

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 1/17/22

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 1/18/2022 through 1/24/2022

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%



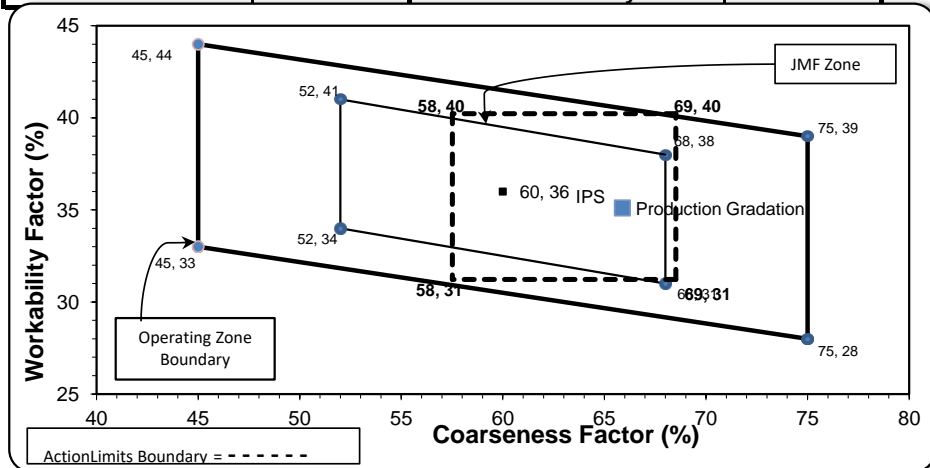
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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	99.4	40.8	16.4	59.2
#8	1.0	3.4	87.6	35.1	5.7	64.9
#16	0.8	2.1	69.9	27.9	7.2	72.1
#30	0.6	1.8	47.5	19.1	8.9	80.9
#50	0.5	1.7	18.9	7.8	11.2	92.2
#100	0.4	1.5	2.8	1.5	6.4	98.5
LBW	0.3	1.4	0.4	0.5	1.0	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
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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-32**

Sample Date: 1/17/22

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 1/18/2022 through 1/24/2022

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%



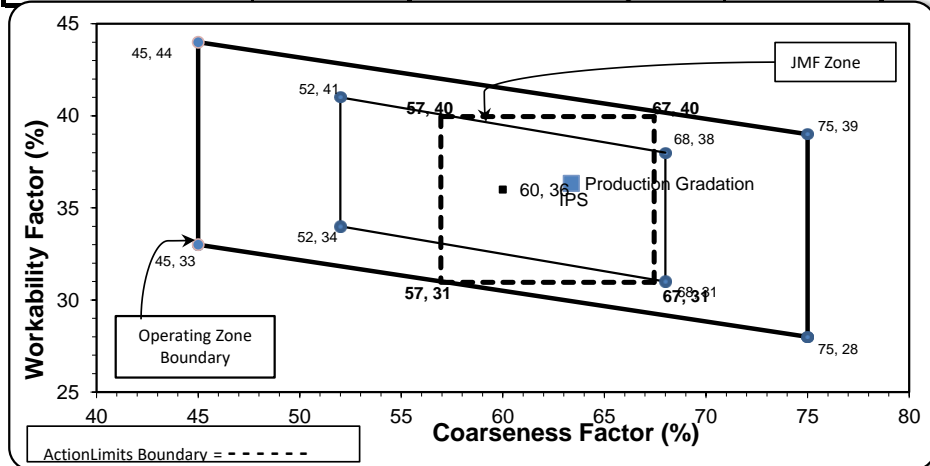
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.0	100.0	100.0	97.9	2.1	2.1
3/4"	75.0	100.0	100.0	86.9	11.0	13.1
1/2"	38.5	98.5	100.0	67.6	19.3	32.4
3/8"	24.5	89.7	100.0	59.7	8.0	40.3
#4	6.3	29.8	96.8	44.5	15.2	55.5
#8	3.0	9.4	84.5	36.3	8.2	63.7
#16	2.5	4.5	68.5	29.3	7.1	70.7
#30	2.3	3.3	49.1	21.2	8.0	78.8
#50	2.1	2.9	22.8	10.5	10.7	89.5
#100	1.9	2.6	6.6	3.8	6.7	96.2
LBW	1.5	2.0	1.7	1.6	2.2	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: **63** **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

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Aggregate Optimization Chart

PLANT #: **P-35**

Sample Date: 1/17/22

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 1/18/2022 through 1/24/2022

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	81-093	Burmeister	1200	7.26	2.65	38.7
Total Wt			3100	18.58		100.0

<---- Verify this number is 100%



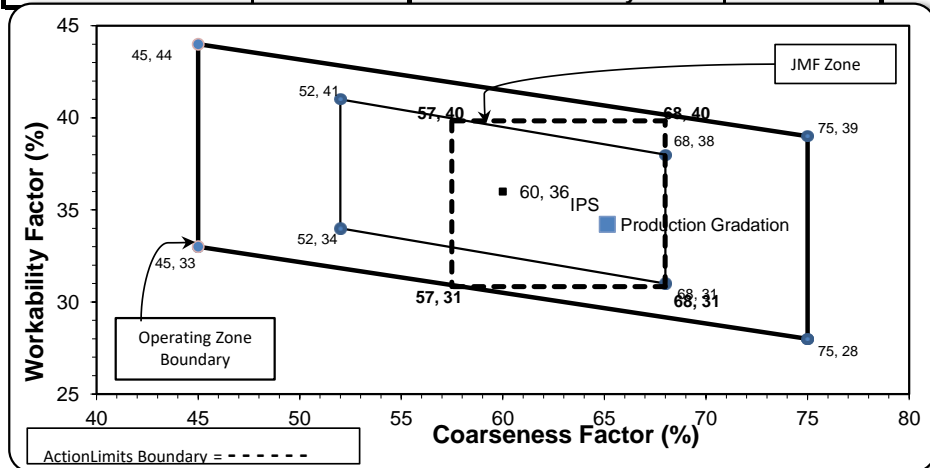
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 Suite 500
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	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	97.7	39.9	17.3	60.1
#8	1.0	3.4	86.0	34.2	5.7	65.8
#16	0.8	2.1	70.7	28.0	6.2	72.0
#30	0.6	1.8	52.4	20.8	7.2	79.2
#50	0.5	1.7	22.0	9.0	11.8	91.0
#100	0.4	1.5	4.5	2.1	6.8	97.9
LBW	0.3	1.4	1.7	1.0	1.1	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:	65	Workability Factor:	34
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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-02**

Sample Date: 1/17/22

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 1/18/2022 through 1/24/2022

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	63-115	Ray Rd	1250	7.56	2.65	41.0
Total Wt			3050	18.57		100.0

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



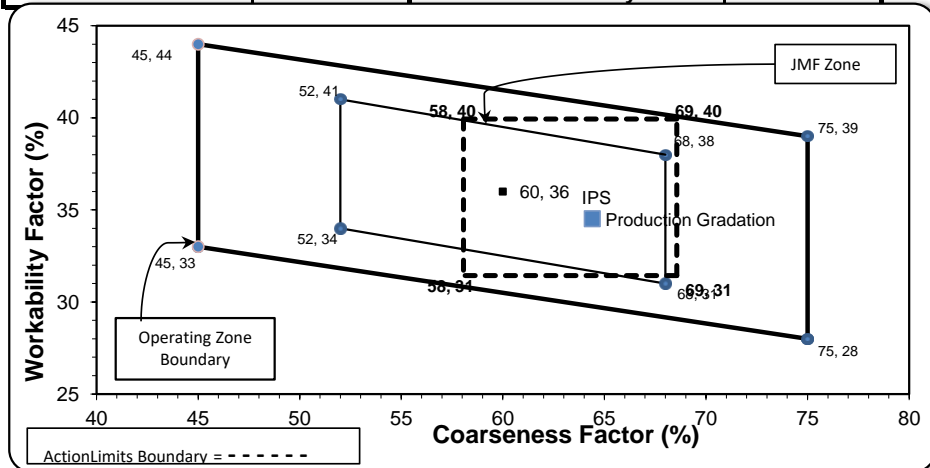
Superior Materials, LLC
 30701 W. 10 Mile Rd.
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 Farmington Hills, MI 48336

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	98.2	1.8	1.8
3/4"	76.6	100.0	100.0	87.7	10.4	12.3
1/2"	39.7	98.5	100.0	68.3	19.5	31.7
3/8"	20.9	89.7	100.0	57.8	10.4	42.2
#4	3.6	29.8	97.3	43.7	14.1	56.3
#8	2.2	9.4	79.9	34.5	9.2	65.5
#16	2.0	4.5	63.9	27.5	7.0	72.5
#30	1.9	3.3	46.8	20.4	7.1	79.6
#50	1.8	2.9	25.6	11.6	8.8	88.4
#100	1.7	2.6	5.1	3.2	8.5	96.8
LBW	1.3	2.0	0.9	1.2	2.0	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: **64** **Workability Factor:** **35**



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"	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: