

# Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

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

Sample Date: 6/19/17

Concrete Grade: DM

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

Dates Test Represents: 6/19/2017 to 6/25/2017

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	50.2
26A	58-003	Stoneco	250	1.49	2.69	8.4
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%

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"	82.5	100.0	100.0	91.2	8.8	8.8
1/2"	39.1	99.5	100.0	69.4	21.8	30.6
3/8"	18.6	88.5	100.0	58.2	11.2	41.8
#4	2.3	19.7	99.0	43.9	14.3	56.1
#8	0.8	5.8	85.9	36.5	7.3	63.5
#16	0.8	2.8	70.1	29.7	6.8	70.3
#30	0.7	2.1	50.5	21.5	8.2	78.5
#50	0.7	1.8	21.7	9.5	12.0	90.5
#100	0.7	1.7	4.9	2.5	7.0	97.5
LBW	0.5	1.6	1.6	1.0	1.5	99.0

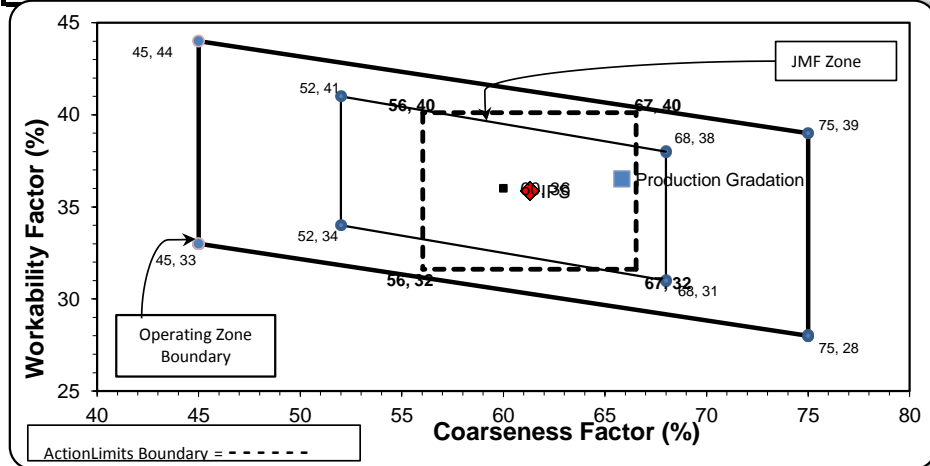


**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

\*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: **66**      Workability Factor: **37**



Initial Production Sample (IPS)

Coarseness Factor: <b>61</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"	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-36**

Sample Date: 6/19/17

Concrete Grade: DM

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

Dates Test Represents: 6/19/2017 to 6/25/2017

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1520	9.06	2.69	50.8
26A	71-47	Presque Isle	260	1.59	2.62	8.7
2NS	63-92	AA Grange Hall	1210	7.32	2.65	40.5
<b>Total Wt</b>			<b>2990</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"	82.5	100.0	100.0	91.1	8.9	8.9
1/2"	39.1	98.4	100.0	68.9	22.2	31.1
3/8"	18.6	85.3	100.0	57.3	11.6	42.7
#4	2.3	13.4	98.2	42.1	15.3	57.9
#8	0.8	3.2	87.1	35.9	6.1	64.1
#16	0.8	2.2	69.8	28.8	7.1	71.2
#30	0.7	2.0	48.6	20.2	8.6	79.8
#50	0.7	1.9	19.0	8.2	12.0	91.8
#100	0.7	1.9	2.6	1.6	6.6	98.4
LBW	0.5	1.7	0.4	0.6	1.0	99.4

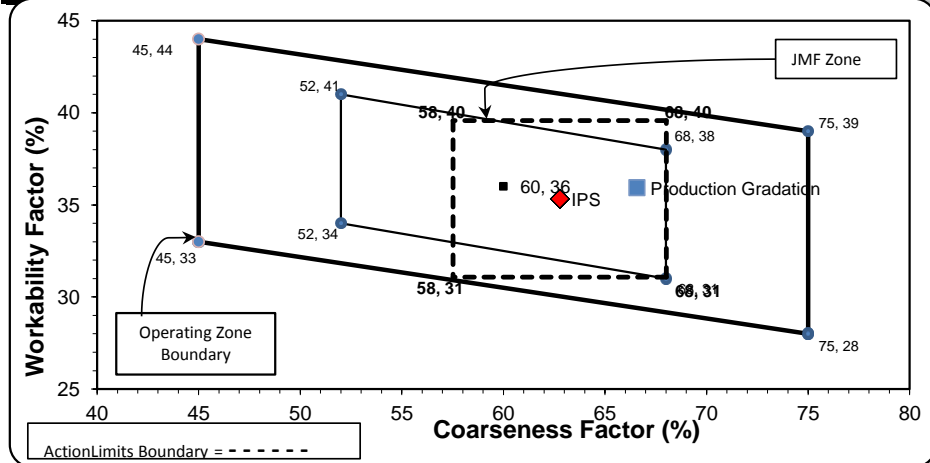


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Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

**Coarseness Factor:** **67**      **Workability Factor:** **36**



Initial Production Sample (IPS)

<b>Coarseness Factor:</b> <b>63</b>		<b>Workability Factor:</b> <b>35</b>	
Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.9	0.1	0.1
3/4"	89.1	10.8	10.9
1/2"	71.3	17.8	28.7
3/8"	59.4	11.9	40.6
#4	42.6	16.8	57.4
#8	35.3	7.3	64.7
#16	28.5	6.8	71.5
#30	20.9	7.6	79.1
#50	9.0	12.0	91.0
#100	1.7	7.3	98.3
LBW	0.7	1.0	99.3

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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: 6/19/17

Concrete Grade: DM

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

Dates Test Represents: 6/19/2017 to 6/25/2017

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	50.2
26A	58-003	Stoneco	250	1.49	2.69	8.4
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%



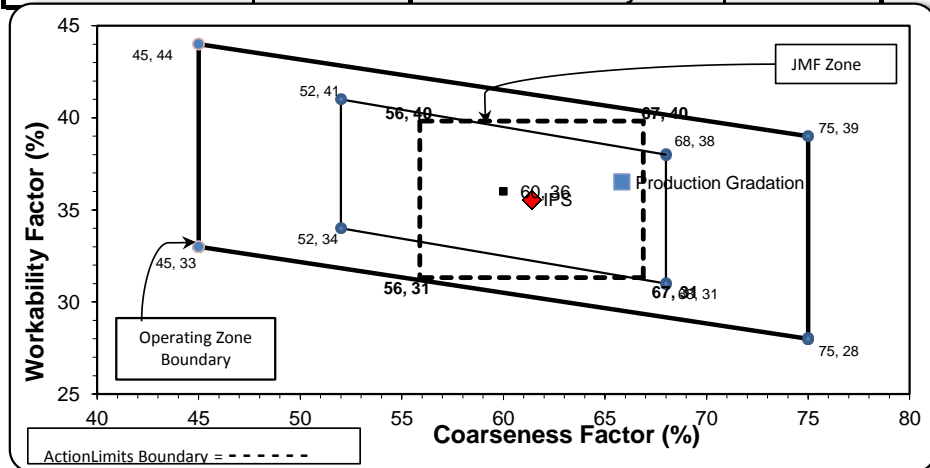
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	82.5	100.0	100.0	91.2	8.8	8.8
1/2"	39.1	99.5	100.0	69.4	21.8	30.6
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#4	2.3	19.7	99.0	43.9	14.3	56.1
#8	0.8	5.8	85.9	36.5	7.3	63.5
#16	0.8	2.8	70.1	29.7	6.8	70.3
#30	0.7	2.1	50.5	21.5	8.2	78.5
#50	0.7	1.8	21.7	9.5	12.0	90.5
#100	0.7	1.7	4.9	2.5	7.0	97.5
LBW	0.5	1.6	1.6	1.0	1.5	99.0

\*Maximum % Retained must be above the 3/8" sieve.  
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Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

<b>Coarseness Factor:</b>	<b>66</b>	<b>Workability Factor:</b>	<b>37</b>
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Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>61</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"	99.3	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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