

# Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

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

Sample Date: 6/19/17

Concrete Grade: **S2M**

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	1600	9.53	2.69	50.7
26A	58-003	Stoneco	255	1.52	2.69	8.1
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%



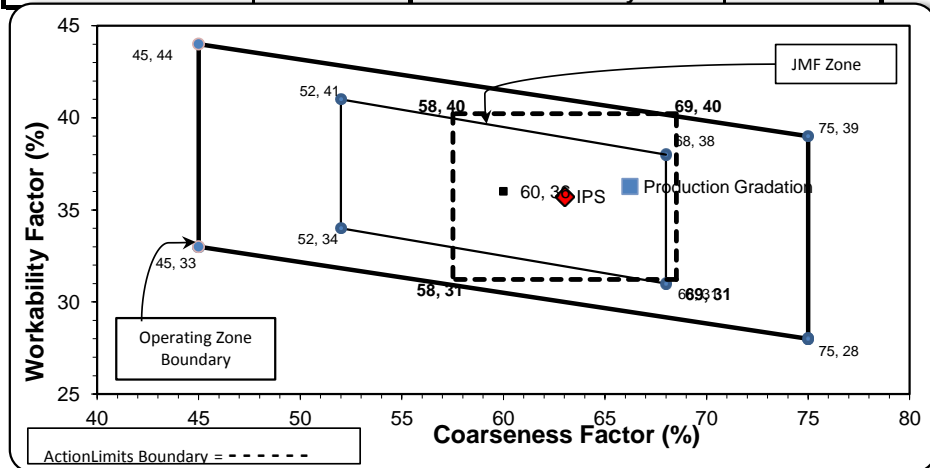
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

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"	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	99.5	100.0	69.1	22.0	30.9
3/8"	18.6	88.5	100.0	57.8	11.3	42.2
#4	2.3	19.7	99.0	43.6	14.2	56.4
#8	0.8	5.8	85.9	36.3	7.3	63.7
#16	0.8	2.8	70.1	29.5	6.8	70.5
#30	0.7	2.1	50.5	21.3	8.2	78.7
#50	0.7	1.8	21.7	9.4	11.9	90.6
#100	0.7	1.7	4.9	2.5	6.9	97.5
LBW	0.5	1.6	1.6	1.0	1.5	99.0

\*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>66</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"	99.2	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: WSN175E9

Production Gradation Report

**PLANT #:** **P-36**

Sample Date: 6/19/17

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

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

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

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

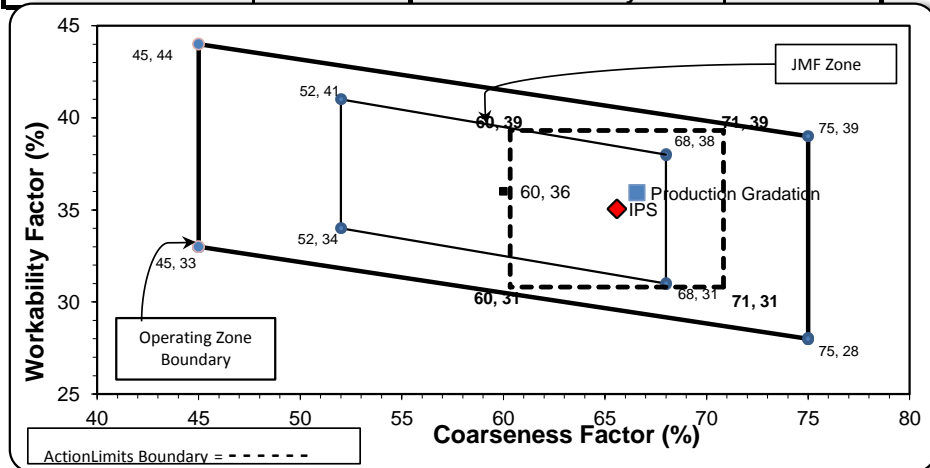


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 \*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

<b>Coarseness Factor:</b>	<b>67</b>	<b>Workability Factor:</b>	<b>36</b>
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Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>66</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"	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

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

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

Sample Date: 6/19/17

Concrete Grade: **S2M**

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	1600	9.53	2.69	50.7
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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%

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	99.5	100.0	69.1	22.0	30.9
3/8"	18.6	88.5	100.0	57.8	11.3	42.2
#4	2.3	19.7	99.0	43.6	14.2	56.4
#8	0.8	5.8	85.9	36.3	7.3	63.7
#16	0.8	2.8	70.1	29.5	6.8	70.5
#30	0.7	2.1	50.5	21.3	8.2	78.7
#50	0.7	1.8	21.7	9.4	11.9	90.6
#100	0.7	1.7	4.9	2.5	6.9	97.5
LBW	0.5	1.6	1.6	1.0	1.5	99.0

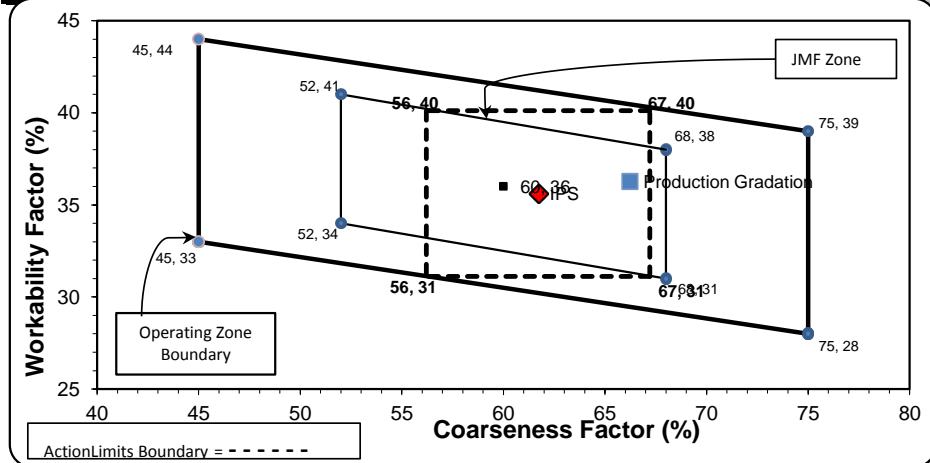


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 \*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

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



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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 SM, LLC Technical Service

Approved By: