

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1570	9.60	2.62	51.4
26A	71-47	Presque Isle	255	1.56	2.62	8.3
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	99.2	0.8	0.8
3/4"	80.4	100.0	100.0	89.9	9.3	10.1
1/2"	39.0	96.7	100.0	68.4	21.6	31.6
3/8"	21.1	85.0	100.0	58.2	10.2	41.8
#4	3.6	17.3	98.8	43.1	15.1	56.9
#8	1.9	4.8	84.6	35.4	7.6	64.6
#16	1.7	3.0	69.6	29.1	6.3	70.9
#30	1.6	2.6	52.2	22.1	7.1	77.9
#50	1.6	2.4	23.2	10.4	11.7	89.6
#100	1.5	2.2	5.2	3.0	7.3	97.0
LBW	1.3	2.0	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

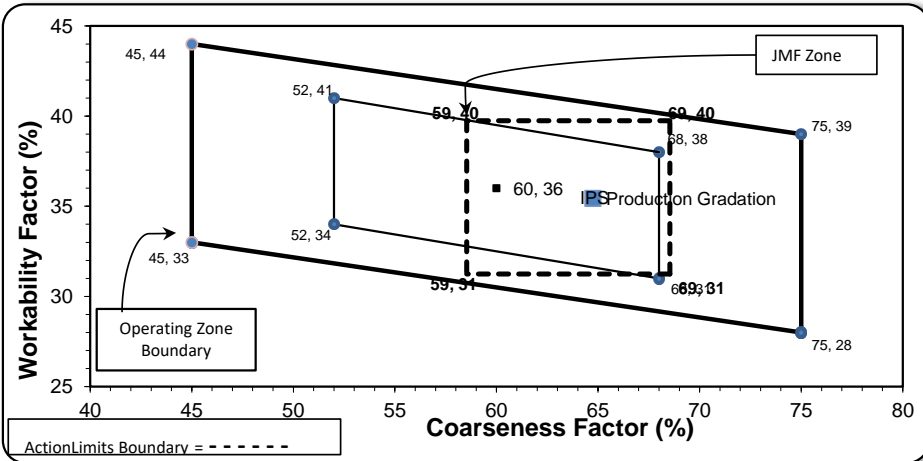
Coarseness Factor:	65	Workability Factor:	35
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Initial Production Sample (IPS)

Coarseness Factor:	64
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Workability Factor:	35
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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: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1650	9.83	2.69	53.2
26A	58-003	Stoneco	250	1.49	2.69	8.1
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



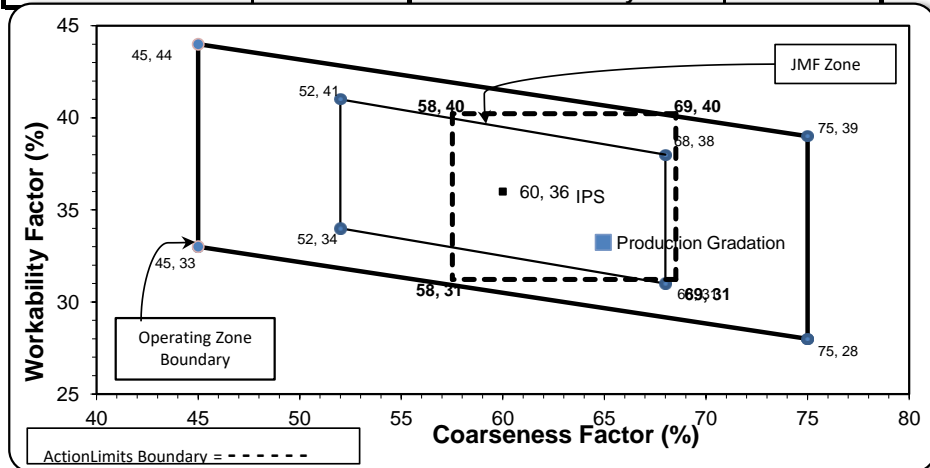
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	84.7	100.0	100.0	91.9	8.1	8.1
1/2"	42.3	98.9	100.0	69.2	22.7	30.8
3/8"	21.0	83.8	100.0	56.6	12.6	43.4
#4	2.7	5.3	98.0	39.8	16.8	60.2
#8	1.1	1.2	84.1	33.2	6.6	66.8
#16	1.2	0.9	67.4	26.8	6.4	73.2
#30	1.1	0.7	49.3	19.7	7.1	80.3
#50	1.0	0.7	25.1	10.3	9.4	89.7
#100	1.0	0.6	7.4	3.4	6.9	96.6
LBW	0.6	0.7	1.4	0.9	2.5	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: **65** Workability Factor: **33**



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: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1650	9.83	2.69	53.2
26A	58-003	Stoneco	250	1.49	2.69	8.1
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



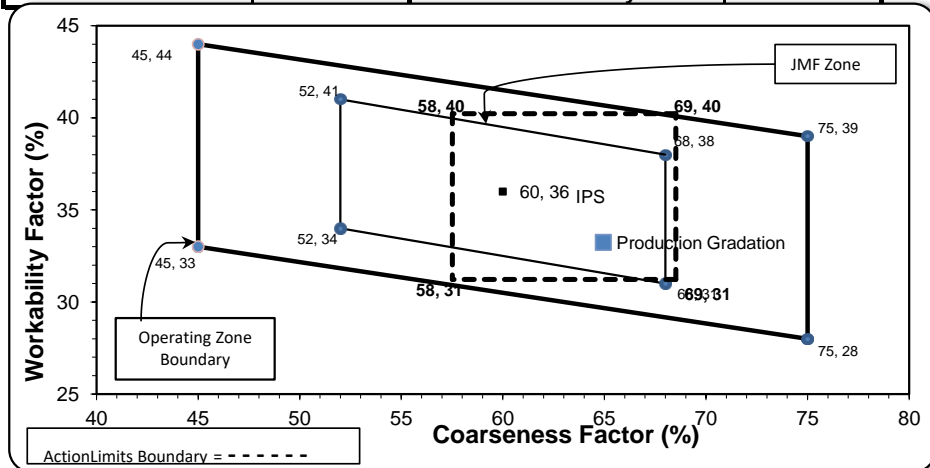
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	84.7	100.0	100.0	91.9	8.1	8.1
1/2"	42.3	98.9	100.0	69.2	22.7	30.8
3/8"	21.0	83.8	100.0	56.6	12.6	43.4
#4	2.7	5.3	98.0	39.8	16.8	60.2
#8	1.1	1.2	84.1	33.2	6.6	66.8
#16	1.2	0.9	67.4	26.8	6.4	73.2
#30	1.1	0.7	49.3	19.7	7.1	80.3
#50	1.0	0.7	25.1	10.3	9.4	89.7
#100	1.0	0.6	7.4	3.4	6.9	96.6
LBW	0.6	0.7	1.4	0.9	2.5	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: 65 **Workability Factor:** 33



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

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Aggregate Optimization Chart

PLANT #: **P-14**

Sample Date: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1620	9.65	2.69	52.1
26A	58-003	Stoneco	280	1.67	2.69	9.0
2NS	19-55	Schlegel	1210	7.26	2.67	38.9
Total Wt			3110	18.58		100.0

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



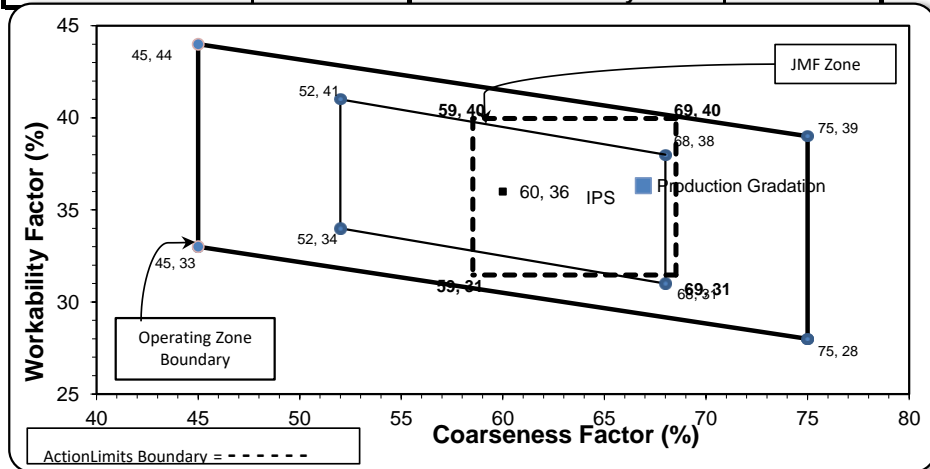
Builders Redi-Mix
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	84.7	100.0	100.0	92.0	8.0	8.0
1/2"	42.3	98.9	100.0	69.8	22.2	30.2
3/8"	21.0	83.8	100.0	57.4	12.5	42.6
#4	2.7	5.3	100.0	40.8	16.6	59.2
#8	1.1	1.2	91.6	36.3	4.5	63.7
#16	1.2	0.9	74.0	29.5	6.8	70.5
#30	1.1	0.7	53.6	21.5	8.0	78.5
#50	1.0	0.7	19.0	8.0	13.5	92.0
#100	1.0	0.6	3.8	2.1	5.9	97.9
LBW	0.6	0.7	0.4	0.5	1.5	99.5

*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: 67 **Workability Factor:** 36



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:
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Aggregate Optimization Chart

PLANT #: 11

Sample Date: 10/31/22

Dates Test Represents: 11/1/2022 through 11/7/2022

Concrete Grade: **S2M, 3500HP**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1420	8.69	2.62	46.6
26A	71-47	Presque Isle	400	2.45	2.62	13.1
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"	96.5	100.0	100.0	98.4	1.6	1.6
3/4"	70.3	100.0	100.0	86.2	12.2	13.8
1/2"	31.4	97.8	100.0	67.8	18.4	32.2
3/8"	15.4	87.3	100.0	58.9	8.8	41.1
#4	3.1	24.8	96.1	43.5	15.5	56.5
#8	1.9	5.8	83.6	35.4	8.1	64.6
#16	1.7	2.4	68.6	28.8	6.6	71.2
#30	1.6	2.0	49.1	20.8	8.0	79.2
#50	1.6	1.8	24.0	10.7	10.1	89.3
#100	1.5	1.8	7.1	3.8	6.9	96.2
LBW	1.2	1.6	1.4	1.3	2.5	98.7

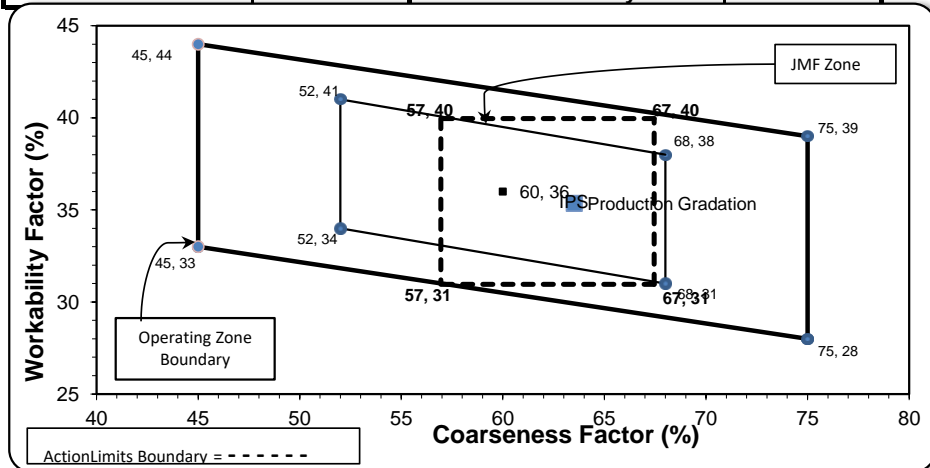


Superior Materials, LLC
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 Suite 500
 Farmington Hills, MI 48336

*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: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1420	8.69	2.62	46.6
26A	71-47	Presque Isle	400	2.45	2.62	13.1
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



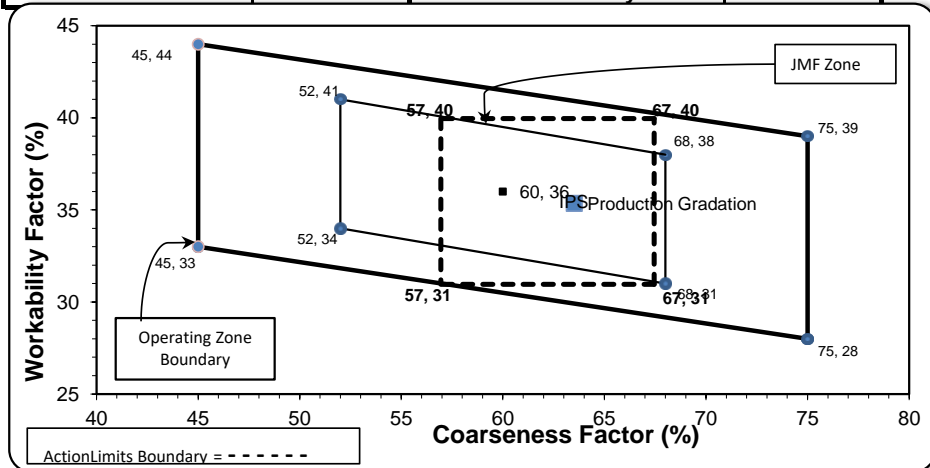
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	96.5	100.0	100.0	98.4	1.6	1.6
3/4"	70.3	100.0	100.0	86.2	12.2	13.8
1/2"	31.4	97.8	100.0	67.8	18.4	32.2
3/8"	15.4	87.3	100.0	58.9	8.8	41.1
#4	3.1	24.8	96.1	43.5	15.5	56.5
#8	1.9	5.8	83.6	35.4	8.1	64.6
#16	1.7	2.4	68.6	28.8	6.6	71.2
#30	1.6	2.0	49.1	20.8	8.0	79.2
#50	1.6	1.8	24.0	10.7	10.1	89.3
#100	1.5	1.8	7.1	3.8	6.9	96.2
LBW	1.2	1.6	1.4	1.3	2.5	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: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1650	9.83	2.69	53.2
26A	58-003	Stoneco	250	1.49	2.69	8.1
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



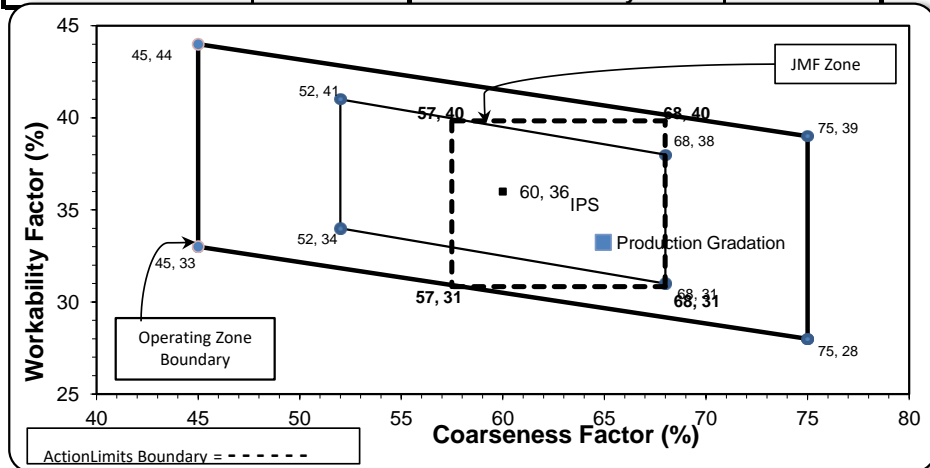
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	84.7	100.0	100.0	91.9	8.1	8.1
1/2"	42.3	98.9	100.0	69.2	22.7	30.8
3/8"	21.0	83.8	100.0	56.6	12.6	43.4
#4	2.7	5.3	98.0	39.8	16.8	60.2
#8	1.1	1.2	84.1	33.2	6.6	66.8
#16	1.2	0.9	67.4	26.8	6.4	73.2
#30	1.1	0.7	49.3	19.7	7.1	80.3
#50	1.0	0.7	25.1	10.3	9.4	89.7
#100	1.0	0.6	7.4	3.4	6.9	96.6
LBW	0.6	0.7	1.4	0.9	2.5	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: **65** Workability Factor: **33**



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: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	50.8
26A	71-47	Presque Isle	300	1.83	2.62	9.8
2NS	63-92	Grange Hall	1200	7.26	2.65	39.3
Total Wt			3050	18.57		100.0

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



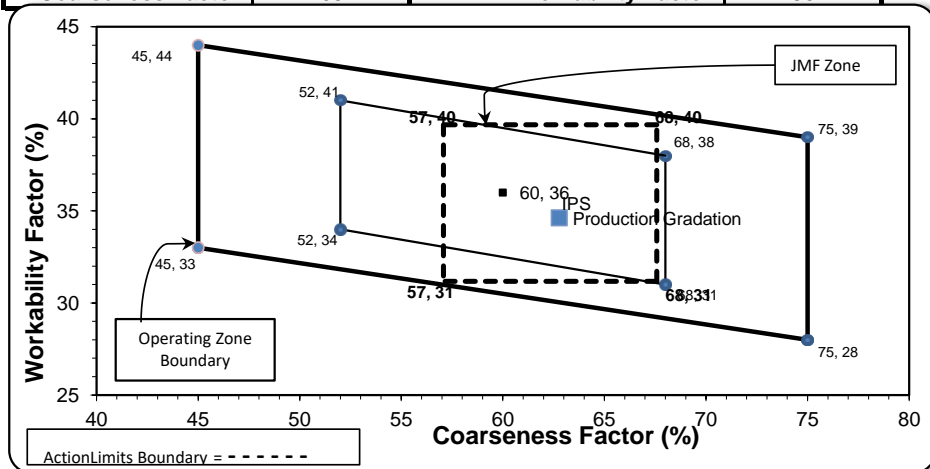
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.2	100.0	100.0	99.6	0.4	0.4
3/4"	84.8	100.0	100.0	92.3	7.3	7.7
1/2"	41.3	97.8	100.0	70.0	22.3	30.0
3/8"	21.7	87.3	100.0	59.0	11.0	41.0
#4	3.7	24.8	97.6	42.7	16.2	57.3
#8	1.9	5.8	84.1	34.6	8.1	65.4
#16	1.7	2.4	69.3	28.4	6.3	71.6
#30	1.6	2.0	49.4	20.4	7.9	79.6
#50	1.6	1.8	21.0	9.3	11.2	90.7
#100	1.5	1.8	3.4	2.3	7.0	97.7
LBW	1.3	1.6	0.5	1.0	1.3	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:	63	Workability Factor:	35
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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: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

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	200	1.22	2.62	6.6
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%



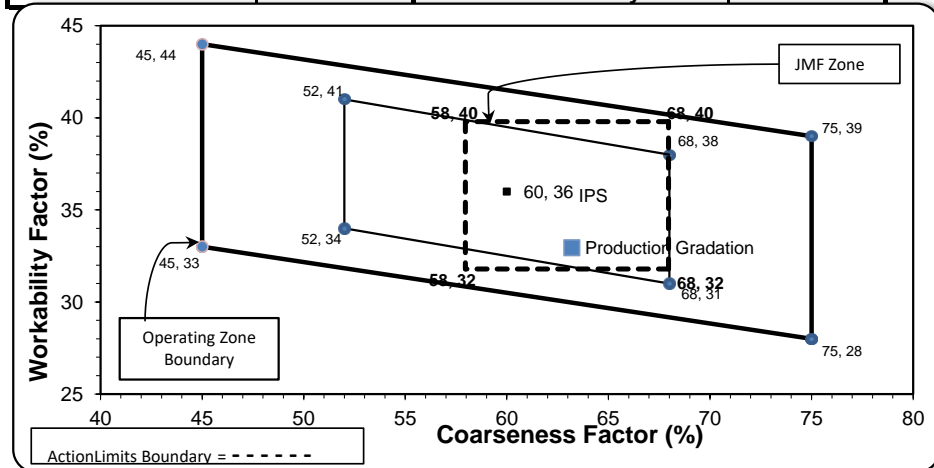
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	80.4	100.0	100.0	89.7	9.4	10.3
1/2"	39.0	96.7	100.0	67.8	21.9	32.2
3/8"	21.1	85.0	100.0	57.6	10.2	42.4
#4	3.6	17.3	95.8	42.3	15.3	57.7
#8	1.9	4.8	77.2	33.0	9.3	67.0
#16	1.7	3.0	61.8	26.4	6.5	73.6
#30	1.6	2.6	47.0	20.3	6.1	79.7
#50	1.6	2.4	25.8	11.6	8.7	88.4
#100	1.5	2.2	8.0	4.2	7.4	95.8
LBW	1.3	2.0	1.0	1.2	3.0	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:	63	Workability Factor:	33
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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"	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-O2**

Sample Date: 10/31/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 11/1/2022 through 11/7/2022

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	200	1.22	2.62	6.6
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



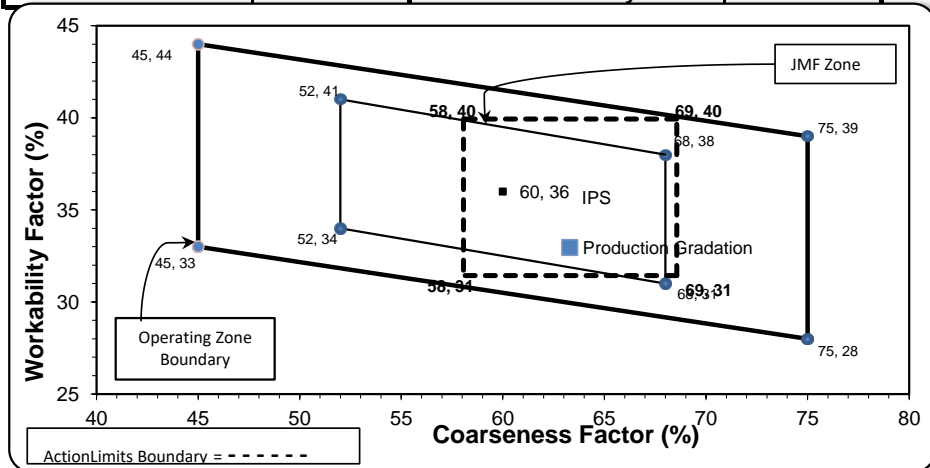
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.2	100.0	100.0	99.6	0.4	0.4
3/4"	84.8	100.0	100.0	91.9	7.6	8.1
1/2"	41.3	97.8	100.0	68.7	23.2	31.3
3/8"	21.7	87.3	100.0	57.6	11.1	42.4
#4	3.7	24.8	96.5	42.5	15.1	57.5
#8	1.9	5.8	78.3	33.0	9.5	67.0
#16	1.7	2.4	62.2	26.1	6.8	73.9
#30	1.6	2.0	47.6	20.2	6.0	79.8
#50	1.6	1.8	26.8	11.8	8.4	88.2
#100	1.5	1.8	6.1	3.4	8.4	96.6
LBW	1.3	1.6	0.9	1.2	2.2	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: 63 **Workability Factor:** 33



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: