

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-102**

Sample Date: 10/29/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 10/30/2018 through 11/5/2018

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%



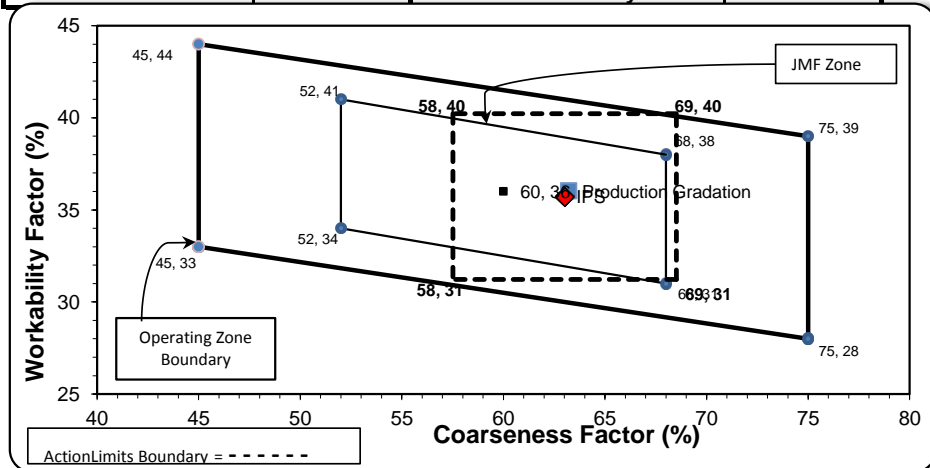
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	84.4	100.0	100.0	92.3	7.7	7.7
1/2"	41.8	99.7	100.0	71.4	20.9	28.6
3/8"	20.5	87.0	100.0	59.6	11.9	40.4
#4	3.2	14.2	100.0	43.0	16.5	57.0
#8	1.3	2.8	88.0	36.0	7.0	64.0
#16	1.1	1.2	64.0	26.2	9.8	73.8
#30	1.0	1.0	42.0	17.3	8.8	82.7
#50	0.9	0.9	22.0	9.3	8.0	90.7
#100	0.8	0.8	5.0	2.5	6.8	97.5
LBW	0.6	0.6	0.8	0.7	1.8	99.3

*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
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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"	99.2	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: 10/29/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 10/30/2018 through 11/5/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1680	10.28	2.62	54.0
26A	71-47	Presque Isle	200	1.22	2.62	6.4
2NS	95-13	Smelter Bay	1230	7.44	2.65	39.5
Total Wt			3110	18.94		100.0

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

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"	87.1	100.0	100.0	93.0	7.0	7.0
1/2"	46.0	95.8	100.0	70.6	22.5	29.4
3/8"	27.6	80.3	100.0	59.6	10.9	40.4
#4	4.6	17.5	97.4	42.1	17.5	57.9
#8	2.2	6.4	85.2	35.3	6.8	64.7
#16	1.8	4.1	69.0	28.5	6.8	71.5
#30	1.7	3.2	48.5	20.3	8.2	79.7
#50	1.7	2.8	20.7	9.3	11.0	90.7
#100	1.6	2.5	3.5	2.4	6.9	97.6
LBW	1.3	1.8	0.4	1.0	1.4	99.0

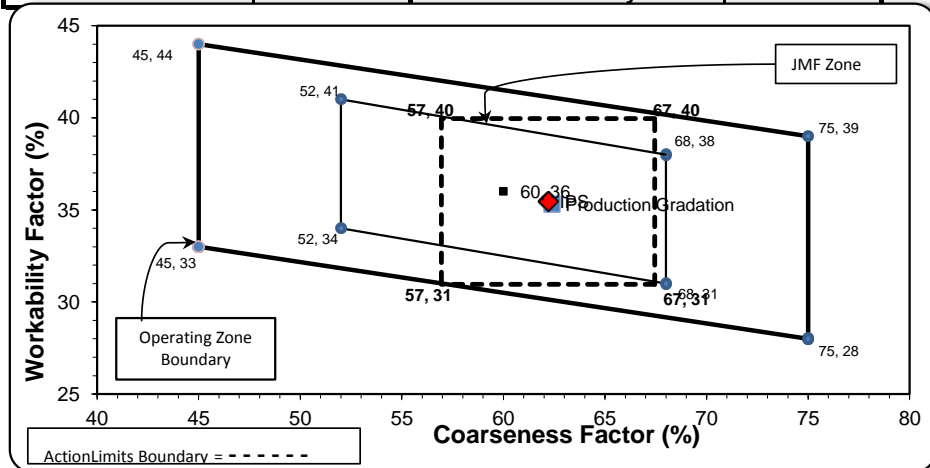
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 62 **Workability Factor: 35**



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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Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-36**

Sample Date: 10/29/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 10/30/2018 through 11/5/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	48.2
26A	71-47	Presque Isle	360	2.20	2.62	11.6
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"	97.4	100.0	100.0	98.7	1.3	1.3
3/4"	79.7	100.0	100.0	90.2	8.5	9.8
1/2"	39.2	95.8	100.0	70.2	20.0	29.8
3/8"	20.1	80.3	100.0	59.2	11.0	40.8
#4	4.4	17.5	97.2	43.2	16.0	56.8
#8	2.6	6.4	84.5	36.0	7.3	64.0
#16	2.3	4.1	69.4	29.5	6.5	70.5
#30	2.2	3.2	51.2	22.0	7.5	78.0
#50	2.0	2.8	23.6	10.8	11.2	89.2
#100	1.9	2.5	3.9	2.8	8.0	97.2
LBW	1.4	1.8	0.4	1.0	1.7	99.0

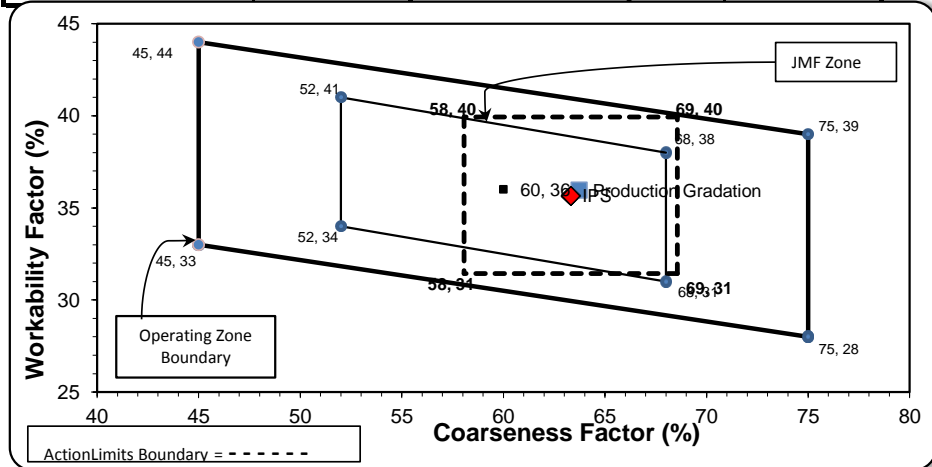


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 *% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	64	Workability Factor:	36
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Initial Production Sample (IPS)

Coarseness Factor:	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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Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-02**

Sample Date: 10/29/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 10/30/2018 through 11/5/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	48.2
26A	71-47	Presque Isle	360	2.20	2.62	11.6
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"	97.4	100.0	100.0	98.7	1.3	1.3
3/4"	79.7	100.0	100.0	90.2	8.5	9.8
1/2"	39.2	95.8	100.0	70.2	20.0	29.8
3/8"	20.1	80.3	100.0	59.2	11.0	40.8
#4	4.4	17.5	97.2	43.2	16.0	56.8
#8	2.6	6.4	84.5	36.0	7.3	64.0
#16	2.3	4.1	69.4	29.5	6.5	70.5
#30	2.2	3.2	51.2	22.0	7.5	78.0
#50	2.0	2.8	23.6	10.8	11.2	89.2
#100	1.9	2.5	3.9	2.8	8.0	97.2
LBW	1.4	1.8	0.4	1.0	1.7	99.0

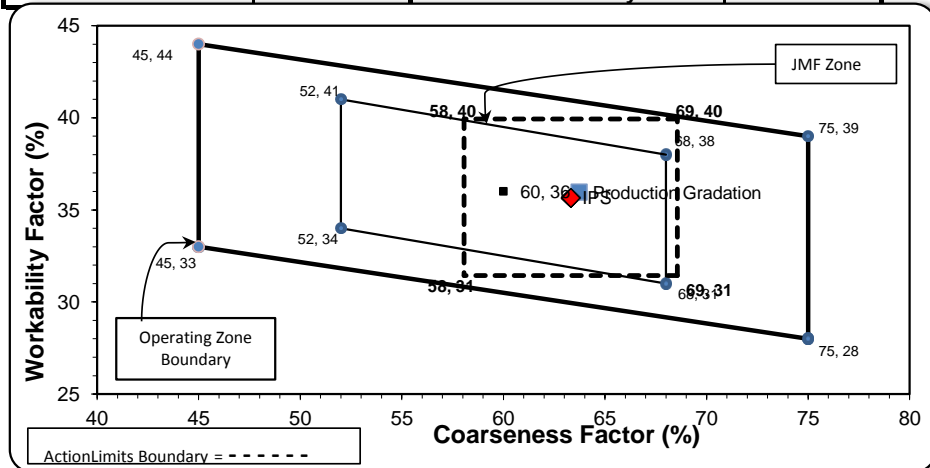


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 64 **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

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