

Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

PLANT #: **P-103**

Sample Date: 9/25/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/25/2017 to 10/1/2017

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%



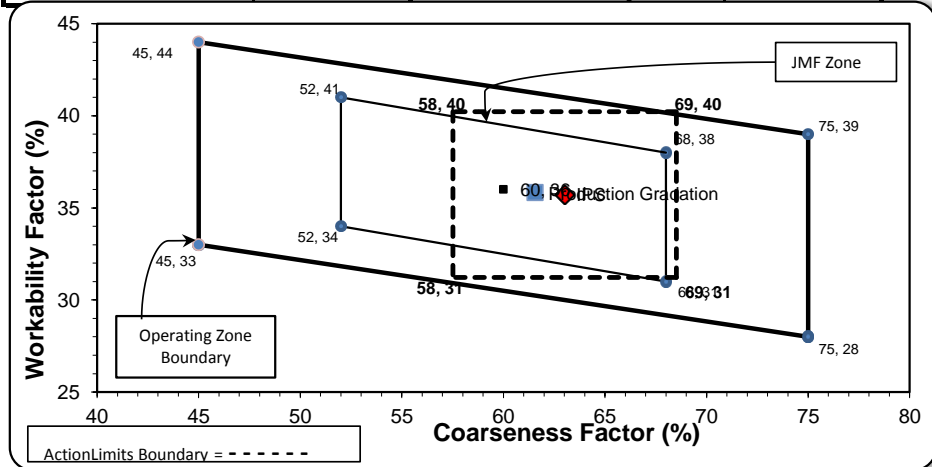
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	86.7	100.0	100.0	93.7	6.3	6.3
1/2"	43.2	99.8	100.0	73.0	20.7	27.0
3/8"	20.2	86.1	100.0	60.5	12.5	39.5
#4	3.1	25.9	97.0	44.4	16.1	55.6
#8	1.0	5.5	84.3	35.8	8.5	64.2
#16	0.8	1.9	69.5	29.2	6.6	70.8
#30	0.6	1.2	49.8	20.9	8.3	79.1
#50	0.5	1.0	19.3	8.3	12.6	91.7
#100	0.5	0.9	3.7	1.9	6.4	98.1
LBW	0.4	0.7	1.0	0.7	1.2	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:	62	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: 9/25/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/25/2017 to 10/1/2017

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%



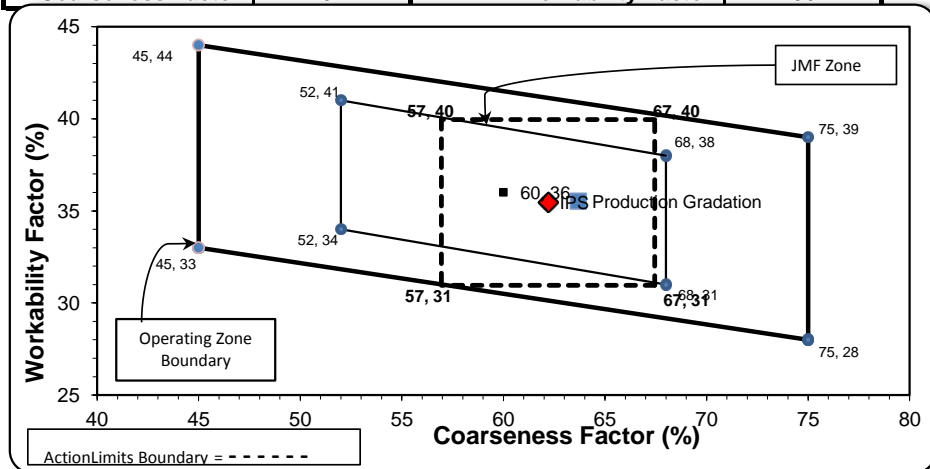
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	91.6	100.0	100.0	95.8	4.2	4.2
1/2"	41.0	97.8	100.0	70.4	25.4	29.6
3/8"	19.7	86.9	100.0	58.9	11.5	41.1
#4	2.1	14.4	96.6	42.9	16.0	57.1
#8	1.4	3.5	82.0	35.5	7.4	64.5
#16	1.3	2.1	65.5	28.4	7.1	71.6
#30	1.2	1.9	44.8	19.6	8.8	80.4
#50	1.2	1.8	18.7	8.6	11.0	91.4
#100	1.2	1.7	5.9	3.2	5.4	96.8
LBW	1.0	1.6	1.9	1.4	1.8	98.6

*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: 9/25/17

Dates Test Represents: 9/25/2017 to 10/1/2017

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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	86.7	100.0	100.0	93.6	6.4	6.4
1/2"	43.2	97.8	100.0	72.6	21.1	27.4
3/8"	20.2	86.9	100.0	60.3	12.3	39.7
#4	3.1	14.4	98.3	42.9	17.4	57.1
#8	1.0	3.5	87.2	36.2	6.8	63.8
#16	0.8	2.1	72.1	29.8	6.4	70.2
#30	0.6	1.9	52.4	21.7	8.1	78.3
#50	0.5	1.8	23.3	9.9	11.8	90.1
#100	0.5	1.7	3.4	1.8	8.1	98.2
LBW	0.4	1.6	0.4	0.5	1.3	99.5

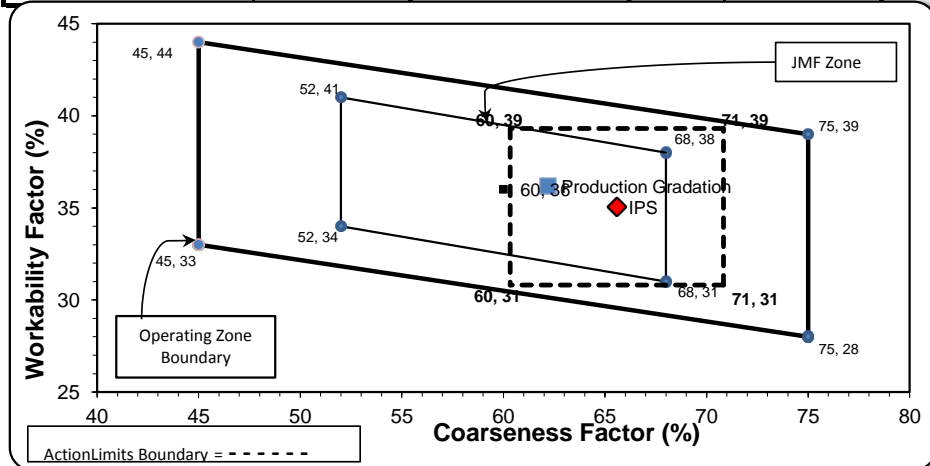


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	62	Workability Factor:	36
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Initial Production Sample (IPS)

Coarseness Factor:		66	
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"	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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Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

PLANT #: P-38

Sample Date: 9/25/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 9/25/2017 to 10/1/2017

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"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	86.7	100.0	100.0	93.7	6.3	6.3
1/2"	43.2	99.8	100.0	73.0	20.7	27.0
3/8"	20.2	86.1	100.0	60.5	12.5	39.5
#4	3.1	25.9	97.0	44.4	16.1	55.6
#8	1.0	5.5	84.3	35.8	8.5	64.2
#16	0.8	1.9	69.5	29.2	6.6	70.8
#30	0.6	1.2	49.8	20.9	8.3	79.1
#50	0.5	1.0	19.3	8.3	12.6	91.7
#100	0.5	0.9	3.7	1.9	6.4	98.1
LBW	0.4	0.7	1.0	0.7	1.2	99.3

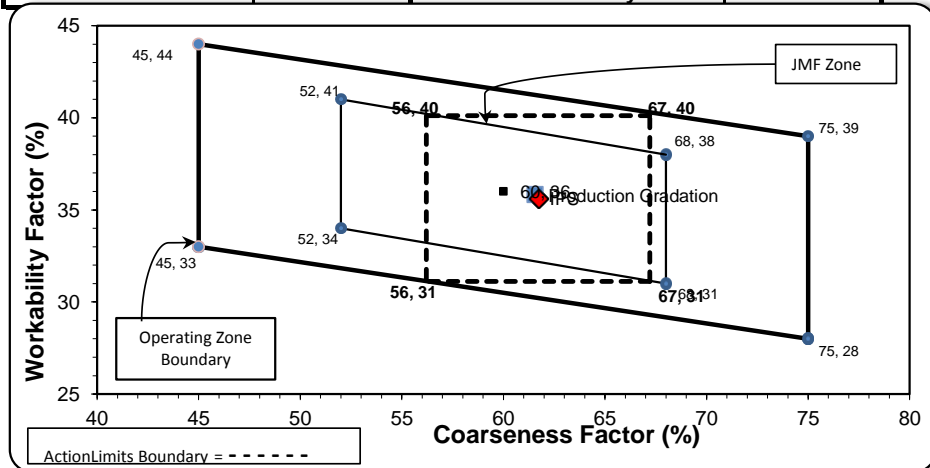


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	62	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"	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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 SM, LLC Technical Service

Approved By: