

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-102**

Sample Date: 11/5/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 11/6/2018 through 11/12/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	49.1
26A	58-003	Stoneco	350	2.09	2.69	11.1
2NS	38-046	Chelsea	1260	7.62	2.65	39.9
Total Wt			3160	18.94		100.0

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



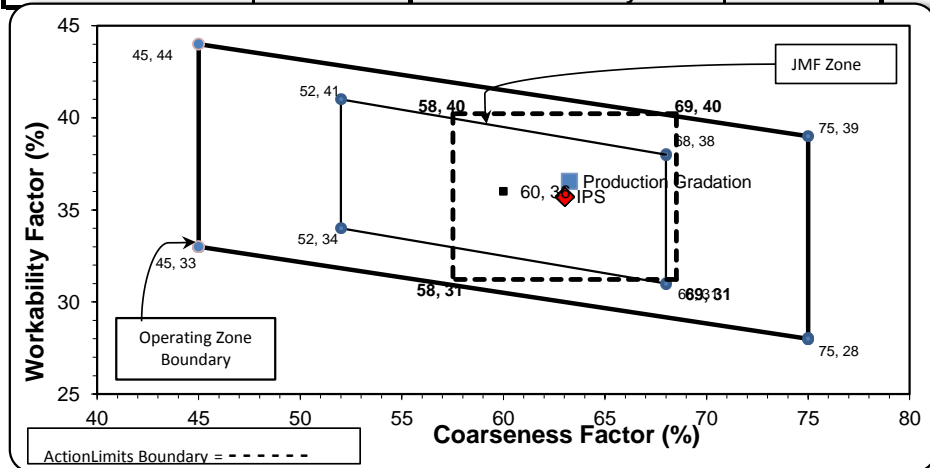
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.5	100.0	100.0	99.8	0.2	0.2
3/4"	83.5	100.0	100.0	91.9	7.8	8.1
1/2"	41.8	99.7	100.0	71.4	20.5	28.6
3/8"	20.5	89.7	100.0	59.9	11.6	40.1
#4	3.1	19.4	100.0	43.5	16.3	56.5
#8	1.5	6.5	88.0	36.5	7.0	63.5
#16	1.0	2.7	63.0	25.9	10.6	74.1
#30	0.8	1.8	42.0	17.3	8.6	82.7
#50	0.6	1.4	22.0	9.2	8.1	90.8
#100	0.6	1.3	5.0	2.4	6.8	97.6
LBW	0.7	1.0	0.9	0.8	1.6	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 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:	37
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Initial Production Sample (IPS)

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.9	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

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-32**

Sample Date: 11/5/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 11/6/2018 through 11/12/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1400	8.56	2.62	45.0
26A	71-47	Presque Isle	480	2.94	2.62	15.4
2NS	95-13	Smelter Bay	1230	7.44	2.65	39.5
Total Wt			3110	18.94		100.0

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



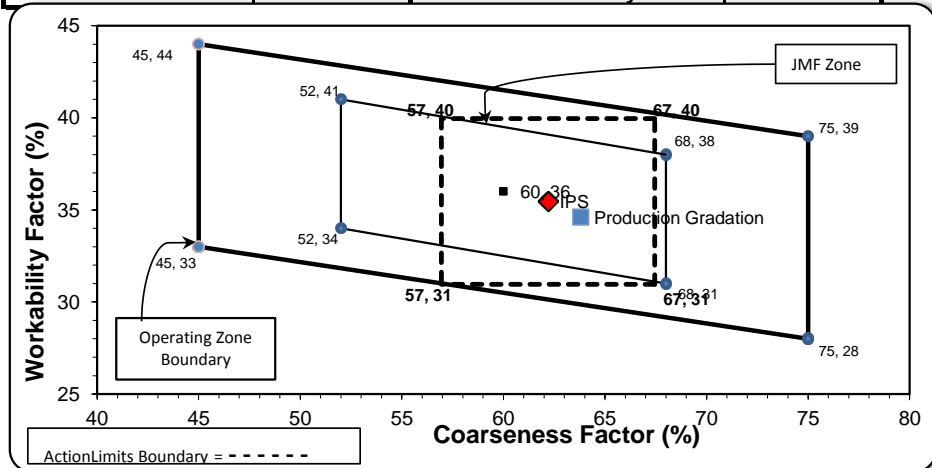
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.9	100.0	100.0	99.5	0.5	0.5
3/4"	86.2	100.0	100.0	93.8	5.7	6.2
1/2"	32.8	97.9	100.0	69.4	24.4	30.6
3/8"	13.3	82.5	100.0	58.3	11.2	41.7
#4	1.4	12.0	97.2	40.9	17.3	59.1
#8	1.0	2.7	85.3	34.6	6.3	65.4
#16	0.9	1.8	69.1	28.0	6.6	72.0
#30	0.8	1.7	48.7	19.9	8.1	80.1
#50	0.8	1.6	20.8	8.8	11.0	91.2
#100	0.7	1.5	3.5	1.9	6.9	98.1
LBW	0.5	1.2	0.4	0.6	1.4	99.4

*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:	64	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"	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

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-36**

Sample Date: 11/5/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 11/6/2018 through 11/12/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	51.4
26A	71-47	Presque Isle	260	1.59	2.62	8.4
2NS	63-92	AA Grange Hall	1250	7.56	2.65	40.2
Total Wt			3110	18.94		100.0

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



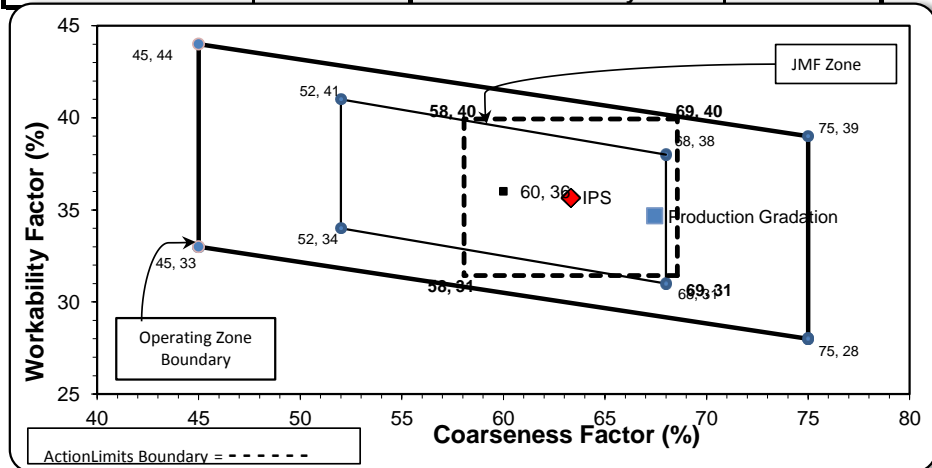
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	98.1	100.0	100.0	99.0	1.0	1.0
3/4"	79.3	100.0	100.0	89.4	9.7	10.6
1/2"	34.0	97.9	100.0	65.9	23.5	34.1
3/8"	17.2	82.5	100.0	55.9	9.9	44.1
#4	2.1	12.0	97.3	41.2	14.7	58.8
#8	1.1	2.7	84.3	34.7	6.5	65.3
#16	0.9	1.8	68.6	28.2	6.5	71.8
#30	0.9	1.7	50.2	20.8	7.4	79.2
#50	0.8	1.6	23.0	9.8	11.0	90.2
#100	0.7	1.5	3.6	1.9	7.9	98.1
LBW	0.6	1.2	0.3	0.5	1.4	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:	35
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Initial Production Sample (IPS)

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:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: P-02

Sample Date: 11/5/18

Concrete Grade: S2M

Contractor: _____

Dates Test Represents: 11/6/2018 through 11/12/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	51.4
26A	71-47	Presque Isle	260	1.59	2.62	8.4
2NS	63-92	AA Grange Hall	1250	7.56	2.65	40.2
Total Wt			3110	18.94		100.0

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



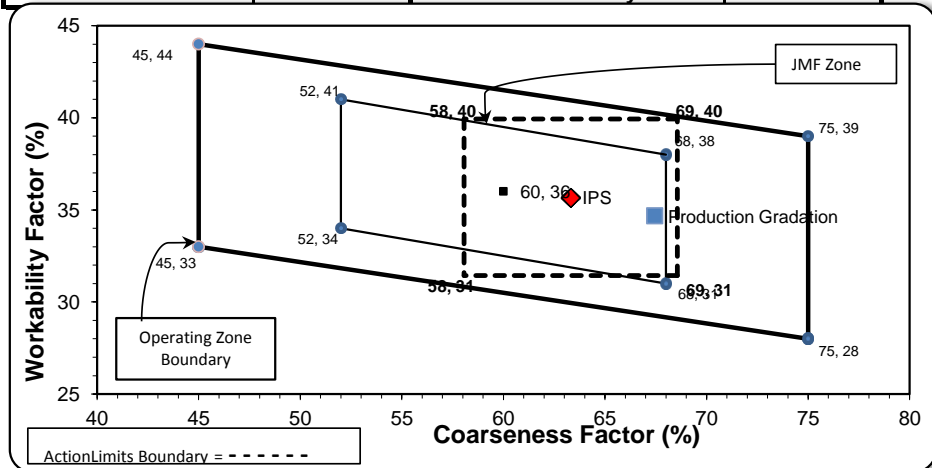
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	98.1	100.0	100.0	99.0	1.0	1.0
3/4"	79.3	100.0	100.0	89.4	9.7	10.6
1/2"	34.0	97.9	100.0	65.9	23.5	34.1
3/8"	17.2	82.5	100.0	55.9	9.9	44.1
#4	2.1	12.0	97.3	41.2	14.7	58.8
#8	1.1	2.7	84.3	34.7	6.5	65.3
#16	0.9	1.8	68.6	28.2	6.5	71.8
#30	0.9	1.7	50.2	20.8	7.4	79.2
#50	0.8	1.6	23.0	9.8	11.0	90.2
#100	0.7	1.5	3.6	1.9	7.9	98.1
LBW	0.6	1.2	0.3	0.5	1.4	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:	35
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Initial Production Sample (IPS)

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: