

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-102**

Sample Date: 10/1/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 10/2/2018 through 10/8/2018

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%



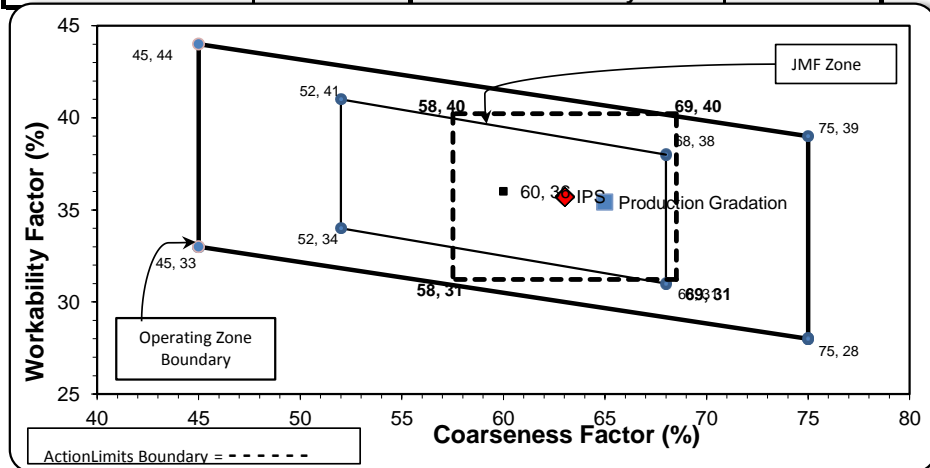
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	99.6	100.0	100.0	99.8	0.2	0.2
3/4"	83.6	100.0	100.0	92.2	7.6	7.8
1/2"	37.4	99.6	100.0	70.2	22.0	29.8
3/8"	14.5	89.0	100.0	58.0	12.2	42.0
#4	1.9	8.8	100.0	41.9	16.1	58.1
#8	1.1	1.6	87.0	35.4	6.5	64.6
#16	0.6	0.8	64.0	25.9	9.5	74.1
#30	0.4	0.7	45.0	18.2	7.7	81.8
#50	0.4	0.7	25.0	10.2	8.0	89.8
#100	0.4	0.7	6.0	2.7	7.6	97.3
LBW	0.5	0.4	0.9	0.6	2.0	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:	65	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"	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: 10/1/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 10/2/2018 through 10/8/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1830	11.19	2.62	58.8
26A	71-47	Presque Isle	0	0.00	2.62	0.0
2NS	95-13	Smelter Bay	1280	7.74	2.65	41.2
Total Wt			3110	18.93		100.0

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

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"	87.7	100.0	100.0	92.8	7.2	7.2
1/2"	57.3	97.3	100.0	74.9	17.9	25.1
3/8"	29.5	85.7	100.0	58.5	16.4	41.5
#4	3.5	19.5	96.9	41.9	16.6	58.1
#8	1.7	5.9	85.5	36.2	5.8	63.8
#16	1.5	3.3	67.8	28.8	7.4	71.2
#30	1.4	2.8	45.7	19.6	9.2	80.4
#50	1.4	2.5	18.4	8.4	11.2	91.6
#100	1.3	2.3	3.5	2.2	6.2	97.8
LBW	1.1	1.8	0.6	0.9	1.3	99.1

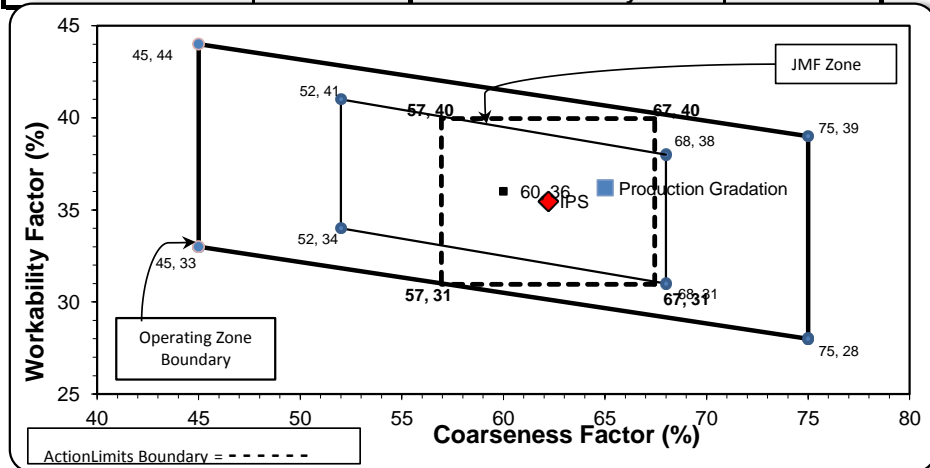


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*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must 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: **65** 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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 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-36**

Sample Date: 10/1/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 10/2/2018 through 10/8/2018

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"	89.1	100.0	100.0	94.3	5.7	5.7
1/2"	48.3	97.3	100.0	72.7	21.6	27.3
3/8"	24.1	85.7	100.0	59.3	13.4	40.7
#4	4.3	19.5	97.6	43.7	15.6	56.3
#8	2.3	5.9	84.8	36.5	7.2	63.5
#16	2.0	3.3	69.6	29.9	6.6	70.1
#30	1.9	2.8	52.4	22.7	7.2	77.3
#50	1.9	2.5	24.8	11.4	11.4	88.6
#100	1.8	2.3	3.8	2.7	8.7	97.3
LBW	1.6	1.8	0.3	1.1	1.6	98.9

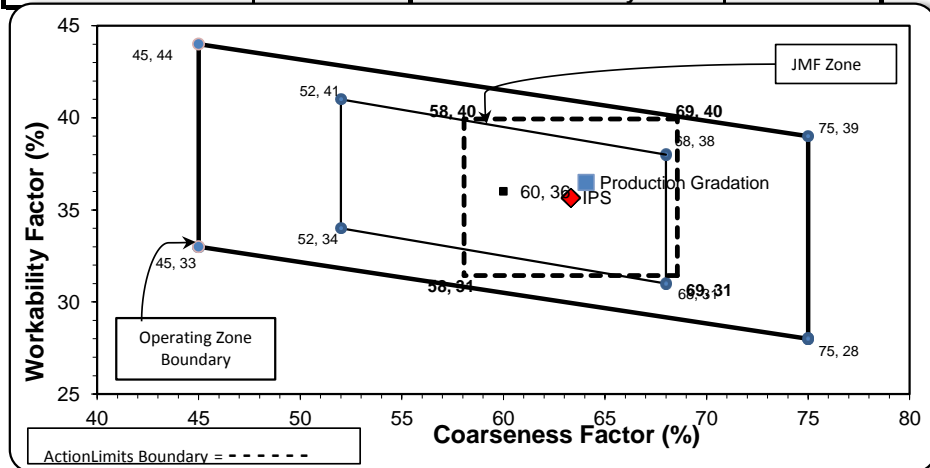


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	64	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"	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:
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Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-02**

Sample Date: 10/1/18

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 10/2/2018 through 10/8/2018

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"	89.1	100.0	100.0	94.3	5.7	5.7
1/2"	48.3	97.3	100.0	72.7	21.6	27.3
3/8"	24.1	85.7	100.0	59.3	13.4	40.7
#4	4.3	19.5	97.6	43.7	15.6	56.3
#8	2.3	5.9	84.8	36.5	7.2	63.5
#16	2.0	3.3	69.6	29.9	6.6	70.1
#30	1.9	2.8	52.4	22.7	7.2	77.3
#50	1.9	2.5	24.8	11.4	11.4	88.6
#100	1.8	2.3	3.8	2.7	8.7	97.3
LBW	1.6	1.8	0.3	1.1	1.6	98.9

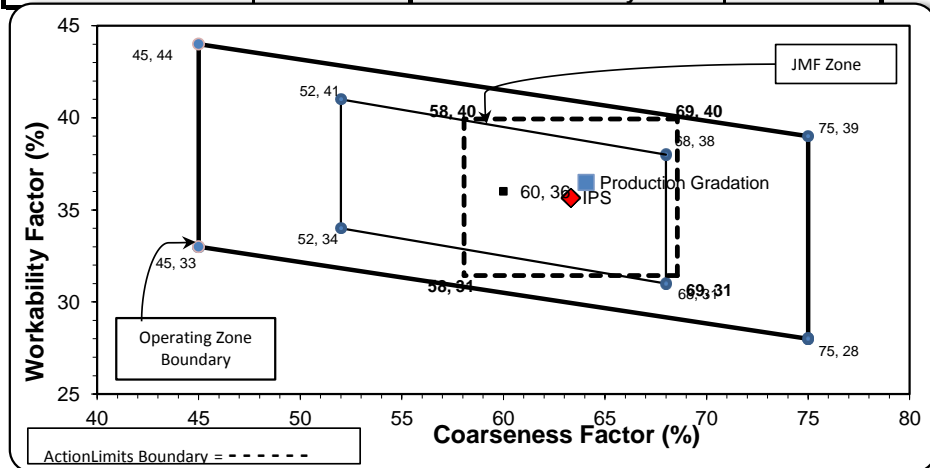


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	64	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"	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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