

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1650	10.09	2.62	54.0
26A	71-47	Presque Isle	175	1.07	2.62	5.7
2NS	75-051	Mid Michigan	1230	7.41	2.66	40.3
Total Wt			3055	18.57		100.0

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



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

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"	98.4	100.0	100.0	99.1	0.9	0.9
3/4"	88.9	100.0	100.0	94.0	5.1	6.0
1/2"	48.0	96.2	100.0	71.7	22.3	28.3
3/8"	28.9	87.8	100.0	60.9	10.8	39.1
#4	4.4	21.9	97.7	43.0	17.9	57.0
#8	1.8	4.3	81.3	34.0	9.0	66.0
#16	1.7	2.2	65.7	27.5	6.5	72.5
#30	1.6	1.9	49.4	20.9	6.6	79.1
#50	1.6	1.8	26.5	11.6	9.2	88.4
#100	1.6	1.7	8.2	4.3	7.4	95.7
LBW	1.4	1.6	1.5	1.5	2.8	98.5

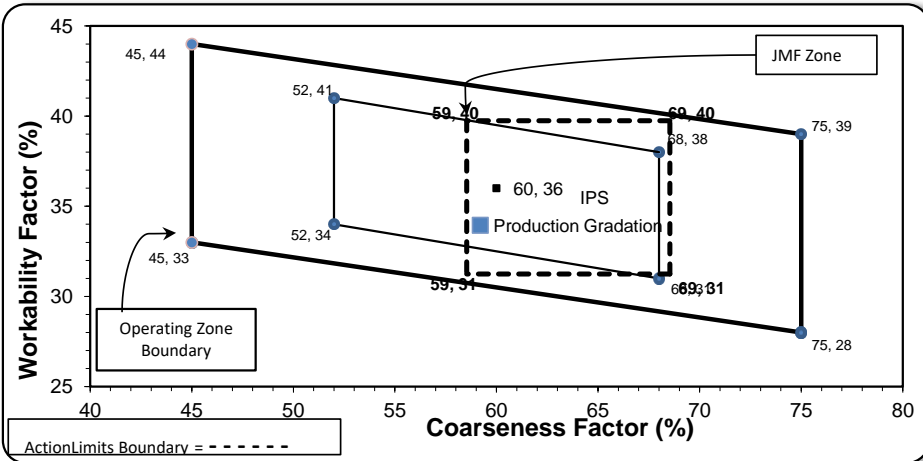
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	59	Workability Factor:	34
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Initial Production Sample (IPS)

Coarseness Factor:	64
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"	100.0	0.0	0.0
3/4"	93.9	6.1	6.1
1/2"	71.4	22.5	28.6
3/8"	59.0	12.4	41.0
#4	45.1	13.9	54.9
#8	35.5	9.6	64.5
#16	28.3	7.2	71.7
#30	21.3	6.9	78.7
#50	11.0	10.3	89.0
#100	3.4	7.6	96.6
LBW	1.1	2.3	98.9

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1570	9.35	2.69	50.6
26A	58-003	Stoneco	330	1.97	2.69	10.6
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



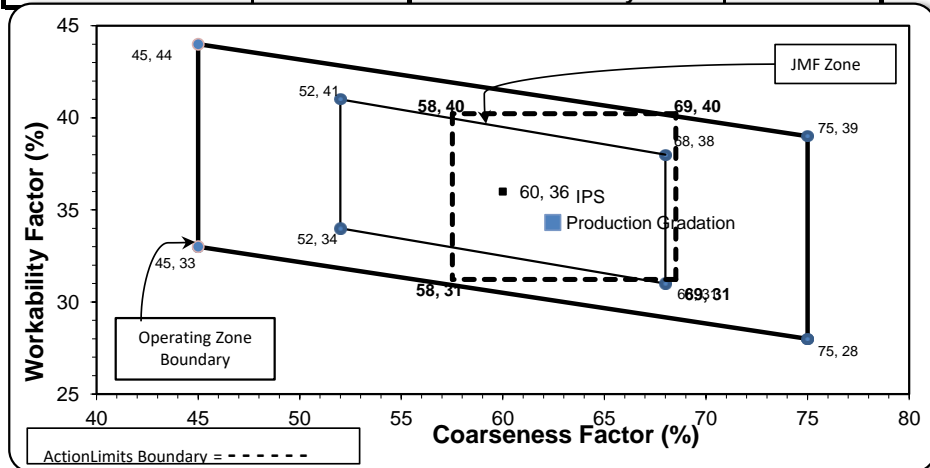
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	88.7	100.0	100.0	94.3	5.7	5.7
1/2"	43.9	99.5	100.0	71.5	22.7	28.5
3/8"	21.5	88.1	100.0	59.0	12.6	41.0
#4	6.3	17.2	97.4	42.7	16.3	57.3
#8	3.0	4.5	83.5	34.3	8.4	65.7
#16	2.4	2.7	67.0	27.4	6.9	72.6
#30	2.0	1.8	49.7	20.4	7.0	79.6
#50	1.7	1.7	24.2	10.4	10.0	89.6
#100	1.6	1.6	6.9	3.7	6.8	96.3
LBW	1.4	1.4	1.8	1.6	2.1	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:	62	Workability Factor:	34
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Initial Production Sample (IPS)

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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-103**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1570	9.35	2.69	50.6
26A	58-003	Stoneco	330	1.97	2.69	10.6
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



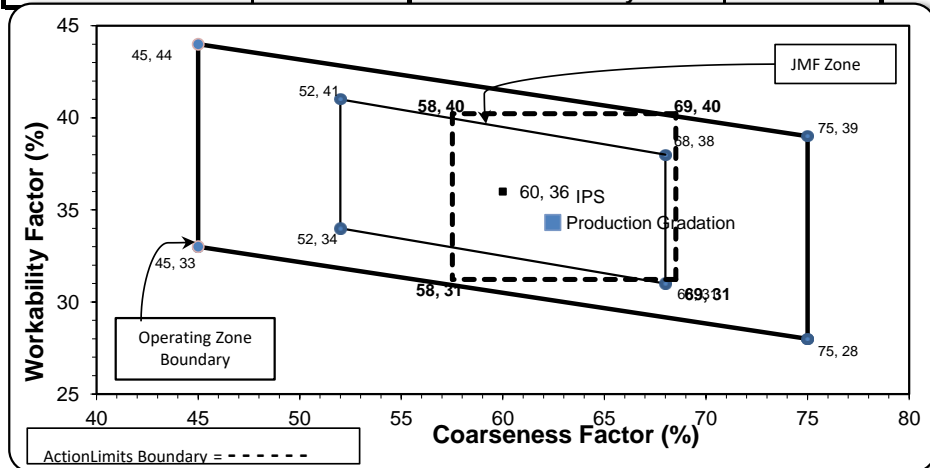
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	88.7	100.0	100.0	94.3	5.7	5.7
1/2"	43.9	99.5	100.0	71.5	22.7	28.5
3/8"	21.5	88.1	100.0	59.0	12.6	41.0
#4	6.3	17.2	97.4	42.7	16.3	57.3
#8	3.0	4.5	83.5	34.3	8.4	65.7
#16	2.4	2.7	67.0	27.4	6.9	72.6
#30	2.0	1.8	49.7	20.4	7.0	79.6
#50	1.7	1.7	24.2	10.4	10.0	89.6
#100	1.6	1.6	6.9	3.7	6.8	96.3
LBW	1.4	1.4	1.8	1.6	2.1	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:	62	Workability Factor:	34
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Intial Production Sample (IPS)

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

PREPARED BY:
 SM, LLC Technical Service

Approved BY:

Aggregate Optimization Chart

PLANT #: **P-14**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	49.8
26A	58-003	Stoneco	350	2.09	2.69	11.3
2NS	19-55	Schlegel	1210	7.26	2.67	38.9
Total Wt			3110	18.58		100.0

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



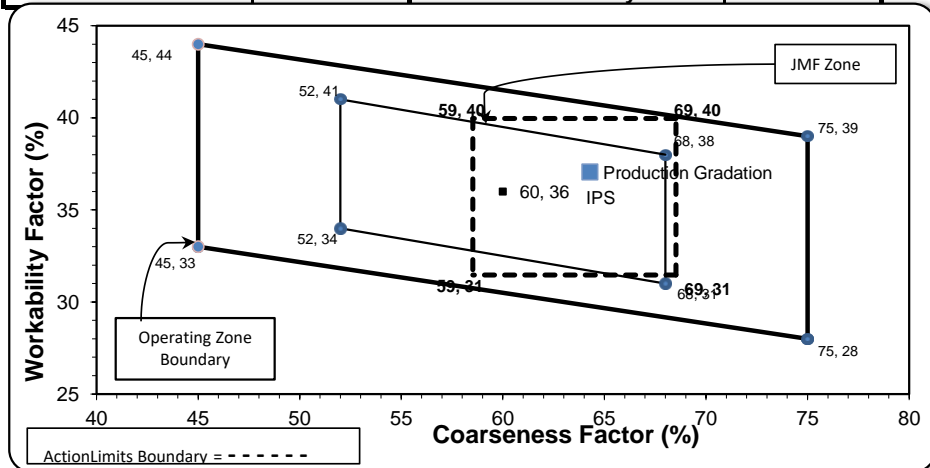
Builders Redi-Mix
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	88.7	100.0	100.0	94.4	5.6	5.6
1/2"	43.9	99.5	100.0	72.0	22.4	28.0
3/8"	21.5	88.1	100.0	59.5	12.4	40.5
#4	6.3	17.2	99.9	43.9	15.6	56.1
#8	3.0	4.5	90.1	37.1	6.9	62.9
#16	2.4	2.7	69.4	28.5	8.6	71.5
#30	2.0	1.8	44.5	18.5	10.0	81.5
#50	1.7	1.7	14.3	6.6	11.9	93.4
#100	1.6	1.6	2.7	2.0	4.6	98.0
LBW	1.4	1.4	0.2	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: **64** **Workability Factor:** **37**



Initial Production Sample (IPS)

Coarseness Factor:		64	
Workability Factor:		36	
Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	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"	59.2	12.1	40.8
#4	41.5	17.7	58.5
#8	35.7	5.8	64.3
#16	27.9	7.9	72.1
#30	18.3	9.5	81.7
#50	7.3	11.0	92.7
#100	2.0	5.3	98.0
LBW	0.9	1.1	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: 11

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	52.5
26A	71-47	Presque Isle	220	1.35	2.62	7.2
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



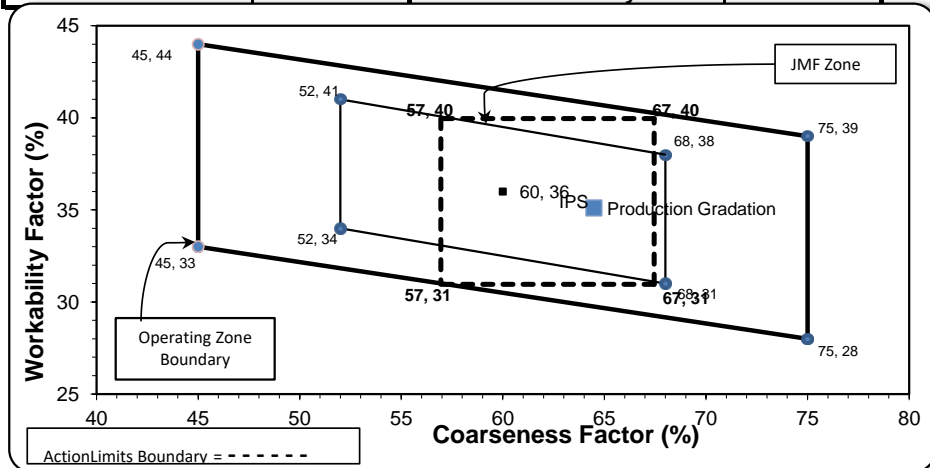
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.1	100.0	100.0	99.5	0.5	0.5
3/4"	75.8	100.0	100.0	87.3	12.2	12.7
1/2"	39.3	97.7	100.0	68.0	19.3	32.0
3/8"	22.0	87.2	100.0	58.2	9.8	41.8
#4	3.5	15.8	95.9	41.7	16.5	58.3
#8	1.9	3.8	83.9	35.1	6.5	64.9
#16	1.7	1.8	68.8	28.8	6.3	71.2
#30	1.6	1.6	49.9	21.1	7.7	78.9
#50	1.6	1.4	24.5	10.8	10.3	89.2
#100	1.5	1.3	7.0	3.7	7.1	96.3
LBW	1.2	1.0	1.4	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: 64 **Workability Factor:** 35



Initial Production Sample (IPS)

Coarseness Factor: 62
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"	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

PLANT #: **P-32**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	52.5
26A	71-47	Presque Isle	220	1.35	2.62	7.2
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



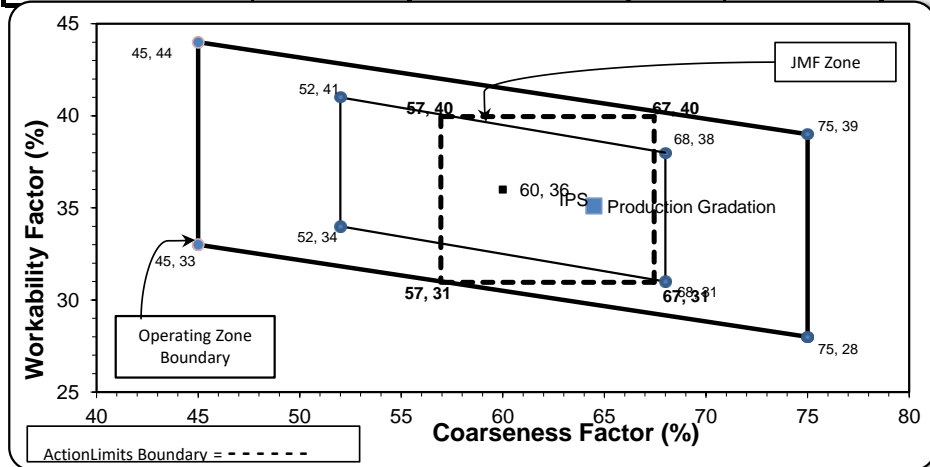
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.1	100.0	100.0	99.5	0.5	0.5
3/4"	75.8	100.0	100.0	87.3	12.2	12.7
1/2"	39.3	97.7	100.0	68.0	19.3	32.0
3/8"	22.0	87.2	100.0	58.2	9.8	41.8
#4	3.5	15.8	95.9	41.7	16.5	58.3
#8	1.9	3.8	83.9	35.1	6.5	64.9
#16	1.7	1.8	68.8	28.8	6.3	71.2
#30	1.6	1.6	49.9	21.1	7.7	78.9
#50	1.6	1.4	24.5	10.8	10.3	89.2
#100	1.5	1.3	7.0	3.7	7.1	96.3
LBW	1.2	1.0	1.4	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: **64** **Workability Factor:** **35**



Initial Production Sample (IPS)

Coarseness Factor: **62**
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"	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

PLANT #: **P-35**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1570	9.35	2.69	50.6
26A	58-003	Stoneco	330	1.97	2.69	10.6
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



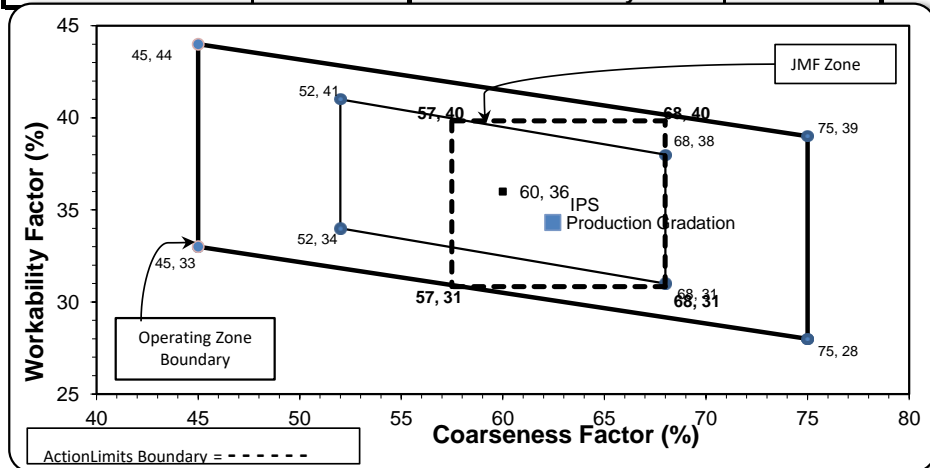
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	88.7	100.0	100.0	94.3	5.7	5.7
1/2"	43.9	99.5	100.0	71.5	22.7	28.5
3/8"	21.5	88.1	100.0	59.0	12.6	41.0
#4	6.3	17.2	97.4	42.7	16.3	57.3
#8	3.0	4.5	83.5	34.3	8.4	65.7
#16	2.4	2.7	67.0	27.4	6.9	72.6
#30	2.0	1.8	49.7	20.4	7.0	79.6
#50	1.7	1.7	24.2	10.4	10.0	89.6
#100	1.6	1.6	6.9	3.7	6.8	96.3
LBW	1.4	1.4	1.8	1.6	2.1	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: **62** **Workability Factor:** **34**



Intial Production Sample (IPS)

Coarseness Factor: **63**
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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.4	11.9	40.6
#4	43.0	16.5	57.0
#8	35.3	7.6	64.7
#16	28.2	7.1	71.8
#30	21.6	6.6	78.4
#50	9.1	12.5	90.9
#100	1.7	7.4	98.3
LBW	1.1	0.6	98.9

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-36**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	47.5
26A	71-47	Presque Isle	400	2.45	2.62	13.1
2NS	63-92	Grange Hall	1200	7.26	2.65	39.3
Total Wt			3050	18.57		100.0

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



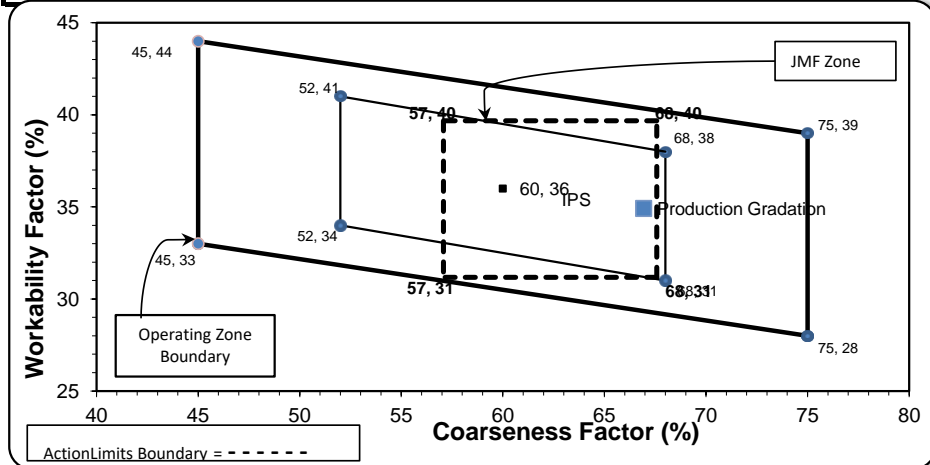
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	96.3	100.0	100.0	98.2	1.8	1.8
3/4"	77.7	100.0	100.0	89.4	8.8	10.6
1/2"	28.7	97.7	100.0	65.8	23.6	34.2
3/8"	11.9	87.2	100.0	56.4	9.4	43.6
#4	2.6	15.8	97.8	41.8	14.7	58.2
#8	2.3	3.8	84.7	34.9	6.9	65.1
#16	2.1	1.8	71.1	29.2	5.7	70.8
#30	2.1	1.6	52.9	22.0	7.2	78.0
#50	2.0	1.4	24.5	10.8	11.2	89.2
#100	1.9	1.3	3.6	2.5	8.3	97.5
LBW	1.5	1.0	0.5	1.0	1.4	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **67** **Workability Factor:** **35**



Initial Production Sample (IPS)

Coarseness Factor: **62**
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"	99.1	0.9	0.9
3/4"	90.5	8.6	9.5
1/2"	69.8	20.7	30.2
3/8"	59.8	10.0	40.2
#4	42.2	17.6	57.8
#8	35.4	6.7	64.6
#16	28.8	6.7	71.2
#30	21.4	7.4	78.6
#50	8.8	12.6	91.2
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-39**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1620	9.91	2.62	53.1
26A	71-47	Presque Isle	180	1.10	2.62	5.9
2NS	44-051	Krake Willis Rd	1250	7.56	2.65	41.0
Total Wt			3050	18.57		100.0

