

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 3/27/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 3/28/2023 through 4/3/2023

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%



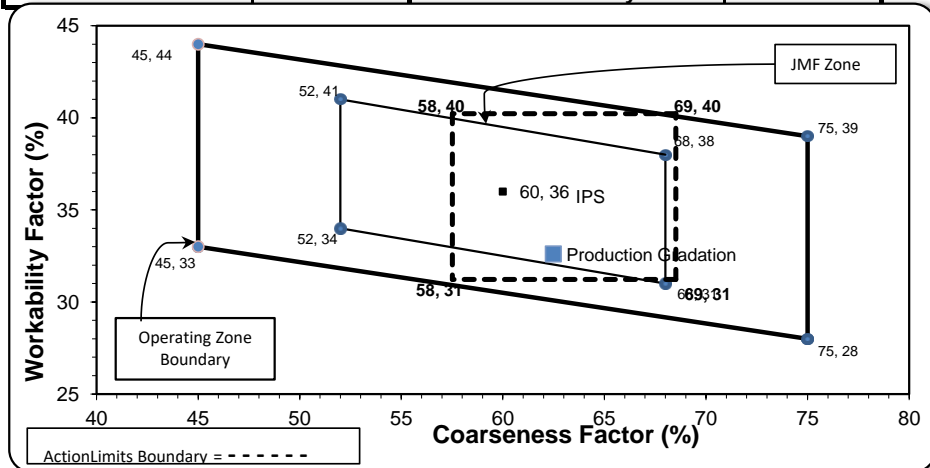
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	88.8	100.0	100.0	94.3	5.7	5.7
1/2"	42.9	100.0	100.0	71.1	23.2	28.9
3/8"	19.1	89.4	100.0	57.9	13.2	42.1
#4	1.5	11.9	96.8	39.5	18.4	60.5
#8	0.6	3.9	82.4	32.6	6.9	67.4
#16	0.6	2.7	66.4	26.3	6.3	73.7
#30	0.5	2.3	48.8	19.4	6.9	80.6
#50	0.5	2.1	23.5	9.6	9.8	90.4
#100	0.4	2.0	6.5	2.9	6.6	97.1
LBW	0.3	1.9	1.3	0.9	2.1	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:	62	Workability Factor:	33
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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 #: p11

Sample Date: 3/27/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 3/28/2023 through 4/3/2023

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	320	1.96	2.62	10.5
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



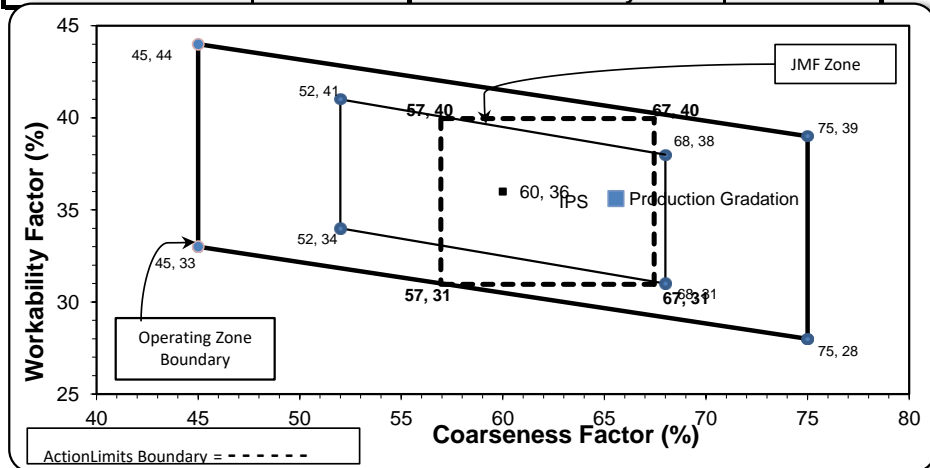
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.3	100.0	100.0	98.2	1.8	1.8
3/4"	76.1	100.0	100.0	88.2	9.9	11.8
1/2"	33.1	95.3	100.0	66.6	21.6	33.4
3/8"	17.5	84.4	100.0	57.8	8.8	42.2
#4	3.5	17.3	96.5	42.5	15.3	57.5
#8	1.8	4.7	84.9	35.6	6.8	64.4
#16	1.7	2.4	69.3	29.0	6.6	71.0
#30	1.6	1.9	50.6	21.4	7.6	78.6
#50	1.6	1.8	24.8	11.0	10.4	89.0
#100	1.5	1.7	7.2	3.8	7.2	96.2
LBW	1.2	1.5	1.3	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: 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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-32**

Sample Date: 3/27/23

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 3/28/2023 through 4/3/2023

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	320	1.96	2.62	10.5
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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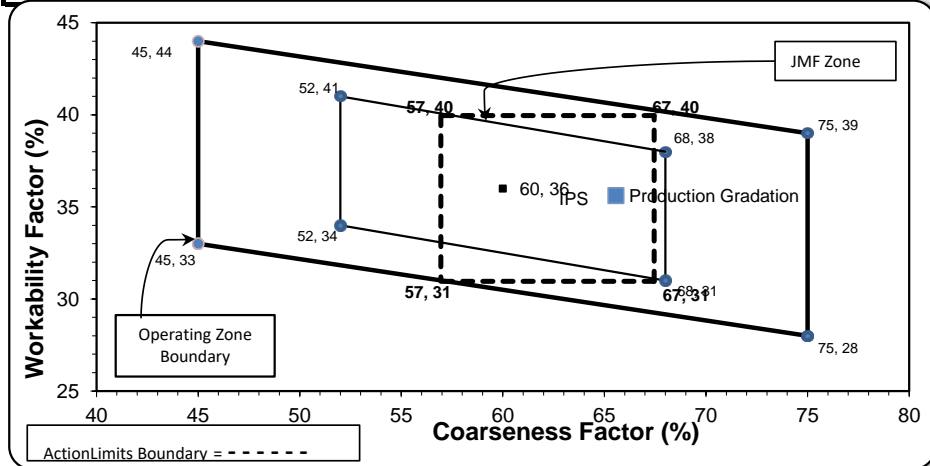
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.3	100.0	100.0	98.2	1.8	1.8
3/4"	76.1	100.0	100.0	88.2	9.9	11.8
1/2"	33.1	95.3	100.0	66.6	21.6	33.4
3/8"	17.5	84.4	100.0	57.8	8.8	42.2
#4	3.5	17.3	96.5	42.5	15.3	57.5
#8	1.8	4.7	84.9	35.6	6.8	64.4
#16	1.7	2.4	69.3	29.0	6.6	71.0
#30	1.6	1.9	50.6	21.4	7.6	78.6
#50	1.6	1.8	24.8	11.0	10.4	89.0
#100	1.5	1.7	7.2	3.8	7.2	96.2
LBW	1.2	1.5	1.3	1.3	2.5	98.7

*Maximum % Retained must be above the 3/8" sieve.
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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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