

# Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

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

Sample Date: 10/2/17

Concrete Grade: **DM**

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

Dates Test Represents: 10/2/2017 to 10/8/2017

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1400	8.34	2.69	46.8
26A	58-003	Stoneco	350	2.09	2.69	11.7
2NS	81-93	Burmeister	1240	7.53	2.64	41.5
<b>Total Wt</b>			<b>2990</b>	<b>17.95</b>		<b>100.0</b>

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



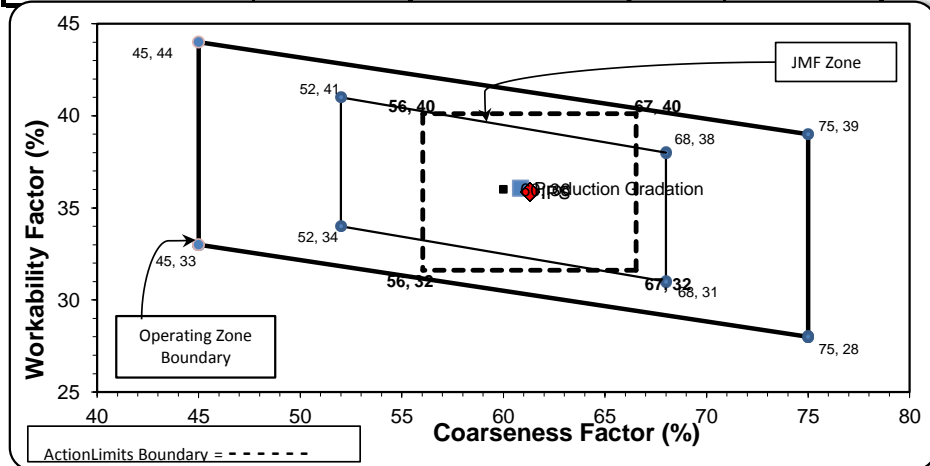
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

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"	99.6	100.0	100.0	99.8	0.2	0.2
3/4"	84.2	100.0	100.0	92.6	7.2	7.4
1/2"	43.5	99.5	100.0	73.5	19.1	26.5
3/8"	20.0	87.6	100.0	61.1	12.4	38.9
#4	2.4	21.0	97.0	43.8	17.3	56.2
#8	1.2	4.2	84.4	36.1	7.8	63.9
#16	1.0	1.4	69.6	29.5	6.6	70.5
#30	0.9	1.0	49.5	21.1	8.4	78.9
#50	0.8	0.9	19.0	8.4	12.7	91.6
#100	0.7	0.8	3.5	1.9	6.5	98.1
LBW	0.6	0.6	1.2	0.8	1.0	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

Coarseness Factor: **61**      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"	99.3	0.7	0.7
3/4"	89.2	10.1	10.8
1/2"	70.7	18.5	29.3
3/8"	60.7	10.0	39.3
#4	44.4	16.3	55.6
#8	35.9	8.5	64.1
#16	27.3	8.6	72.7
#30	19.1	8.2	80.9
#50	7.4	11.7	92.6
#100	1.9	5.6	98.1
LBW	0.7	1.2	99.3

PREPARED BY:  
 SM, LLC Technical Service

Approved BY:

# Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

**PLANT #:** **P-32**

Sample Date: 10/2/17

Concrete Grade: **DM**

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

Dates Test Represents: 10/2/2017 to 10/8/2017

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	49.2
26A	71-47	Presque Isle	250	1.53	2.62	8.5
2NS	95-13	Smelter Bay	1250	7.56	2.65	42.4
<b>Total Wt</b>			<b>2950</b>	<b>17.96</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"	87.6	100.0	100.0	93.9	6.1	6.1
1/2"	42.4	96.5	100.0	71.4	22.5	28.6
3/8"	22.7	82.8	100.0	60.5	10.8	39.5
#4	3.7	14.0	96.6	43.9	16.6	56.1
#8	2.0	3.6	82.4	36.2	7.7	63.8
#16	1.7	2.2	65.8	28.9	7.3	71.1
#30	1.7	2.0	45.3	20.2	8.7	79.8
#50	1.6	1.8	18.9	8.9	11.3	91.1
#100	1.5	1.8	5.6	3.3	5.7	96.7
LBW	1.4	1.5	2.1	1.7	1.6	98.3

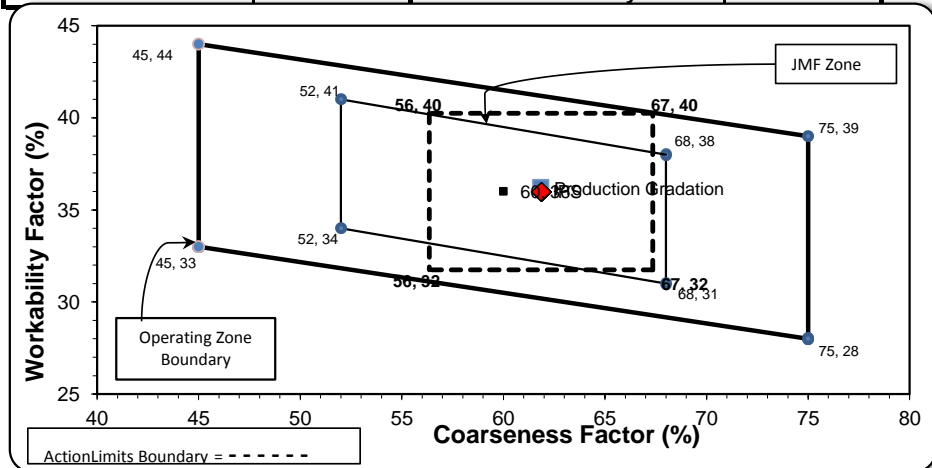
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Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: **62**      Workability Factor: **36**



Initial Production Sample (IPS)

Coarseness Factor: <b>62</b>		Workability Factor: <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"	100.0	0.0	0.0
3/4"	95.0	5.0	5.0
1/2"	72.3	22.8	27.7
3/8"	60.4	11.8	39.6
#4	42.6	17.8	57.4
#8	36.0	6.6	64.0
#16	29.5	6.5	70.5
#30	20.3	9.2	79.7
#50	9.5	10.8	90.5
#100	3.4	6.1	96.6
LBW	1.3	2.1	98.7

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 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

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

Sample Date: 10/2/17

Concrete Grade: **DM**

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

Dates Test Represents: 10/2/2017 to 10/8/2017

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1400	8.34	2.69	46.8
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<b>Total Wt</b>			<b>2990</b>	<b>17.95</b>		<b>100.0</b>

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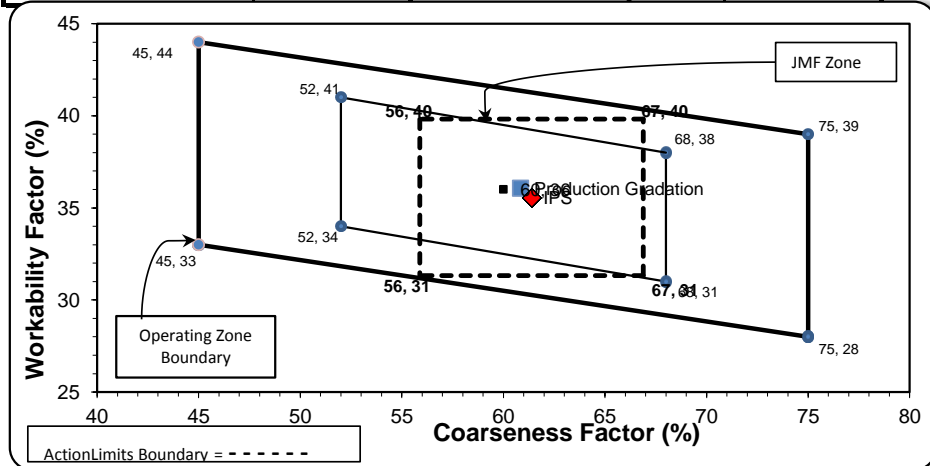
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1"	99.6	100.0	100.0	99.8	0.2	0.2
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#50	0.8	0.9	19.0	8.4	12.7	91.6
#100	0.7	0.8	3.5	1.9	6.5	98.1
LBW	0.6	0.6	1.2	0.8	1.0	99.2

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Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

<b>Coarseness Factor:</b>	<b>61</b>	<b>Workability Factor:</b>	<b>36</b>
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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"	99.3	0.7	0.7
3/4"	89.1	10.2	10.9
1/2"	70.5	18.6	29.5
3/8"	60.5	10.0	39.5
#4	44.1	16.4	55.9
#8	35.6	8.5	64.4
#16	27.7	7.9	72.3
#30	20.6	7.1	79.4
#50	8.7	11.8	91.3
#100	1.6	7.1	98.4
LBW	1.1	0.6	98.9

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