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



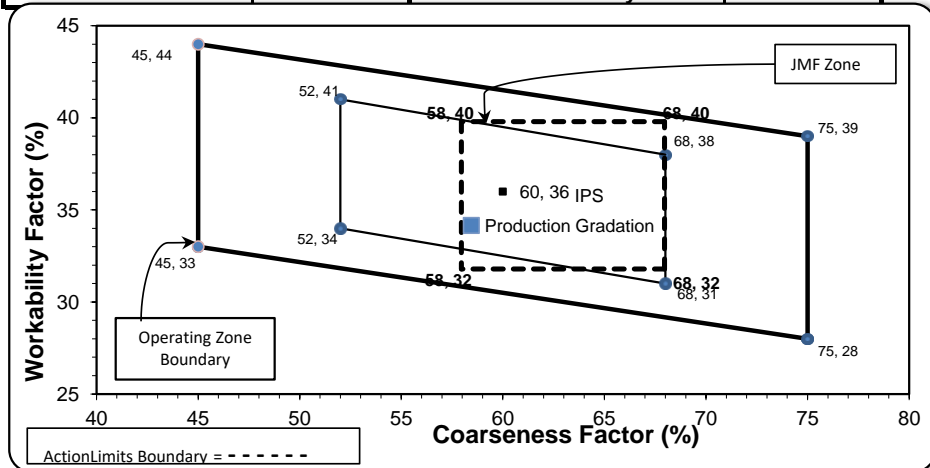
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.4	100.0	100.0	99.2	0.8	0.8
3/4"	88.9	100.0	100.0	94.1	5.0	5.9
1/2"	48.0	96.2	100.0	72.2	21.9	27.8
3/8"	28.9	87.8	100.0	61.5	10.6	38.5
#4	4.4	21.9	96.2	43.1	18.5	56.9
#8	1.8	4.3	80.4	34.2	8.9	65.8
#16	1.7	2.2	65.2	27.8	6.4	72.2
#30	1.6	1.9	49.4	21.2	6.5	78.8
#50	1.6	1.8	24.3	10.9	10.3	89.1
#100	1.6	1.7	9.0	4.6	6.3	95.4
LBW	1.4	1.6	0.8	1.2	3.5	98.8

*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: **58** **Workability Factor:** **34**



Intial Production Sample (IPS)

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

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"	89.8	10.2	10.2
1/2"	70.7	19.1	29.3
3/8"	59.6	11.1	40.4
#4	43.2	16.4	56.8
#8	35.8	7.4	64.2
#16	29.2	6.6	70.8
#30	21.4	7.8	78.6
#50	9.8	11.6	90.2
#100	3.7	6.1	96.3
LBW	1.2	2.5	98.8

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-02**

Sample Date: 1/2/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 1/3/2023 through 1/9/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1520	9.30	2.62	49.8
26A	71-47	Presque Isle	300	1.83	2.62	9.8
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



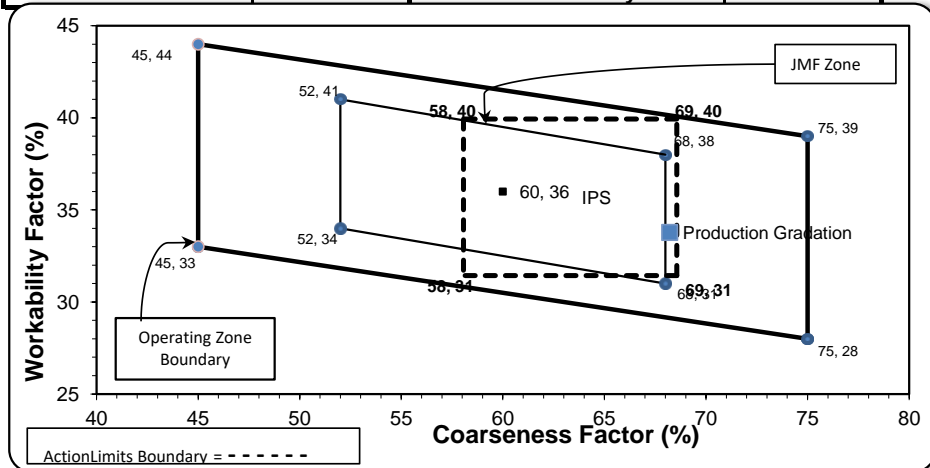
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	96.3	100.0	100.0	98.2	1.8	1.8
3/4"	77.7	100.0	100.0	88.9	9.3	11.1
1/2"	28.7	97.7	100.0	64.2	24.6	35.8
3/8"	11.9	87.2	100.0	54.8	9.4	45.2
#4	2.6	15.8	96.7	41.8	13.0	58.2
#8	2.3	3.8	80.0	33.8	8.1	66.2
#16	2.1	1.8	65.1	27.5	6.3	72.5
#30	2.1	1.6	49.7	21.2	6.2	78.8
#50	2.0	1.4	25.9	11.6	9.7	88.4
#100	1.9	1.3	4.9	3.1	8.5	96.9
LBW	1.5	1.0	0.8	1.2	1.9	98.8

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

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"	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

PREPARED BY:
 SM, LLC Technical Service

Approved By: