"	2.7	77.9	100.0	64.0	8.8	36.0
3/8"	2.4	55.9	100.0	57.1	6.9	42.9
#4	2.3	14.7	97.6	43.4	13.7	56.6
#8	2.3	5.9	82.3	34.7	8.7	65.3
#16	2.2	4.1	66.7	28.0	6.7	72.0
#30	2.1	3.5	49.0	20.9	7.1	79.1
#50	2.0	3.3	21.9	10.2	10.7	89.8
#100	1.8	3.0	4.4	3.2	7.0	96.8
LBW	1.5	2.5	0.7	1.5	1.7	98.5

*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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 66 **Workability Factor:** 35



Initial Production Sample (IPS)

Coarseness Factor: 65
Workability Factor: 35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.1	0.9	0.9
1"	80.8	18.2	19.2
3/4"	71.3	9.6	28.7
1/2"	64.0	7.3	36.0
3/8"	57.7	6.2	42.3
#4	42.8	15.0	57.2
#8	34.8	7.9	65.2
#16	28.4	6.4	71.6
#30	20.2	8.2	79.8
#50	7.6	12.6	92.4
#100	1.6	6.0	98.4
LBW	1.0	0.6	99.0

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: P11

Sample Date: 5/27/24

Concrete Grade: P1M, 3500HP

Contractor: _____

Dates Test Represents: 5/28/2024 through 6/3/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	970	5.93	2.62	31.6
2NS	95-013	Smelter Bay	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



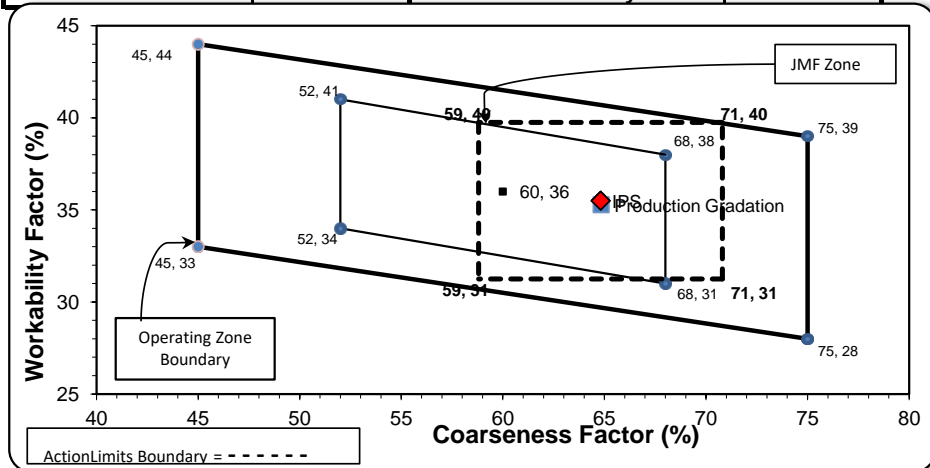
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	42.5	100.0	100.0	83.1	16.9	16.9
3/4"	15.3	97.7	100.0	74.4	8.7	25.6
1/2"	6.0	77.8	100.0	65.4	9.0	34.6
3/8"	4.4	55.9	100.0	58.0	7.4	42.0
#4	2.6	12.6	96.1	42.3	15.7	57.7
#8	2.2	4.6	84.9	35.3	7.0	64.7
#16	2.1	3.2	69.9	28.9	6.3	71.1
#30	2.1	2.9	48.5	20.5	8.5	79.5
#50	2.0	2.8	23.0	10.5	10.0	89.5
#100	1.9	2.6	6.6	4.0	6.5	96.0
LBW	1.5	2.2	1.2	1.6	2.4	98.4

*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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 65 **Workability Factor:** 35



Initial 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:

Aggregate Optimization Chart

PLANT #: **P-35**

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



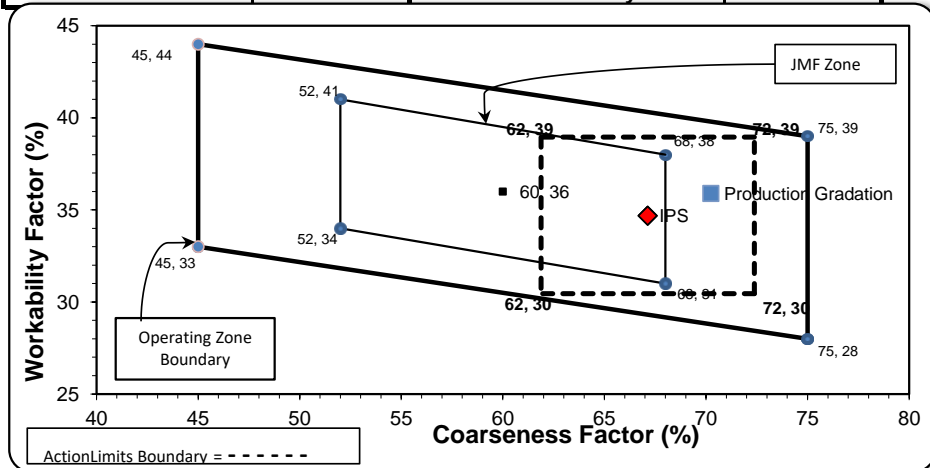
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	66.0	100.0	100.0	84.0	16.0	16.0
3/4"	40.6	100.0	100.0	72.0	12.0	28.0
1/2"	17.4	93.7	100.0	60.2	11.8	39.8
3/8"	10.4	80.5	100.0	55.0	5.2	45.0
#4	4.7	24.0	99.3	43.9	11.1	56.1
#8	2.5	7.6	87.4	35.9	8.0	64.1
#16	1.9	3.4	65.2	26.5	9.4	73.5
#30	1.4	2.2	40.6	16.6	9.9	83.4
#50	1.2	1.9	17.6	7.6	9.0	92.4
#100	1.2	1.7	2.8	1.9	5.7	98.1
LBW	1.1	1.4	0.3	0.8	1.1	99.2

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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **70** **Workability Factor:** **36**



Initial 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"	86.9	13.1	13.1
3/4"	76.1	10.8	23.9
1/2"	63.7	12.4	36.3
3/8"	56.2	7.5	43.8
#4	43.2	13.0	56.8
#8	34.7	8.5	65.3
#16	27.5	7.2	72.5
#30	20.6	7.0	79.4
#50	9.0	11.6	91.0
#100	2.1	6.9	97.9
LBW	1.0	1.1	99.0

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-36**

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



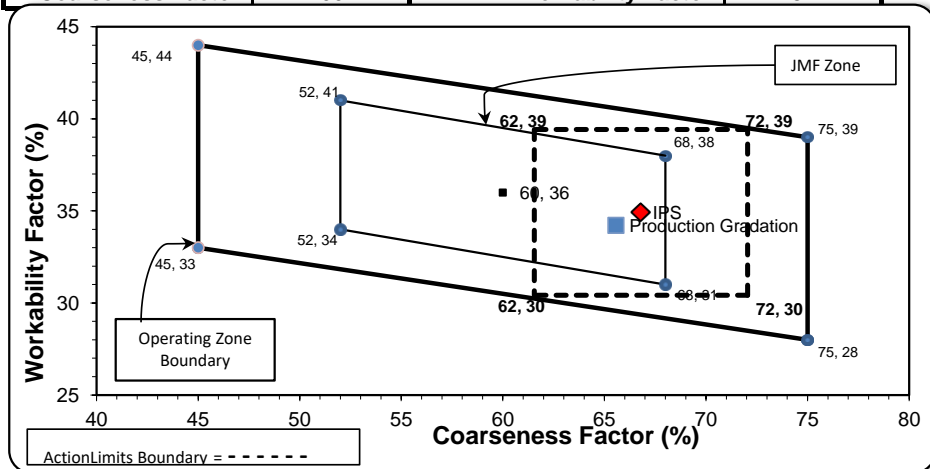
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	42.5	100.0	100.0	81.8	18.2	18.2
3/4"	15.3	97.7	100.0	72.6	9.3	27.4
1/2"	6.0	77.8	100.0	63.8	8.8	36.2
3/8"	4.4	55.9	100.0	56.9	6.9	43.1
#4	2.6	12.6	97.6	42.7	14.2	57.3
#8	2.2	4.6	82.3	34.2	8.5	65.8
#16	2.1	3.2	66.7	27.7	6.5	72.3
#30	2.1	2.9	49.0	20.7	7.0	79.3
#50	2.0	2.8	21.9	10.0	10.7	90.0
#100	1.9	2.6	4.4	3.1	6.9	96.9
LBW	1.5	2.2	0.7	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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	66	Workability Factor:	34
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Initial 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"	85.0	15.0	15.0
3/4"	72.1	12.9	27.9
1/2"	64.5	7.6	35.5
3/8"	56.5	8.0	43.5
#4	42.7	13.8	57.3
#8	34.9	7.8	65.1
#16	29.0	5.9	71.0
#30	21.0	8.0	79.0
#50	8.2	12.8	91.8
#100	1.6	6.5	98.4
LBW	0.7	0.9	99.3

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-39**

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	920	5.63	2.62	30.0
2NS	44-051	Krake Willis Rd	1250	7.56	2.65	40.7
Total Wt			3070	18.69		100.0

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



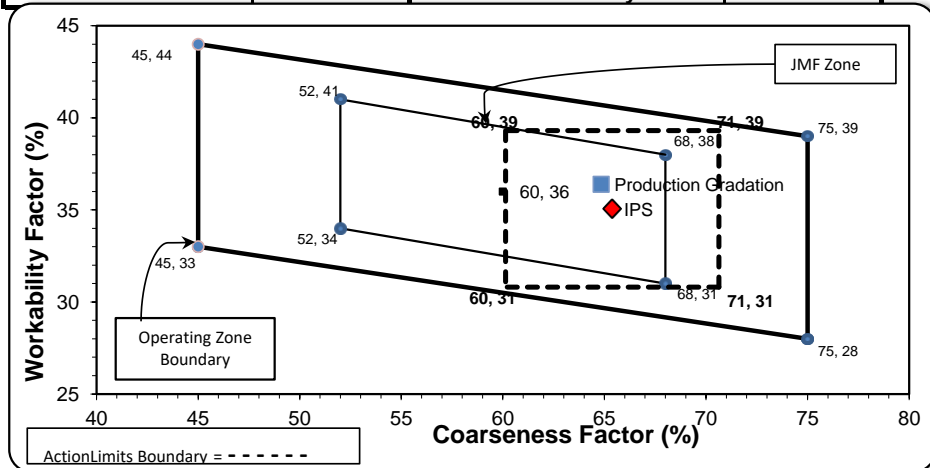
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	42.5	100.0	100.0	83.1	16.9	16.9
3/4"	15.3	97.7	100.0	74.5	8.7	25.5
1/2"	6.0	77.8	100.0	65.8	8.7	34.2
3/8"	4.4	55.9	100.0	58.8	7.0	41.2
#4	2.6	12.6	99.3	45.0	13.8	55.0
#8	2.2	4.6	84.4	36.4	8.6	63.6
#16	2.1	3.2	68.8	29.6	6.8	70.4
#30	2.1	2.9	50.8	22.2	7.4	77.8
#50	2.0	2.8	24.4	11.4	10.8	88.6
#100	1.9	2.6	5.9	3.7	7.6	96.3
LBW	1.5	2.2	0.6	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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **65** **Workability Factor:** **36**



Initial Production Sample (IPS)

Coarseness Factor: **65**
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"	74.1	9.8	25.9
1/2"	64.3	9.7	35.7
3/8"	57.5	6.8	42.5
#4	44.5	13.1	55.5
#8	35.1	9.4	64.9
#16	27.9	7.2	72.1
#30	21.7	6.2	78.3
#50	12.6	9.1	87.4
#100	3.5	9.1	96.5
LBW	1.2	2.4	98.8

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-02**

Sample Date: 5/27/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 5/28/2024 through 6/3/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



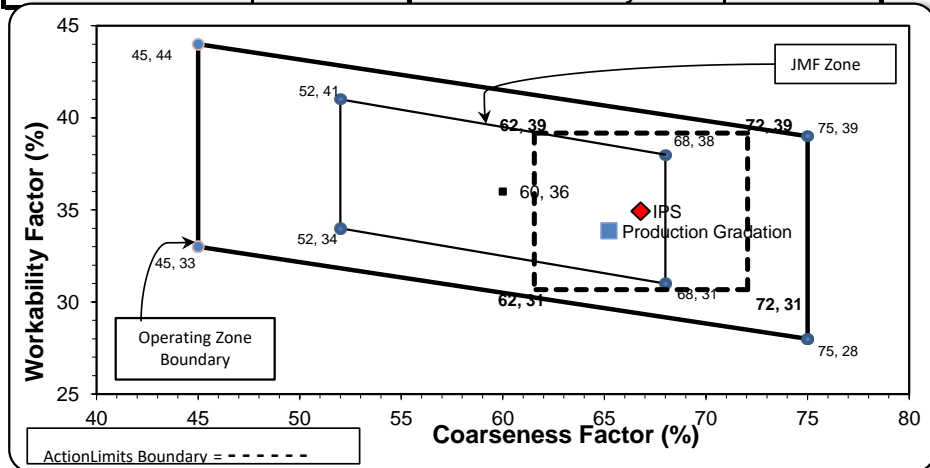
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	42.5	100.0	100.0	81.8	18.2	18.2
3/4"	15.3	97.7	100.0	72.6	9.3	27.4
1/2"	6.0	77.8	100.0	63.8	8.8	36.2
3/8"	4.4	55.9	100.0	56.9	6.9	43.1
#4	2.6	12.6	95.9	42.0	14.9	58.0
#8	2.2	4.6	81.4	33.9	8.1	66.1
#16	2.1	3.2	66.0	27.4	6.5	72.6
#30	2.1	2.9	50.8	21.4	6.0	78.6
#50	2.0	2.8	27.2	12.1	9.3	87.9
#100	1.9	2.6	6.0	3.7	8.4	96.3
LBW	1.5	2.2	0.8	1.4	2.3	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	65	Workability Factor:	34
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Initial 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"	85.0	15.0	15.0
3/4"	72.3	12.7	27.7
1/2"	64.5	7.8	35.5
3/8"	56.5	8.0	43.5
#4	42.7	13.8	57.3
#8	34.9	7.8	65.1
#16	29.0	5.9	71.0
#30	21.0	8.0	79.0
#50	8.2	12.8	91.8
#100	1.6	6.5	98.4
LBW	0.7	0.9	99.3

PREPARED BY:
 SM, LLC Technical Service

Approved By: