

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-102**

Sample Date: 9/17/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/18/2018 through 9/24/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	47.5
26A	58-003	Stoneco	400	2.38	2.69	12.7
2NS	38-046	Chelsea	1260	7.62	2.65	39.9
Total Wt			3160	18.94		100.0

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



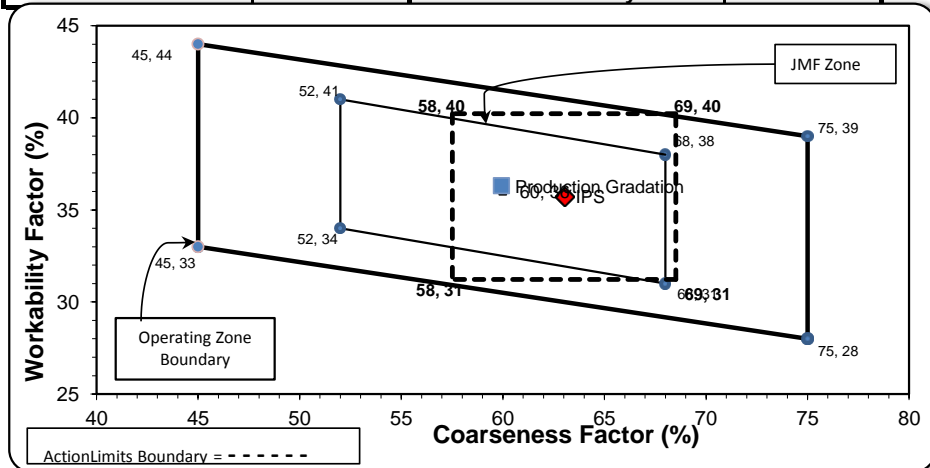
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.7	100.0	100.0	99.9	0.1	0.1
3/4"	84.9	100.0	100.0	92.8	7.0	7.2
1/2"	46.5	99.7	100.0	74.6	18.3	25.4
3/8"	22.8	87.9	100.0	61.8	12.7	38.2
#4	3.8	16.2	100.0	43.7	18.1	56.3
#8	1.4	4.4	88.0	36.3	7.4	63.7
#16	1.0	2.0	65.0	26.6	9.7	73.4
#30	0.9	1.4	46.0	18.9	7.7	81.1
#50	0.9	1.2	25.0	10.5	8.4	89.5
#100	0.8	1.1	6.0	2.9	7.6	97.1
LBW	0.6	0.9	1.0	0.8	2.1	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:	60	Workability Factor:	36
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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

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-32**

Sample Date: 9/17/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/18/2018 through 9/24/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1630	9.97	2.62	52.4
26A	71-47	Presque Isle	200	1.22	2.62	6.4
2NS	95-13	Smelter Bay	1280	7.74	2.65	41.2
Total Wt			3110	18.93		100.0

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



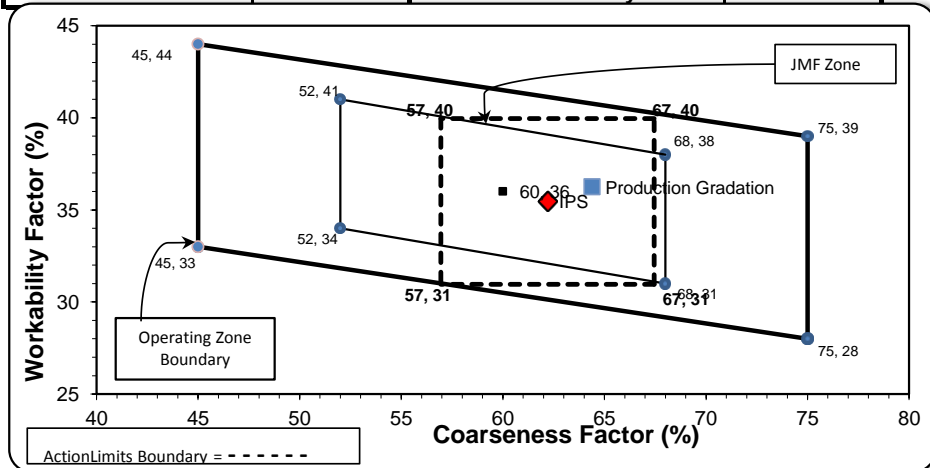
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	85.4	100.0	100.0	92.3	7.3	7.7
1/2"	49.3	96.5	100.0	73.2	19.1	26.8
3/8"	23.7	83.6	100.0	59.0	14.2	41.0
#4	3.3	22.8	96.4	42.9	16.1	57.1
#8	2.0	5.4	84.7	36.3	6.6	63.7
#16	1.8	3.1	68.0	29.1	7.1	70.9
#30	1.7	2.7	47.1	20.4	8.7	79.6
#50	1.7	2.5	19.2	9.0	11.5	91.0
#100	1.6	2.3	3.9	2.6	6.4	97.4
LBW	1.3	1.8	1.1	1.2	1.3	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:	36
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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: 9/17/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/18/2018 through 9/24/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1630	9.97	2.62	52.4
26A	71-47	Presque Isle	200	1.22	2.62	6.4
2NS	63-92	AA Grange Hall	1280	7.74	2.65	41.2
Total Wt			3110	18.93		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"	82.9	100.0	100.0	91.0	9.0	9.0
1/2"	41.2	96.5	100.0	69.0	22.1	31.0
3/8"	21.4	83.6	100.0	57.7	11.2	42.3
#4	3.8	22.8	97.0	43.4	14.4	56.6
#8	2.2	5.4	82.9	35.6	7.8	64.4
#16	2.0	3.1	67.2	28.9	6.7	71.1
#30	1.9	2.7	51.3	22.3	6.6	77.7
#50	1.8	2.5	26.7	12.1	10.2	87.9
#100	1.7	2.3	5.0	3.1	9.0	96.9
LBW	1.2	1.8	0.4	0.9	2.2	99.1

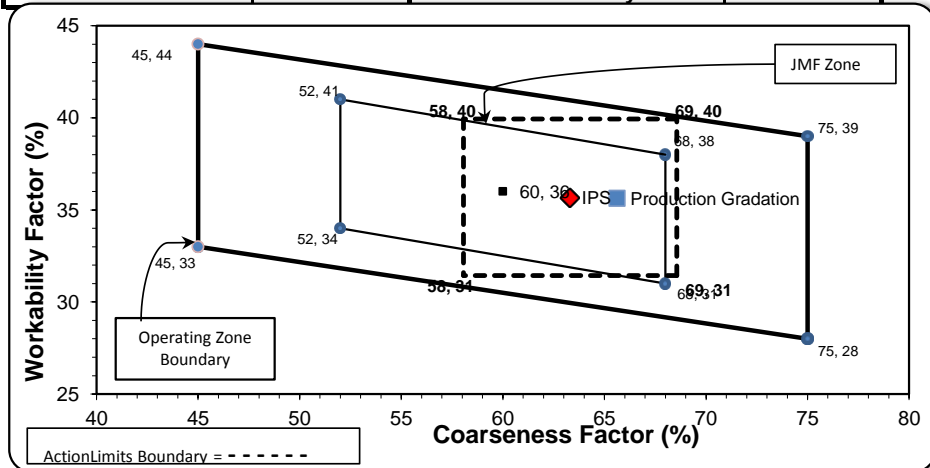
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.



Superior Materials, LLC
 30701 W. 10 Mile Rd.
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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **66** **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:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-02**

Sample Date: 9/17/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/18/2018 through 9/24/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1630	9.97	2.62	52.4
26A	71-47	Presque Isle	200	1.22	2.62	6.4
2NS	63-92	AA Grange Hall	1280	7.74	2.65	41.2
Total Wt			3110	18.93		100.0

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



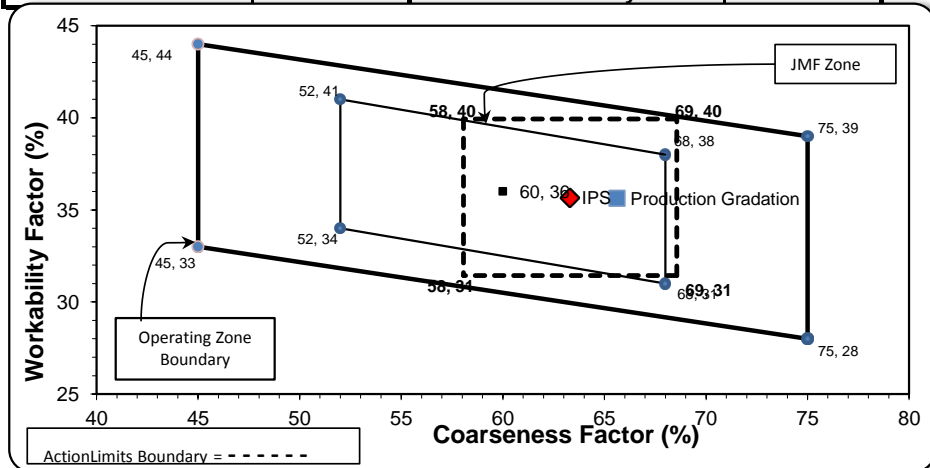
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	82.9	100.0	100.0	91.0	9.0	9.0
1/2"	41.2	96.5	100.0	69.0	22.1	31.0
3/8"	21.4	83.6	100.0	57.7	11.2	42.3
#4	3.8	22.8	97.0	43.4	14.4	56.6
#8	2.2	5.4	82.9	35.6	7.8	64.4
#16	2.0	3.1	67.2	28.9	6.7	71.1
#30	1.9	2.7	51.3	22.3	6.6	77.7
#50	1.8	2.5	26.7	12.1	10.2	87.9
#100	1.7	2.3	5.0	3.1	9.0	96.9
LBW	1.2	1.8	0.4	0.9	2.2	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:	66	Workability Factor:	36
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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"	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

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