

# Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

**PLANT #:** **P-103**

Sample Date: 10/9/17

Concrete Grade: **S2M**

Contractor: \_\_\_\_\_

Dates Test Represents: 10/9/2017 to 10/15/2017

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1700	10.13	2.69	53.9
26A	58-003	Stoneco	155	0.92	2.69	4.9
2NS	81-93	Burmeister	1300	7.89	2.64	41.2
<b>Total Wt</b>			<b>3155</b>	<b>18.94</b>		<b>100.0</b>

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



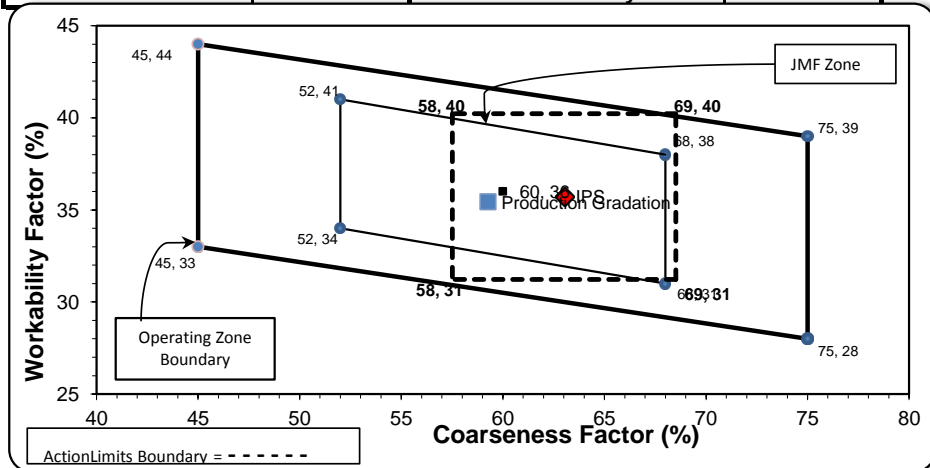
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

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"	99.7	100.0	100.0	99.8	0.2	0.2
3/4"	88.8	100.0	100.0	94.0	5.9	6.0
1/2"	53.2	99.4	100.0	74.8	19.2	25.2
3/8"	30.4	84.3	100.0	61.7	13.0	38.3
#4	3.9	24.4	96.1	42.9	18.8	57.1
#8	1.2	5.2	83.8	35.4	7.5	64.6
#16	1.2	1.6	69.2	29.2	6.2	70.8
#30	1.0	1.0	49.6	21.0	8.2	79.0
#50	0.9	0.9	20.2	8.9	12.2	91.1
#100	0.8	0.8	4.0	2.1	6.7	97.9
LBW	0.6	0.5	1.2	0.8	1.3	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

<b>Coarseness Factor:</b>	<b>59</b>	<b>Workability Factor:</b>	<b>35</b>
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Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>63</b>		
<b>Workability Factor:</b>	<b>36</b>		
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: 10/9/17

Concrete Grade: **S2M**

Contractor: \_\_\_\_\_

Dates Test Represents: 10/9/2017 to 10/15/2017

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1700	10.40	2.62	54.7
26A	71-47	Presque Isle	150	0.92	2.62	4.8
2NS	95-13	Smelter Bay	1260	7.62	2.65	40.5
<b>Total Wt</b>			<b>3110</b>	<b>18.94</b>		<b>100.0</b>

<----- 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"	92.1	100.0	100.0	95.7	4.3	4.3
1/2"	52.9	97.2	100.0	74.1	21.6	25.9
3/8"	30.1	86.9	100.0	61.2	13.0	38.8
#4	5.3	14.5	97.0	42.9	18.3	57.1
#8	2.4	3.5	83.0	35.1	7.8	64.9
#16	2.1	2.3	66.1	28.0	7.1	72.0
#30	2.0	2.1	45.1	19.5	8.6	80.5
#50	1.9	2.0	18.4	8.6	10.9	91.4
#100	1.9	1.9	5.3	3.3	5.3	96.7
LBW	1.7	1.7	1.9	1.8	1.5	98.2

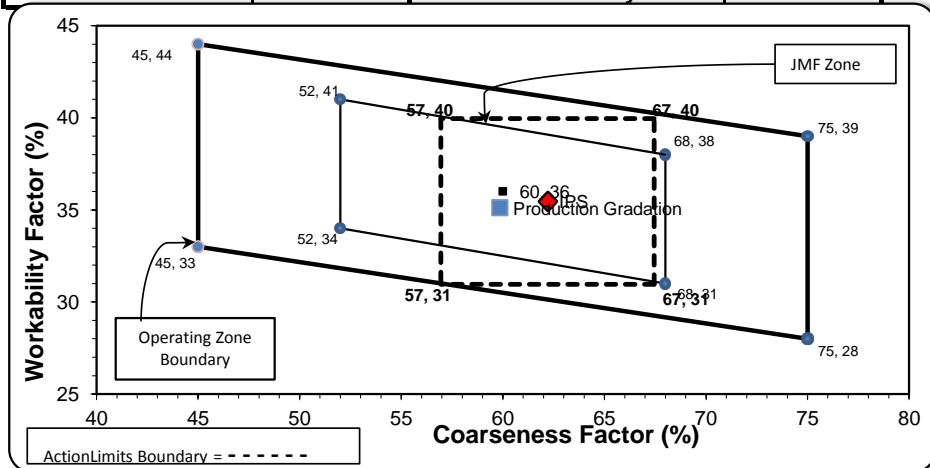


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Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

<b>Coarseness Factor:</b>	<b>60</b>	<b>Workability Factor:</b>	<b>35</b>
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<b>Workability Factor:</b>	<b>35</b>		
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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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Approved By:

# Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

**PLANT #:** **P-38**

Sample Date: 10/9/17

Concrete Grade: **S2M**

Contractor: \_\_\_\_\_

Dates Test Represents: 10/9/2017 to 10/15/2017

MDOT No.: \_\_\_\_\_

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1"	99.7	100.0	100.0	99.8	0.2	0.2
3/4"	88.8	100.0	100.0	94.0	5.9	6.0
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LBW	0.6	0.5	1.2	0.8	1.3	99.2

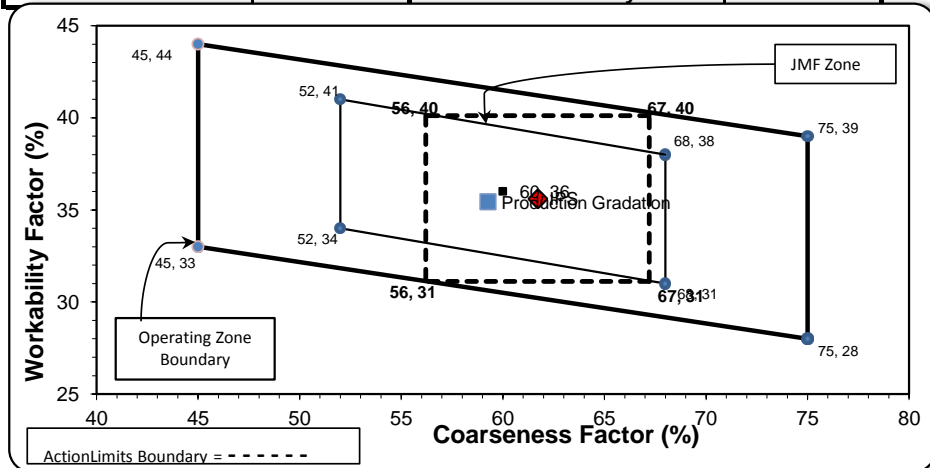
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Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

**Coarseness Factor:** **59**      **Workability Factor:** **35**



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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