

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	52.4
26A	71-47	Presque Isle	225	1.38	2.62	7.4
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"	98.8	100.0	100.0	99.4	0.6	0.6
3/4"	81.5	100.0	100.0	90.3	9.1	9.7
1/2"	38.6	96.0	100.0	67.5	22.8	32.5
3/8"	24.2	86.4	100.0	59.3	8.2	40.7
#4	3.7	20.4	95.8	42.0	17.3	58.0
#8	2.1	4.3	79.4	33.4	8.6	66.6
#16	1.9	2.0	63.5	26.7	6.7	73.3
#30	1.8	1.6	48.1	20.4	6.3	79.6
#50	1.8	1.4	24.4	10.9	9.6	89.1
#100	1.7	1.4	6.5	3.6	7.3	96.4
LBW	1.4	1.2	0.8	1.1	2.5	98.9

*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

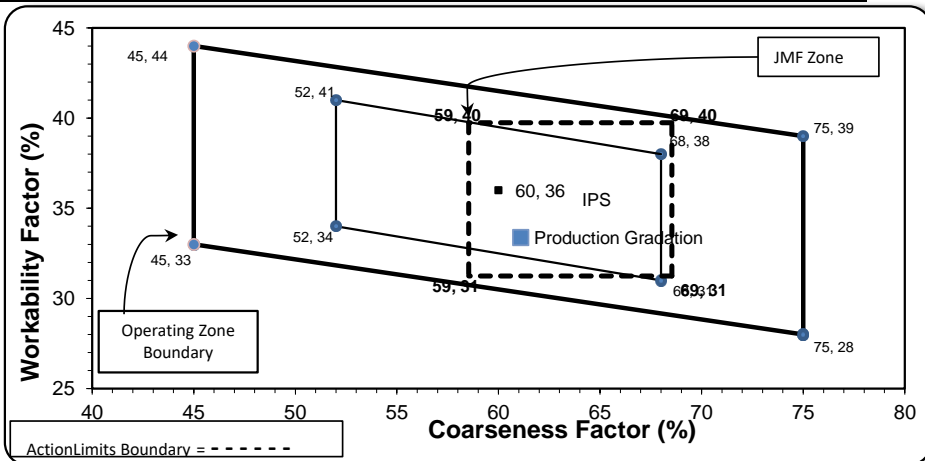
Coarseness Factor: **61** **Workability Factor:** **33**

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: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	50.0
26A	58-003	Stoneco	350	2.09	2.69	11.3
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



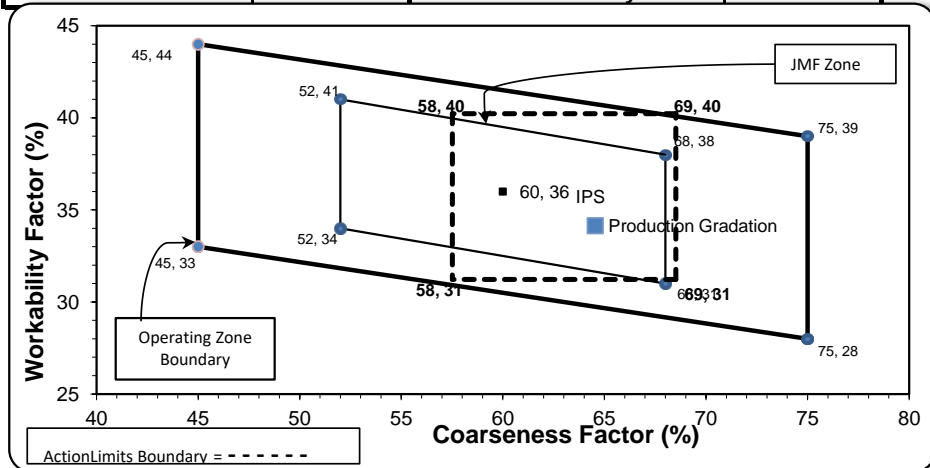
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	84.8	100.0	100.0	92.4	7.6	7.6
1/2"	40.4	99.1	100.0	70.1	22.3	29.9
3/8"	17.7	88.0	100.0	57.5	12.6	42.5
#4	2.1	9.6	98.3	40.2	17.3	59.8
#8	1.3	3.2	85.6	34.1	6.0	65.9
#16	1.1	2.3	68.3	27.2	6.9	72.8
#30	1.0	2.0	48.1	19.3	7.9	80.7
#50	1.0	1.9	23.5	9.8	9.5	90.2
#100	0.9	1.8	4.9	2.6	7.3	97.5
LBW	0.8	1.7	0.5	0.8	1.8	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 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)

