

Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

PLANT #: **P-103**

Sample Date: 9/18/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/18/2017 to 9/24/2017

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	355	2.11	2.69	11.3
2NS	81-93	Burmeister	1300	7.89	2.64	41.2
Total Wt			3155	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"	99.2	100.0	100.0	99.6	0.4	0.4
3/4"	84.0	100.0	100.0	92.4	7.2	7.6
1/2"	41.6	99.6	100.0	72.2	20.2	27.8
3/8"	16.1	83.2	100.0	58.2	14.0	41.8
#4	2.0	13.8	96.4	42.2	16.0	57.8
#8	1.2	2.4	83.7	35.3	6.9	64.7
#16	1.0	0.9	68.7	28.9	6.4	71.1
#30	0.8	0.6	48.7	20.5	8.4	79.5
#50	0.8	0.5	17.8	7.8	12.7	92.2
#100	0.7	0.4	2.9	1.6	6.2	98.4
LBW	0.7	0.2	0.8	0.7	0.9	99.3

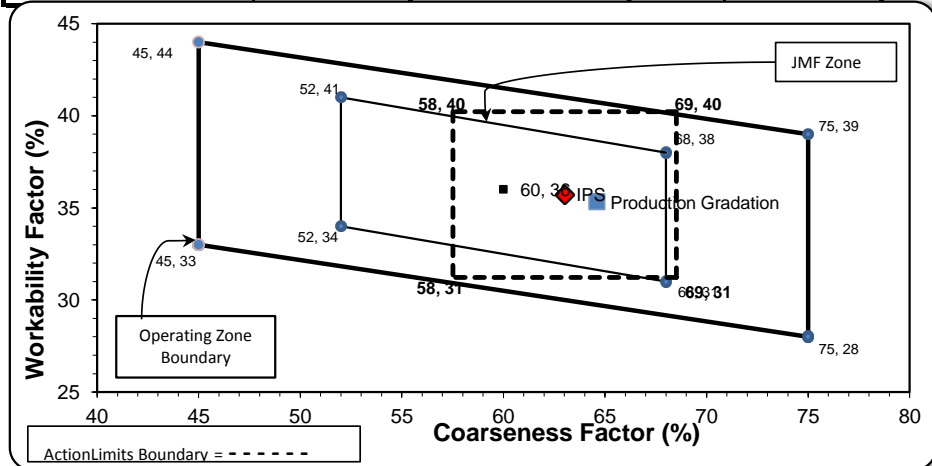


Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

*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: 9/18/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/18/2017 to 9/24/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	49.8
26A	71-47	Presque Isle	250	1.53	2.62	8.0
2NS	95-13	Smelter Bay	1310	7.92	2.65	42.1
Total Wt			3110	18.93		100.0

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



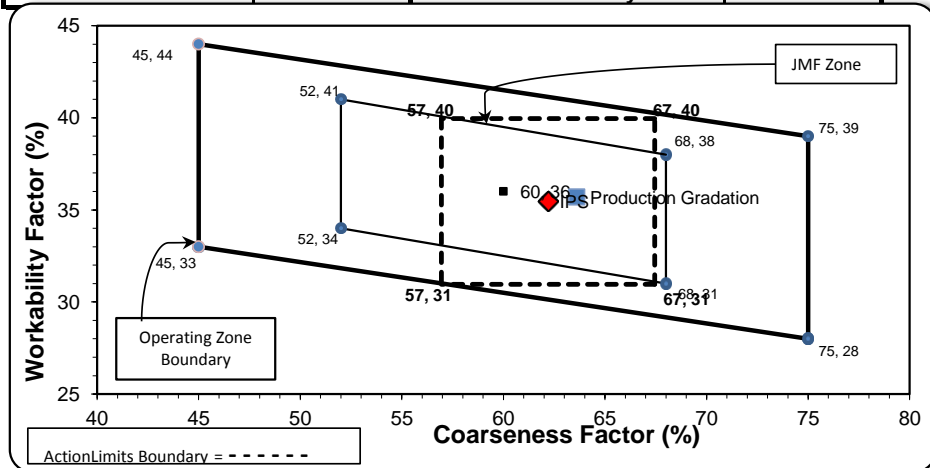
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	88.1	100.0	100.0	94.1	5.9	5.9
1/2"	40.0	97.9	100.0	69.9	24.1	30.1
3/8"	20.4	84.6	100.0	59.1	10.8	40.9
#4	2.9	15.2	96.3	43.2	15.9	56.8
#8	2.1	3.9	81.5	35.7	7.5	64.3
#16	1.9	2.4	65.5	28.7	7.0	71.3
#30	1.8	2.1	45.3	20.1	8.6	79.9
#50	1.7	2.0	19.2	9.1	11.1	90.9
#100	1.6	1.9	6.0	3.5	5.6	96.5
LBW	1.5	1.7	2.2	1.8	1.7	98.2

*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:	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: WSN175E9

Production Gradation Report

PLANT #: **P-36**

Sample Date: 9/18/17

Dates Test Represents: 9/18/2017 to 9/24/2017

Concrete Grade: **S2M (SPECIAL, 5000 PSI)**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1430	8.52	2.69	47.8
26A	71-47	Presque Isle	350	2.14	2.62	11.7
2NS	63-92	AA Grange Hall	1210	7.32	2.65	40.5
Total Wt			2990	17.98		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"	99.2	100.0	100.0	99.6	0.4	0.4
3/4"	84.0	100.0	100.0	92.3	7.3	7.7
1/2"	41.6	97.9	100.0	71.8	20.5	28.2
3/8"	16.1	84.6	100.0	58.1	13.8	41.9
#4	2.0	15.2	98.2	42.5	15.6	57.5
#8	1.2	3.9	86.7	36.1	6.4	63.9
#16	1.0	2.4	70.9	29.5	6.7	70.5
#30	0.8	2.1	50.1	20.9	8.5	79.1
#50	0.8	2.0	20.5	8.9	12.0	91.1
#100	0.7	1.9	2.9	1.7	7.2	98.3
LBW	0.7	1.7	0.3	0.7	1.1	99.3

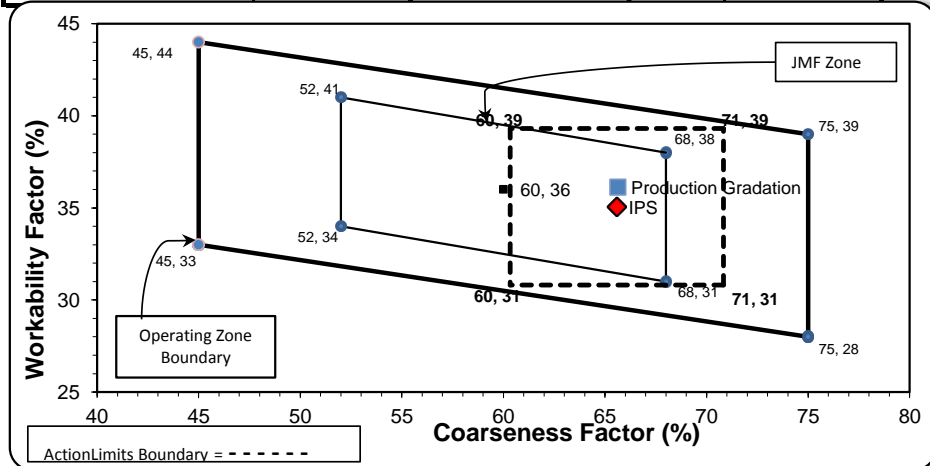


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **66** Workability Factor: **36**



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"	91.7	8.3	8.3
1/2"	66.8	24.8	33.2
3/8"	57.4	9.4	42.6
#4	43.0	14.4	57.0
#8	35.1	7.9	64.9
#16	28.0	7.1	72.0
#30	19.5	8.5	80.5
#50	8.1	11.4	91.9
#100	2.0	6.1	98.0
LBW	0.7	1.3	99.3

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Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

PLANT #: **P-38**

Sample Date: 9/18/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/18/2017 to 9/24/2017

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	355	2.11	2.69	11.3
2NS	81-93	Burmeister	1300	7.89	2.64	41.2
Total Wt			3155	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"	99.2	100.0	100.0	99.6	0.4	0.4
3/4"	84.0	100.0	100.0	92.4	7.2	7.6
1/2"	41.6	99.6	100.0	72.2	20.2	27.8
3/8"	16.1	83.2	100.0	58.2	14.0	41.8
#4	2.0	13.8	96.4	42.2	16.0	57.8
#8	1.2	2.4	83.7	35.3	6.9	64.7
#16	1.0	0.9	68.7	28.9	6.4	71.1
#30	0.8	0.6	48.7	20.5	8.4	79.5
#50	0.8	0.5	17.8	7.8	12.7	92.2
#100	0.7	0.4	2.9	1.6	6.2	98.4
LBW	0.7	0.2	0.8	0.7	0.9	99.3

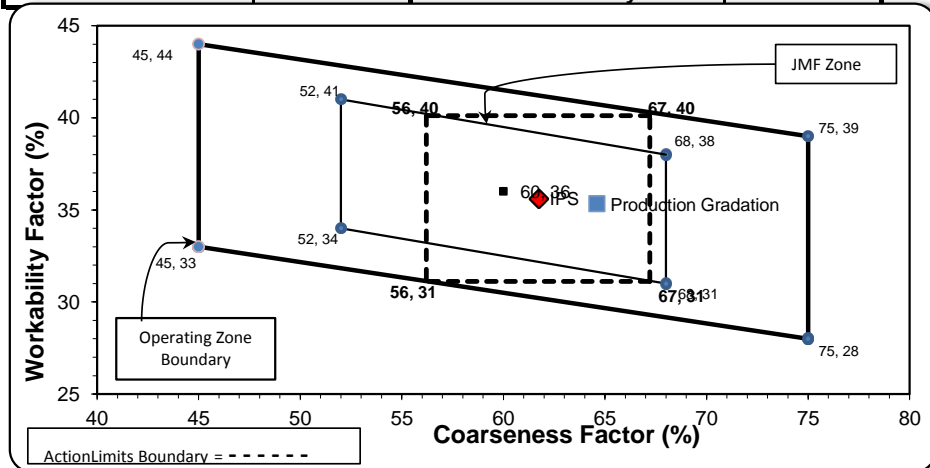


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	65	Workability Factor:	35
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Initial Production Sample (IPS)

Coarseness Factor:	62		
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"	91.1	8.1	8.9
1/2"	72.0	19.1	28.0
3/8"	60.3	11.7	39.7
#4	43.4	16.9	56.6
#8	35.6	7.8	64.4
#16	28.4	7.2	71.6
#30	21.8	6.7	78.2
#50	9.1	12.6	90.9
#100	1.7	7.4	98.3
LBW	1.1	0.6	98.9

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