

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-102**

Sample Date: 8/13/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 8/14/2018 through 8/20/2018

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%



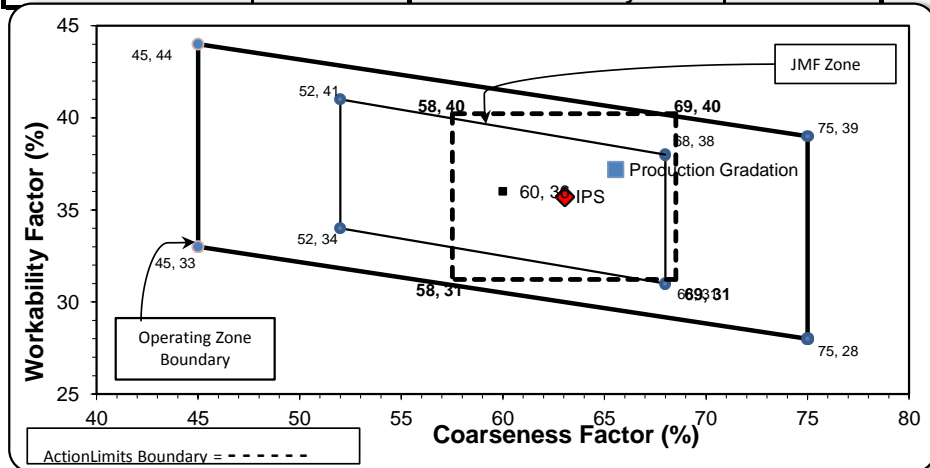
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	82.5	100.0	100.0	91.7	8.0	8.3
1/2"	39.4	100.0	100.0	71.2	20.5	28.8
3/8"	16.9	86.3	100.0	58.8	12.4	41.2
#4	2.4	11.2	100.0	42.4	16.4	57.6
#8	1.1	3.0	91.0	37.2	5.2	62.8
#16	1.1	1.8	65.0	26.7	10.5	73.3
#30	1.0	1.4	44.0	18.2	8.5	81.8
#50	1.0	1.4	23.0	9.8	8.4	90.2
#100	0.9	1.2	5.0	2.6	7.3	97.4
LBW	0.6	1.2	0.9	0.8	1.8	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:	66	Workability Factor:	37
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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: 8/13/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 8/14/2018 through 8/20/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1580	9.66	2.62	50.8
26A	71-47	Presque Isle	250	1.53	2.62	8.0
2NS	95-13	Smelter Bay	1280	7.74	2.65	41.2
Total Wt			3110	18.93		100.0

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



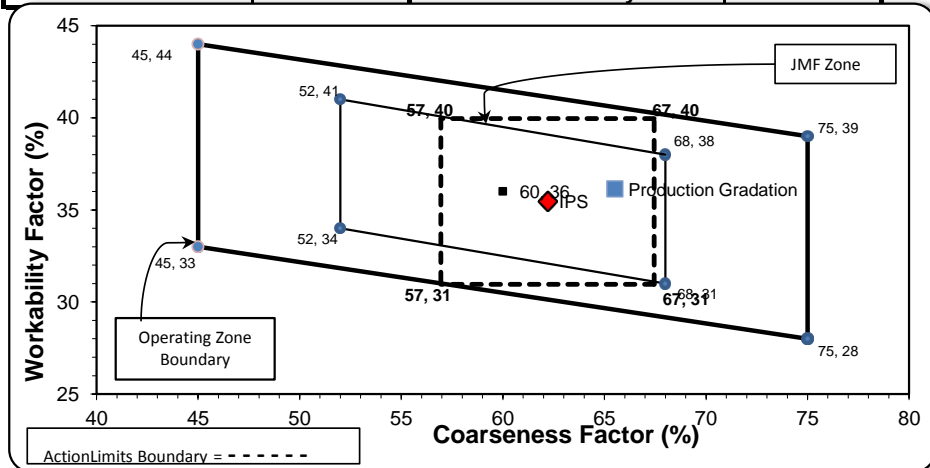
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.6	100.0	100.0	98.3	1.7	1.7
3/4"	72.1	100.0	100.0	85.8	12.4	14.2
1/2"	34.2	95.1	100.0	66.2	19.6	33.8
3/8"	20.0	85.0	100.0	58.2	8.0	41.8
#4	2.3	22.1	96.7	42.7	15.4	57.3
#8	1.3	7.1	84.8	36.1	6.6	63.9
#16	1.1	4.0	67.2	28.5	7.6	71.5
#30	1.0	3.2	44.2	19.0	9.6	81.0
#50	1.0	2.9	18.5	8.4	10.6	91.6
#100	0.9	2.6	4.0	2.3	6.0	97.7
LBW	0.8	1.9	0.5	0.8	1.5	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:	66	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: 8/13/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 8/14/2018 through 8/20/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1750	10.70	2.62	56.3
26A	71-47	Presque Isle	110	0.67	2.62	3.5
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%

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"	85.7	100.0	100.0	92.0	8.0	8.0
1/2"	52.0	95.1	100.0	72.8	19.1	27.2
3/8"	31.0	85.0	100.0	60.6	12.2	39.4
#4	3.3	22.1	97.5	41.8	18.8	58.2
#8	1.6	7.1	84.5	35.1	6.7	64.9
#16	1.3	4.0	68.6	28.4	6.7	71.6
#30	1.3	3.2	48.7	20.4	8.0	79.6
#50	1.2	2.9	21.6	9.5	11.0	90.5
#100	1.2	2.6	2.9	1.9	7.5	98.1
LBW	1.0	1.9	0.3	0.8	1.2	99.2

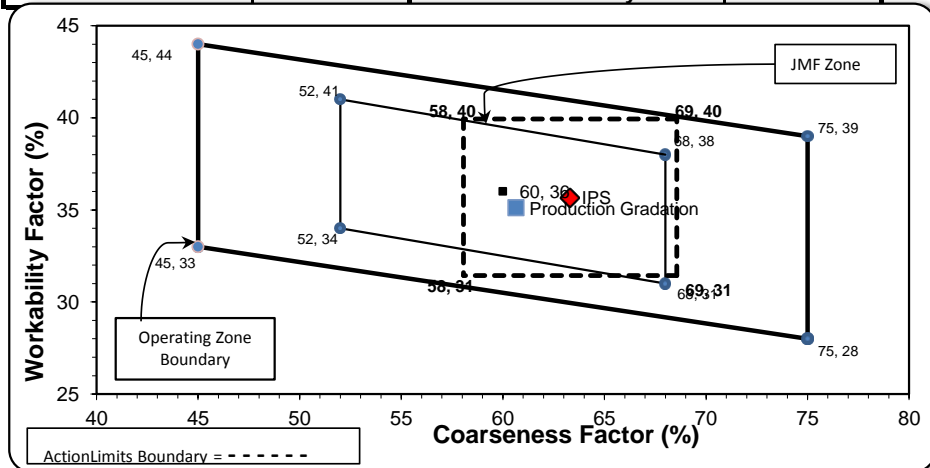
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



Superior Materials, LLC
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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **61** **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"	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: 8/13/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 8/14/2018 through 8/20/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1750	10.70	2.62	56.3
26A	71-47	Presque Isle	110	0.67	2.62	3.5
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%



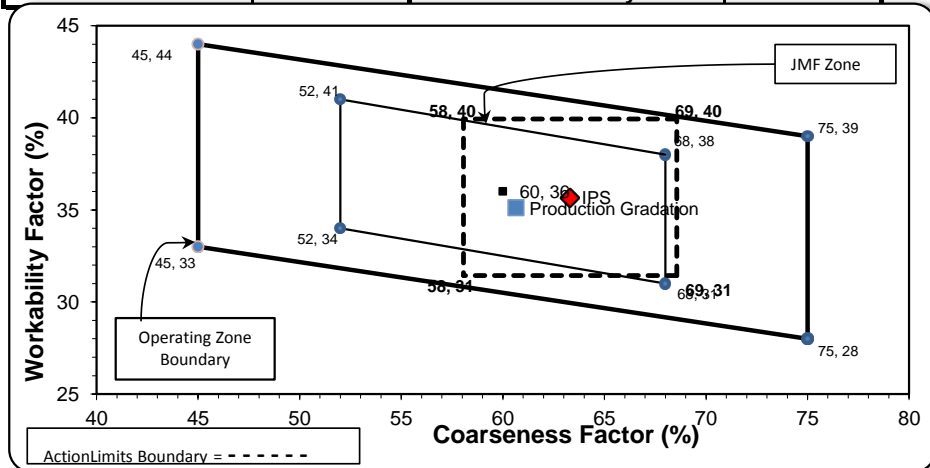
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	85.7	100.0	100.0	92.0	8.0	8.0
1/2"	52.0	95.1	100.0	72.8	19.1	27.2
3/8"	31.0	85.0	100.0	60.6	12.2	39.4
#4	3.3	22.1	97.5	41.8	18.8	58.2
#8	1.6	7.1	84.5	35.1	6.7	64.9
#16	1.3	4.0	68.6	28.4	6.7	71.6
#30	1.3	3.2	48.7	20.4	8.0	79.6
#50	1.2	2.9	21.6	9.5	11.0	90.5
#100	1.2	2.6	2.9	1.9	7.5	98.1
LBW	1.0	1.9	0.3	0.8	1.2	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:	61	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"	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

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