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: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	50.0
26A	58-003	Stoneco	350	2.09	2.69	11.3
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



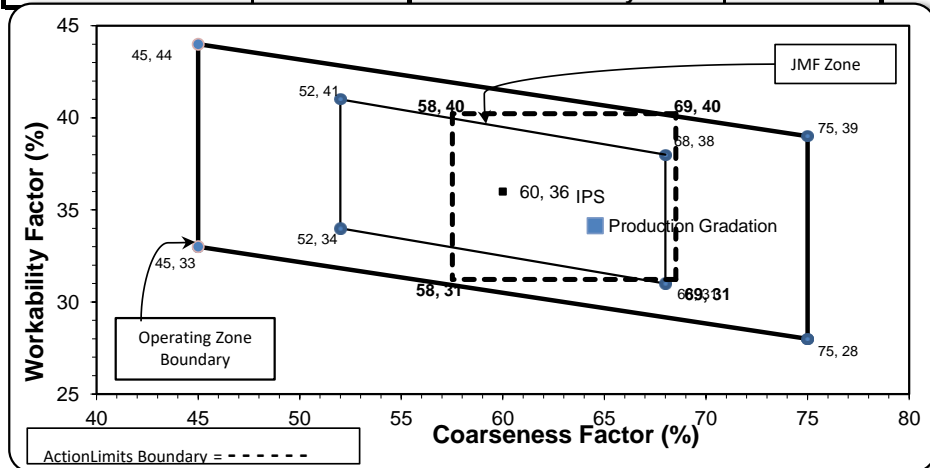
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	84.8	100.0	100.0	92.4	7.6	7.6
1/2"	40.4	99.1	100.0	70.1	22.3	29.9
3/8"	17.7	88.0	100.0	57.5	12.6	42.5
#4	2.1	9.6	98.3	40.2	17.3	59.8
#8	1.3	3.2	85.6	34.1	6.0	65.9
#16	1.1	2.3	68.3	27.2	6.9	72.8
#30	1.0	2.0	48.1	19.3	7.9	80.7
#50	1.0	1.9	23.5	9.8	9.5	90.2
#100	0.9	1.8	4.9	2.6	7.3	97.5
LBW	0.8	1.7	0.5	0.8	1.8	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 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



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 #: 12

Sample Date: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

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	270	1.65	2.62	8.9
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



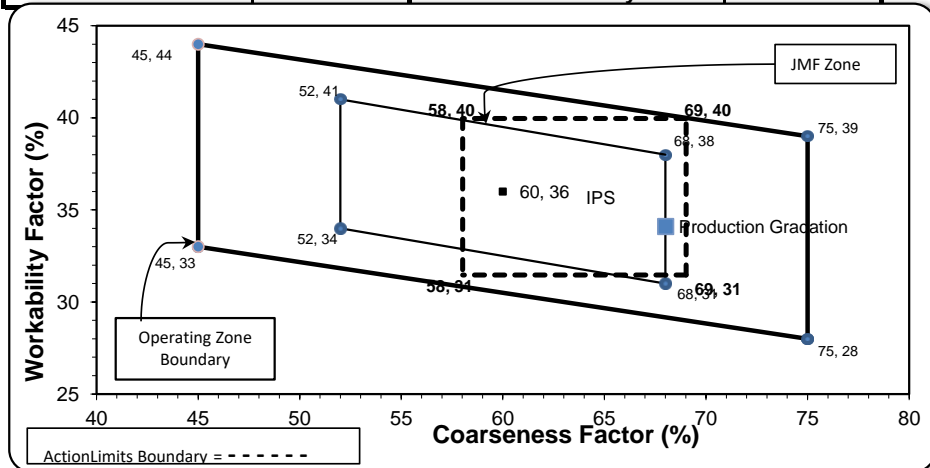
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.0	100.0	100.0	99.0	1.0	1.0
3/4"	76.3	100.0	100.0	88.0	11.0	12.0
1/2"	30.3	96.9	100.0	64.3	23.7	35.7
3/8"	13.6	89.7	100.0	55.2	9.1	44.8
#4	3.1	23.7	96.4	42.5	12.6	57.5
#8	2.2	5.8	80.5	34.1	8.5	65.9
#16	1.9	2.6	64.4	27.2	6.9	72.8
#30	1.8	2.2	48.4	20.6	6.5	79.4
#50	1.7	2.0	24.1	10.8	9.9	89.2
#100	1.6	1.9	5.2	3.1	7.7	96.9
LBW	1.3	1.7	0.8	1.1	1.9	98.9

*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: 68 **Workability Factor:** 34



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 #: 20

Sample Date: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

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	200	1.22	2.62	6.6
2NS	63-92	Grange Hall	1250	7.56	2.65	41.0
Total Wt			3050	18.57		100.0

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



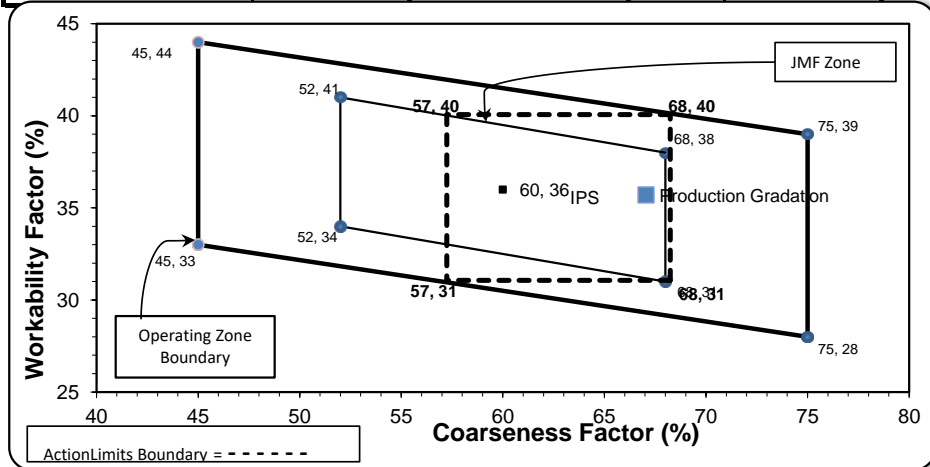
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	97.3	100.0	100.0	98.6	1.4	1.4
3/4"	79.5	100.0	100.0	89.2	9.3	10.8
1/2"	35.0	90.1	100.0	65.3	24.0	34.7
3/8"	21.1	73.8	100.0	56.9	8.4	43.1
#4	4.6	9.9	96.9	42.8	14.1	57.2
#8	2.5	2.0	83.6	35.7	7.1	64.3
#16	2.2	1.1	69.2	29.6	6.1	70.4
#30	2.1	0.9	48.4	21.0	8.6	79.0
#50	2.0	0.8	21.6	10.0	11.0	90.0
#100	1.9	0.8	4.0	2.7	7.3	97.3
LBW	1.5	0.7	1.2	1.3	1.4	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: 67 **Workability Factor:** 36



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"	93.3	6.7	6.7
1/2"	70.6	22.6	29.4
3/8"	59.6	11.0	40.4
#4	43.9	15.7	56.1
#8	35.6	8.4	64.4
#16	28.4	7.2	71.6
#30	19.4	9.0	80.6
#50	7.5	11.9	92.5
#100	0.9	6.6	99.1
LBW	0.9	0.1	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: p11

Sample Date: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1400	8.56	2.62	45.9
26A	71-47	Presque Isle	420	2.57	2.62	13.8
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



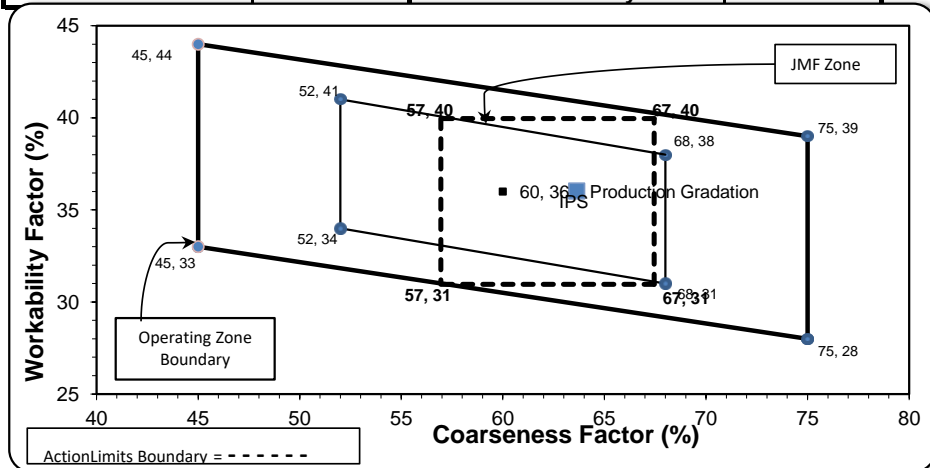
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	96.7	100.0	100.0	98.5	1.5	1.5
3/4"	74.9	100.0	100.0	88.5	10.0	11.5
1/2"	32.0	96.9	100.0	68.4	20.1	31.6
3/8"	14.4	89.7	100.0	59.3	9.1	40.7
#4	2.5	23.7	96.7	43.4	15.9	56.6
#8	1.7	5.8	85.4	36.0	7.4	64.0
#16	1.7	2.6	70.6	29.6	6.4	70.4
#30	1.6	2.2	52.2	22.1	7.5	77.9
#50	1.4	2.0	24.8	10.9	11.2	89.1
#100	1.3	1.9	7.6	3.9	7.0	96.1
LBW	1.0	1.7	1.7	1.4	2.5	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 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: 64 **Workability Factor:** 36



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: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1400	8.56	2.62	45.9
26A	71-47	Presque Isle	420	2.57	2.62	13.8
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



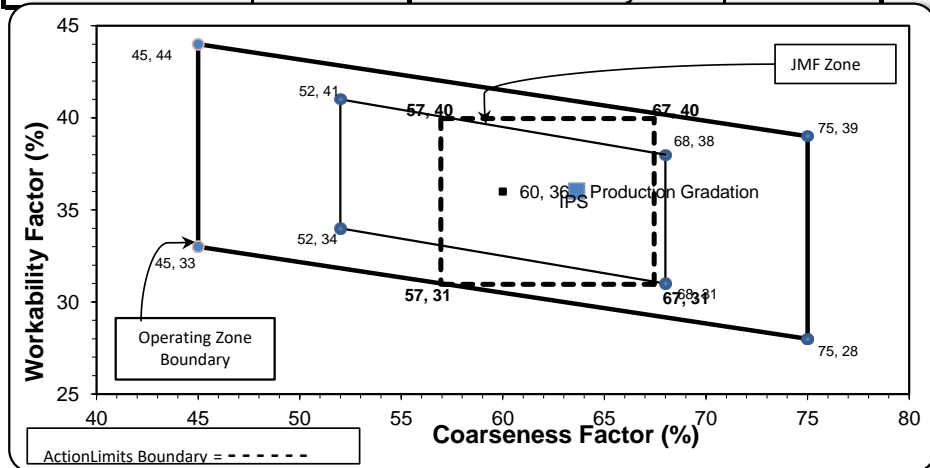
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	96.7	100.0	100.0	98.5	1.5	1.5
3/4"	74.9	100.0	100.0	88.5	10.0	11.5
1/2"	32.0	96.9	100.0	68.4	20.1	31.6
3/8"	14.4	89.7	100.0	59.3	9.1	40.7
#4	2.5	23.7	96.7	43.4	15.9	56.6
#8	1.7	5.8	85.4	36.0	7.4	64.0
#16	1.7	2.6	70.6	29.6	6.4	70.4
#30	1.6	2.2	52.2	22.1	7.5	77.9
#50	1.4	2.0	24.8	10.9	11.2	89.1
#100	1.3	1.9	7.6	3.9	7.0	96.1
LBW	1.0	1.7	1.7	1.4	2.5	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 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: 64 **Workability Factor:** 36



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: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	50.0
26A	58-003	Stoneco	350	2.09	2.69	11.3
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	84.8	100.0	100.0	92.4	7.6	7.6
1/2"	40.4	99.1	100.0	70.1	22.3	29.9
3/8"	17.7	88.0	100.0	57.5	12.6	42.5
#4	2.1	9.6	98.3	40.2	17.3	59.8
#8	1.3	3.2	85.6	34.1	6.0	65.9
#16	1.1	2.3	68.3	27.2	6.9	72.8
#30	1.0	2.0	48.1	19.3	7.9	80.7
#50	1.0	1.9	23.5	9.8	9.5	90.2
#100	0.9	1.8	4.9	2.6	7.3	97.5
LBW	0.8	1.7	0.5	0.8	1.8	99.2

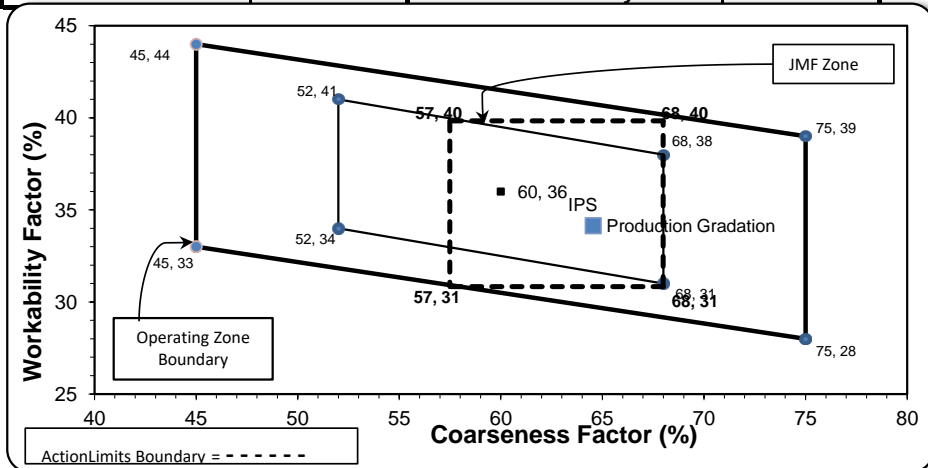


Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

*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 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)

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: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	49.2
26A	71-47	Presque Isle	350	2.14	2.62	11.5
2NS	63-92	Grange Hall	1200	7.26	2.65	39.3
Total Wt			3050	18.57		100.0

<---- Verify this number is 100%



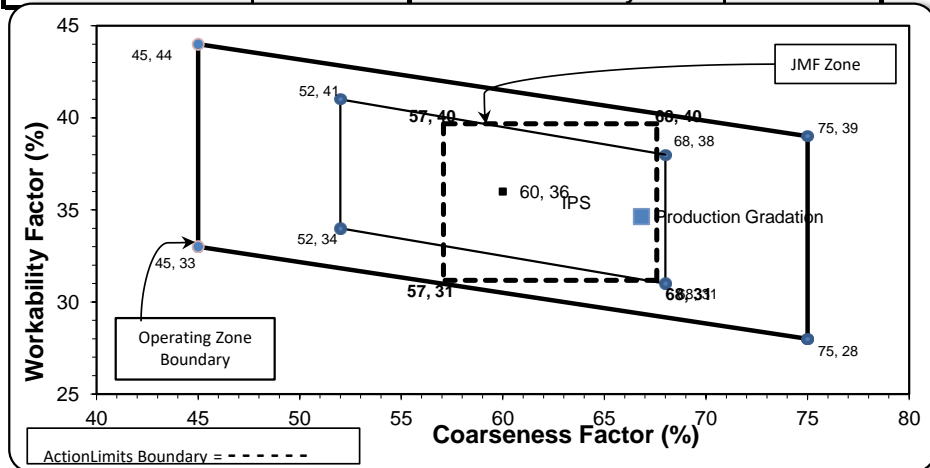
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.0	100.0	100.0	99.0	1.0	1.0
3/4"	76.3	100.0	100.0	88.3	10.7	11.7
1/2"	30.3	96.9	100.0	65.4	23.0	34.6
3/8"	13.6	89.7	100.0	56.3	9.0	43.7
#4	3.1	23.7	96.9	42.4	14.0	57.6
#8	2.2	5.8	83.6	34.6	7.7	65.4
#16	1.9	2.6	69.2	28.5	6.2	71.5
#30	1.8	2.2	48.4	20.2	8.3	79.8
#50	1.7	2.0	21.6	9.6	10.6	90.4
#100	1.6	1.9	4.0	2.6	7.0	97.4
LBW	1.3	1.7	1.2	1.3	1.3	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: **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-38**

Sample Date: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	50.0
26A	58-003	Stoneco	350	2.09	2.69	11.3
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



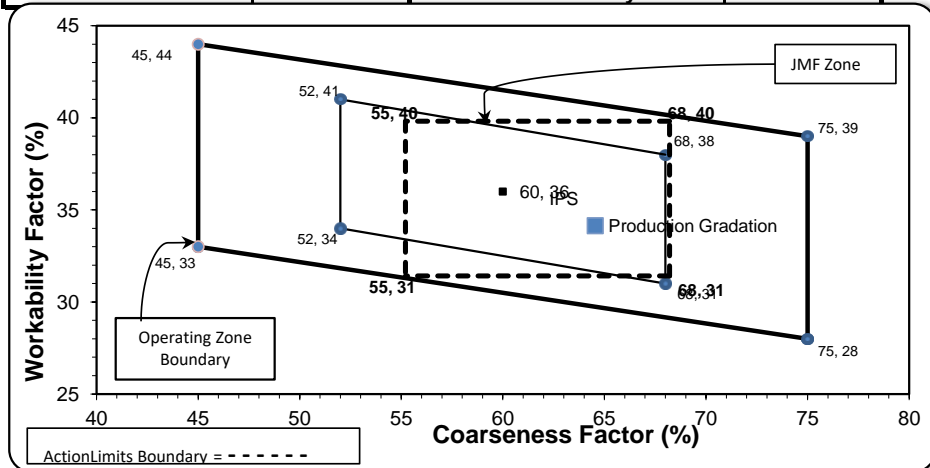
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	84.8	100.0	100.0	92.4	7.6	7.6
1/2"	40.4	99.1	100.0	70.1	22.3	29.9
3/8"	17.7	88.0	100.0	57.5	12.6	42.5
#4	2.1	9.6	98.3	40.2	17.3	59.8
#8	1.3	3.2	85.6	34.1	6.0	65.9
#16	1.1	2.3	68.3	27.2	6.9	72.8
#30	1.0	2.0	48.1	19.3	7.9	80.7
#50	1.0	1.9	23.5	9.8	9.5	90.2
#100	0.9	1.8	4.9	2.6	7.3	97.5
LBW	0.8	1.7	0.5	0.8	1.8	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 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)

Coarseness Factor: **62**
 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"	91.1	8.1	8.9
1/2"	72.0	19.1	28.0
3/8"	60.3	11.7	39.7
#4	43.4	16.9	56.6
#8	35.6	7.8	64.4
#16	28.4	7.2	71.6
#30	21.8	6.7	78.2
#50	9.1	12.6	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-39**

Sample Date: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1525	9.33	2.62	50.0
26A	71-47	Presque Isle	275	1.68	2.62	9.0
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%



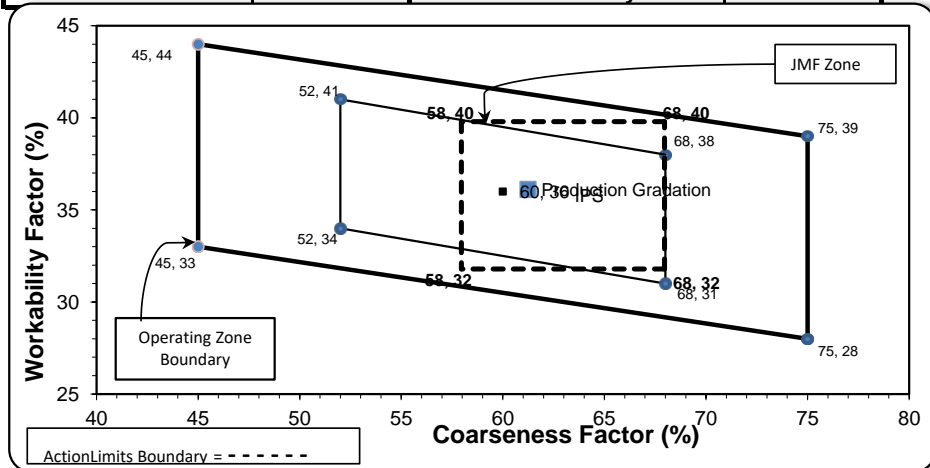
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.8	100.0	100.0	99.4	0.6	0.6
3/4"	81.5	100.0	100.0	90.8	8.7	9.3
1/2"	38.6	96.0	100.0	68.9	21.8	31.1
3/8"	24.2	86.4	100.0	60.9	8.1	39.1
#4	3.7	20.4	98.8	44.2	16.7	55.8
#8	2.1	4.3	84.6	36.1	8.1	63.9
#16	1.9	2.0	68.9	29.4	6.7	70.6
#30	1.8	1.6	50.2	21.6	7.8	78.4
#50	1.8	1.4	21.6	9.9	11.7	90.1
#100	1.7	1.4	4.5	2.8	7.1	97.2
LBW	1.4	1.2	0.7	1.1	1.7	98.9

*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: 61 **Workability Factor:** 36



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: 10/23/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 10/24/2023 through 10/30/2023

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	270	1.65	2.62	8.9
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

<---- Verify this number is 100%



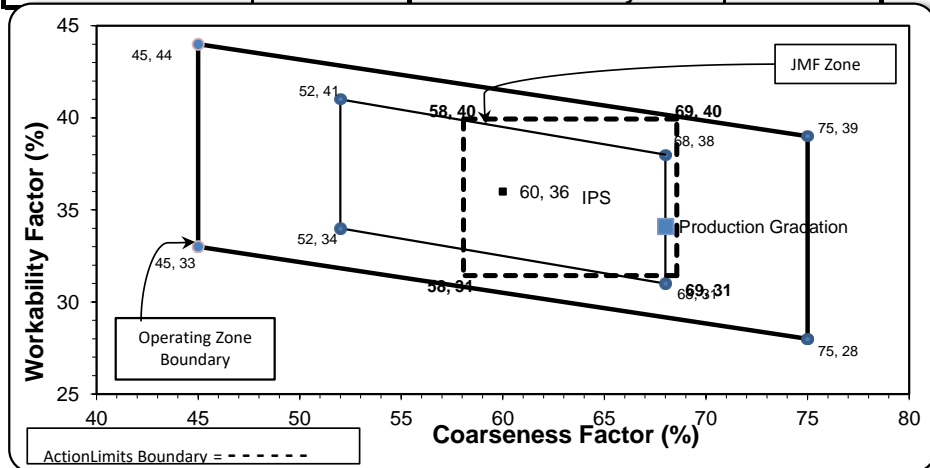
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.0	100.0	100.0	99.0	1.0	1.0
3/4"	76.3	100.0	100.0	88.0	11.0	12.0
1/2"	30.3	96.9	100.0	64.3	23.7	35.7
3/8"	13.6	89.7	100.0	55.2	9.1	44.8
#4	3.1	23.7	96.4	42.5	12.6	57.5
#8	2.2	5.8	80.5	34.1	8.5	65.9
#16	1.9	2.6	64.4	27.2	6.9	72.8
#30	1.8	2.2	48.4	20.6	6.5	79.4
#50	1.7	2.0	24.1	10.8	9.9	89.2
#100	1.6	1.9	5.2	3.1	7.7	96.9
LBW	1.3	1.7	0.8	1.1	1.9	98.9

*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: 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: