

# Aggregate Optimization Chart

**PLANT #:** **P-102**

Sample Date: 3/25/24

Concrete Grade: **P1M, 3500HP**

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

Dates Test Represents: 3/26/2024 through 4/1/2024

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
CA	58-003	Stoneco	1370	8.16	2.69	43.9
IA	58-003	Stoneco	550	3.28	2.69	17.6
2NS	63-114	Highland	1200	7.26	2.65	38.5
<b>Total Wt</b>			<b>3120</b>	<b>18.70</b>		<b>100.0</b>

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



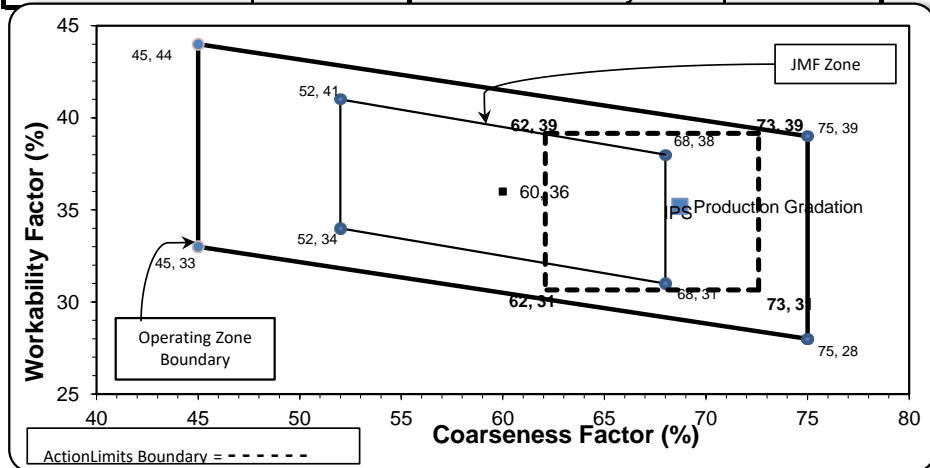
**Superior Materials, LLC**  
 30701 W. 10 Mile Rd.  
 Suite 500  
 Farmington Hills, MI 48336

Sieve	CA	IA	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"	57.5	100.0	100.0	81.3	18.7	18.7
3/4"	24.1	100.0	100.0	66.7	14.7	33.3
1/2"	11.4	94.1	100.0	60.1	6.6	39.9
3/8"	7.4	78.0	100.0	55.5	4.6	44.5
#4	2.9	17.6	99.0	42.5	13.0	57.5
#8	2.5	6.4	85.7	35.2	7.3	64.8
#16	2.3	4.2	66.8	27.4	7.7	72.6
#30	2.1	3.4	47.3	19.7	7.7	80.3
#50	2.1	3.0	19.8	9.1	10.6	90.9
#100	2.0	2.8	3.4	2.7	6.4	97.3
LBW	1.7	2.6	0.4	1.4	1.3	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:** **69**      **Workability Factor:** **35**



Initial Production Sample (IPS)

**Coarseness Factor:** **67**  
**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"	85.5	14.5	14.5
3/4"	73.4	12.1	26.6
1/2"	61.0	12.4	39.0
3/8"	56.2	4.8	43.8
#4	43.1	13.1	56.9
#8	34.9	8.2	65.1
#16	29.4	5.5	70.6
#30	21.6	7.8	78.4
#50	8.1	13.4	91.9
#100	2.2	5.9	97.8
LBW	1.4	0.8	98.6

PREPARED BY:  
 SM, LLC Technical Service

Approved By:

# Aggregate Optimization Chart

**PLANT #:** 12

Sample Date: 3/25/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 3/26/2024 through 4/1/2024

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

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

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1070	6.54	2.62	34.9
IA	71-47	Presque Isle	800	4.89	2.62	26.1
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
<b>Total Wt</b>			<b>3070</b>	<b>18.70</b>		<b>100.0</b>

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



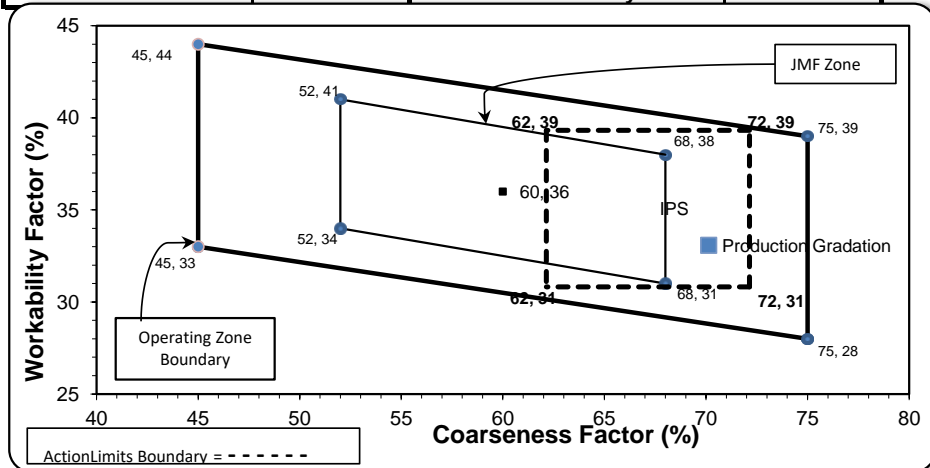
**Superior Materials, LLC**  
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 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	99.0	100.0	100.0	99.7	0.3	0.3
1"	41.7	100.0	100.0	79.7	20.0	20.3
3/4"	12.6	97.6	100.0	68.9	10.8	31.1
1/2"	2.8	77.8	100.0	60.3	8.6	39.7
3/8"	2.4	50.4	100.0	53.1	7.3	46.9
#4	1.8	6.7	97.0	40.3	12.8	59.7
#8	2.1	2.0	81.4	33.1	7.2	66.9
#16	2.0	1.4	65.0	26.5	6.6	73.5
#30	1.9	1.3	49.2	20.2	6.2	79.8
#50	1.9	1.2	26.1	11.2	9.1	88.8
#100	1.8	1.1	4.8	2.8	8.4	97.2
LBW	1.6	1.0	0.8	1.1	1.7	98.9

\*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:** 70      **Workability Factor:** 33



Initial Production Sample (IPS)

**Coarseness Factor:** 67  
**Workability Factor:** 35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.6	0.4	0.4
1"	83.9	15.7	16.1
3/4"	74.0	9.8	26.0
1/2"	63.7	10.3	36.3
3/8"	56.4	7.3	43.6
#4	43.0	13.4	57.0
#8	35.1	7.9	64.9
#16	29.0	6.1	71.0
#30	20.9	8.0	79.1
#50	8.1	12.8	91.9
#100	1.6	6.5	98.4
LBW	0.9	0.8	99.1

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 SM, LLC Technical Service

Approved By: