

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 3/7/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 3/8/2022 through 3/14/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	48.4
26A	58-003	Stoneco	390	2.32	2.69	12.6
2NS	63-114	Highland	1210	7.32	2.65	39.0
Total Wt			3100	18.58		100.0

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



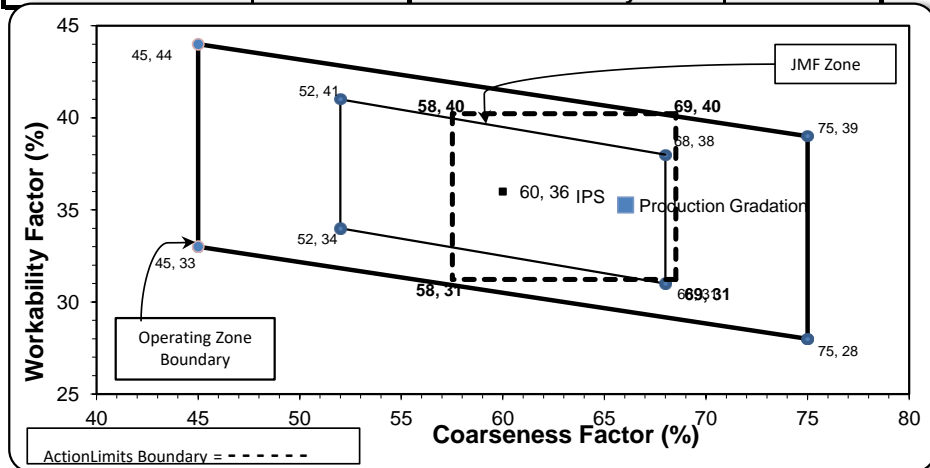
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	81.4	100.0	100.0	91.0	9.0	9.0
1/2"	44.3	98.9	100.0	72.9	18.1	27.1
3/8"	19.2	70.9	100.0	57.2	15.7	42.8
#4	1.8	9.3	99.8	41.0	16.2	59.0
#8	1.0	3.4	88.0	35.3	5.7	64.7
#16	0.8	2.1	68.6	27.4	7.8	72.6
#30	0.6	1.8	47.9	19.2	8.2	80.8
#50	0.5	1.7	20.0	8.3	11.0	91.7
#100	0.4	1.5	3.3	1.7	6.6	98.3
LBW	0.3	1.4	0.4	0.5	1.2	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: **66** **Workability Factor:** **35**



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-32**

Sample Date: 3/7/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 3/8/2022 through 3/14/2022

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	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



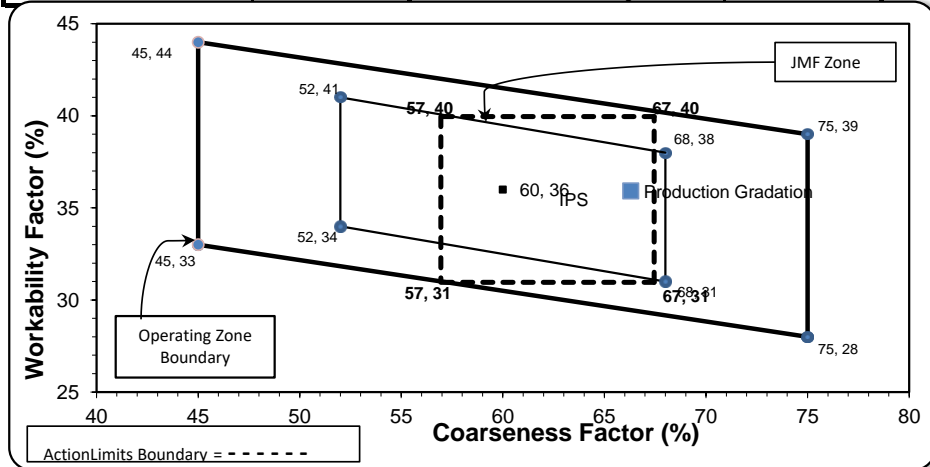
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 Suite 500
 Farmington Hills, MI 48336

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"	95.0	100.0	100.0	97.5	2.5	2.5
3/4"	67.8	100.0	100.0	84.0	13.6	16.0
1/2"	30.8	98.1	100.0	65.3	18.6	34.7
3/8"	16.9	89.2	100.0	57.5	7.8	42.5
#4	5.3	29.4	95.8	44.2	13.4	55.8
#8	2.2	11.3	83.6	35.9	8.2	64.1
#16	2.0	4.9	68.5	29.1	6.8	70.9
#30	1.7	3.0	49.2	21.0	8.1	79.0
#50	1.6	2.5	24.2	10.8	10.2	89.2
#100	1.4	2.3	7.2	3.8	7.0	96.2
LBW	0.9	1.9	1.5	1.2	2.6	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: **66** **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

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Aggregate Optimization Chart

PLANT #: **P-35**

Sample Date: 3/7/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 3/8/2022 through 3/14/2022

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	48.4
26A	58-003	Stoneco	400	2.38	2.69	12.9
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

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



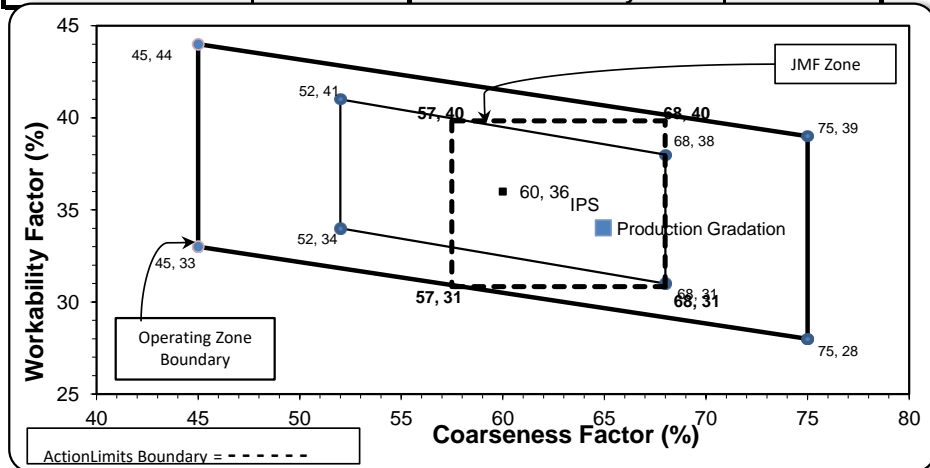
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 Suite 500
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	81.4	100.0	100.0	91.0	9.0	9.0
1/2"	44.3	98.9	100.0	72.9	18.1	27.1
3/8"	19.2	70.9	100.0	57.1	15.8	42.9
#4	1.8	9.3	99.4	40.5	16.6	59.5
#8	1.0	3.4	85.5	34.0	6.5	66.0
#16	0.8	2.1	67.7	26.9	7.2	73.1
#30	0.6	1.8	48.8	19.4	7.5	80.6
#50	0.5	1.7	23.8	9.7	9.7	90.3
#100	0.4	1.5	6.5	2.9	6.8	97.1
LBW	0.3	1.4	2.0	1.1	1.8	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 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: **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-O2**

Sample Date: 3/7/22

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 3/8/2022 through 3/14/2022

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	350	2.14	2.62	11.5
2NS	63-115	Ray Rd	1250	7.56	2.65	41.0
Total Wt			3050	18.57		100.0

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



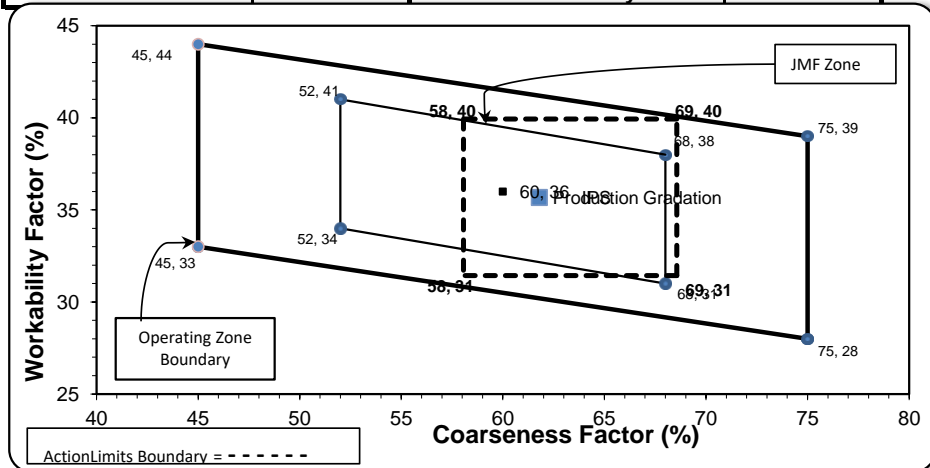
Superior Materials, LLC
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	85.4	100.0	100.0	93.1	6.7	6.9
1/2"	36.2	98.1	100.0	69.5	23.6	30.5
3/8"	19.0	89.2	100.0	60.3	9.2	39.7
#4	4.1	29.4	96.9	45.0	15.2	55.0
#8	2.5	11.3	81.0	35.7	9.4	64.3
#16	2.1	4.9	69.8	30.2	5.5	69.8
#30	2.0	3.0	49.3	21.5	8.7	78.5
#50	1.9	2.5	27.8	12.6	8.9	87.4
#100	1.8	2.3	5.3	3.3	9.3	96.7
LBW	1.4	1.9	0.8	1.2	2.1	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: **62** **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"	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: