

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 8/28/17

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 8/28/2017 to 9/3/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	53.5
26A	58-003	Stoneco	150	0.89	2.69	5.0
2NS	81-93	Burmeister	1240	7.53	2.64	41.5
Total Wt			2990	17.95		100.0

<----- 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"	86.1	100.0	100.0	92.6	7.4	7.4
1/2"	49.7	99.6	100.0	73.1	19.5	26.9
3/8"	29.6	84.8	100.0	61.6	11.5	38.4
#4	4.2	23.7	96.6	43.5	18.1	56.5
#8	1.1	5.2	82.9	35.2	8.3	64.8
#16	0.5	2.4	68.2	28.7	6.6	71.3
#30	0.4	1.9	48.7	20.5	8.2	79.5
#50	0.4	1.6	18.6	8.0	12.5	92.0
#100	0.3	1.6	2.9	1.4	6.6	98.6
LBW	0.4	1.4	1.0	0.7	0.7	99.3

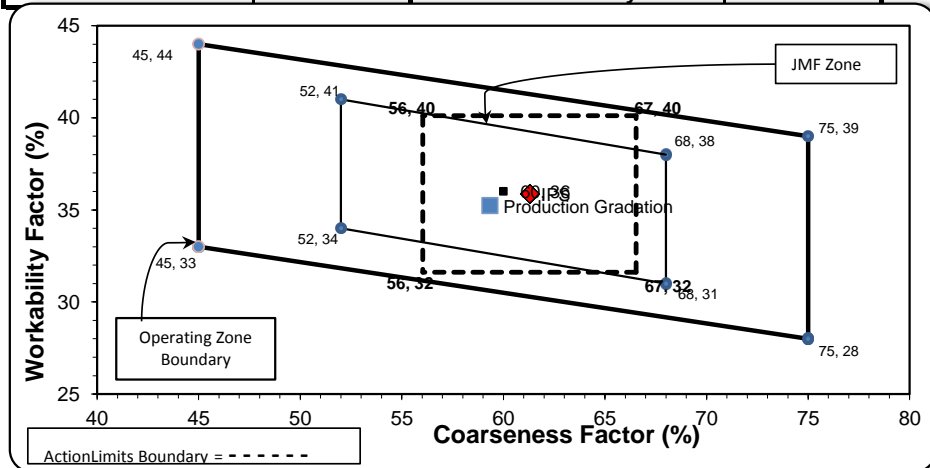


Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

*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:	59	Workability Factor:	35
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Initial Production Sample (IPS)

Coarseness Factor:	61		
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"	99.3	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: 8/28/17

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 8/28/2017 to 9/3/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	50.8
26A	71-47	Presque Isle	250	1.53	2.62	8.5
2NS	95-13	Smelter Bay	1200	7.26	2.65	40.7
Total Wt			2950	17.96		100.0

<----- 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"	91.6	100.0	100.0	95.7	4.3	4.3
1/2"	47.4	97.1	100.0	73.0	22.7	27.0
3/8"	24.3	83.2	100.0	60.1	12.9	39.9
#4	2.7	11.0	96.4	41.5	18.6	58.5
#8	1.7	2.7	86.3	36.2	5.3	63.8
#16	1.5	1.9	71.2	29.9	6.3	70.1
#30	1.4	1.7	50.1	21.2	8.7	78.8
#50	1.4	1.6	23.0	10.2	11.0	89.8
#100	1.3	1.6	6.2	3.3	6.9	96.7
LBW	1.2	1.5	1.5	1.3	2.0	98.7

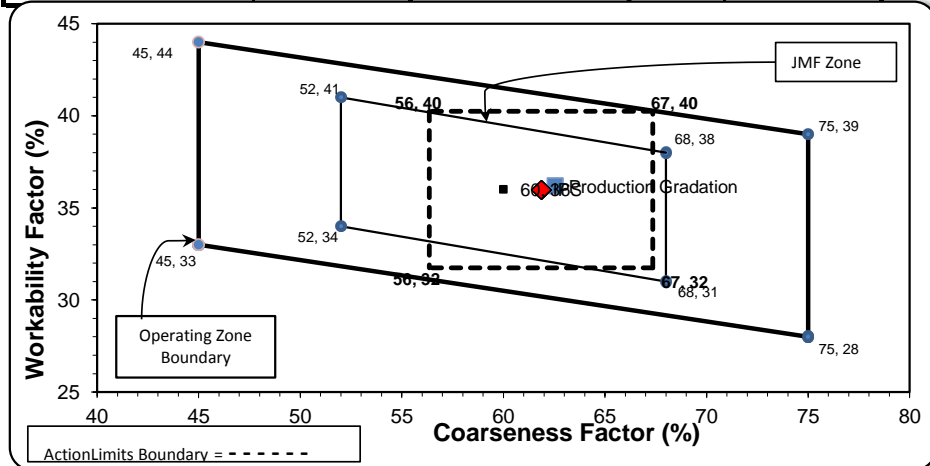


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **63** **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"	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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Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-36**

Sample Date: 8/28/17

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 8/28/2017 to 9/3/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1630	9.71	2.69	54.5
26A	71-47	Presque Isle	150	0.92	2.62	5.0
2NS	63-92	AA Grange Hall	1210	7.32	2.65	40.5
Total Wt			2990	17.95		100.0

<----- 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"	86.1	100.0	100.0	92.4	7.6	7.6
1/2"	49.7	97.1	100.0	72.4	20.0	27.6
3/8"	29.6	83.2	100.0	60.8	11.7	39.2
#4	4.2	11.0	98.2	42.6	18.2	57.4
#8	1.1	2.7	87.2	36.0	6.6	64.0
#16	0.5	1.9	71.9	29.5	6.6	70.5
#30	0.4	1.7	50.8	20.9	8.6	79.1
#50	0.4	1.6	21.3	8.9	11.9	91.1
#100	0.3	1.6	2.8	1.4	7.5	98.6
LBW	0.4	1.5	0.3	0.4	1.0	99.6

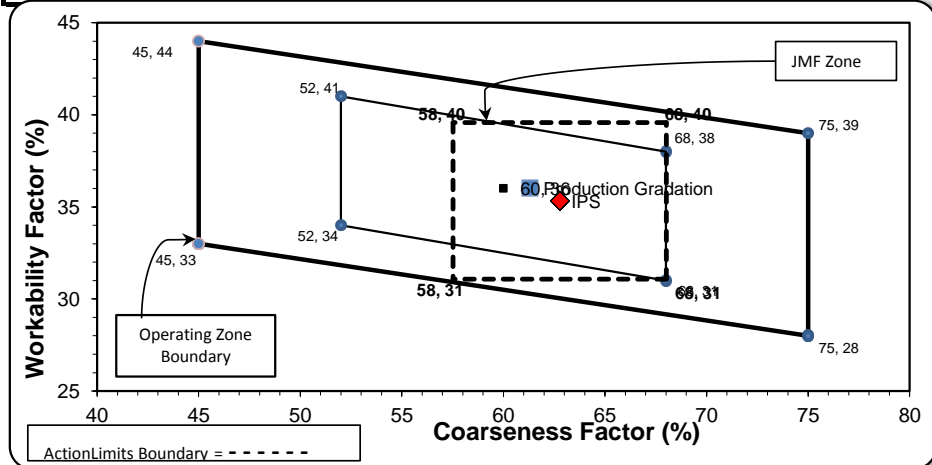


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **61** Workability Factor: **36**



Initial Production Sample (IPS)

Coarseness Factor: 63		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"	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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Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-38**

Sample Date: 8/28/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 8/28/2017 to 9/3/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	53.5
26A	58-003	Stoneco	150	0.89	2.69	5.0
2NS	81-93	Burmeister	1240	7.53	2.64	41.5
Total Wt			2990	17.95		100.0

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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"	86.1	100.0	100.0	92.6	7.4	7.4
1/2"	49.7	99.6	100.0	73.1	19.5	26.9
3/8"	29.6	84.8	100.0	61.6	11.5	38.4
#4	4.2	23.7	96.6	43.5	18.1	56.5
#8	1.1	5.2	82.9	35.2	8.3	64.8
#16	0.5	2.4	68.2	28.7	6.6	71.3
#30	0.4	1.9	48.7	20.5	8.2	79.5
#50	0.4	1.6	18.6	8.0	12.5	92.0
#100	0.3	1.6	2.9	1.4	6.6	98.6
LBW	0.4	1.4	1.0	0.7	0.7	99.3

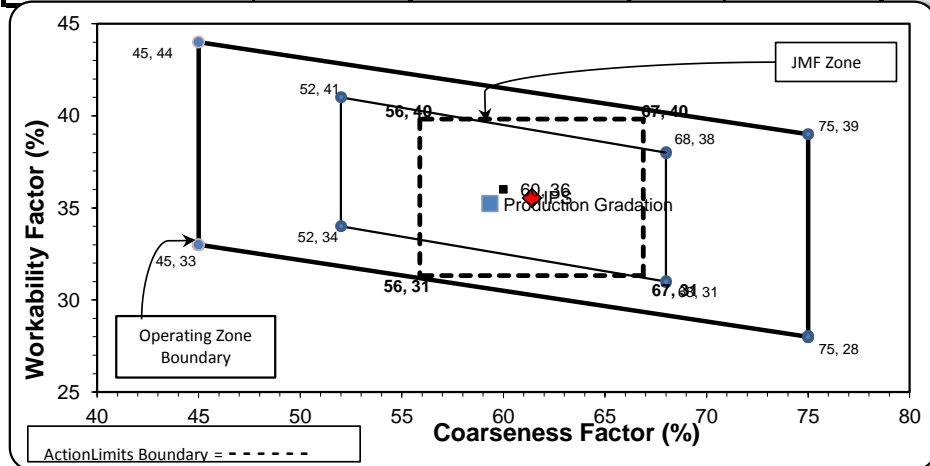


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

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



Initial Production Sample (IPS)

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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
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#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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