

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 8/7/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 8/7/2017 to 8/13/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	51.8
26A	58-003	Stoneco	200	1.19	2.69	6.7
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"	89.0	100.0	100.0	94.3	5.7	5.7
1/2"	50.2	99.8	100.0	74.2	20.1	25.8
3/8"	28.2	85.4	100.0	61.8	12.4	38.2
#4	3.8	29.5	96.6	44.0	17.8	56.0
#8	1.4	6.2	82.2	35.2	8.8	64.8
#16	1.6	2.9	66.4	28.6	6.7	71.4
#30	1.3	2.1	46.9	20.3	8.3	79.7
#50	1.0	2.0	17.6	8.0	12.3	92.0
#100	0.9	1.9	2.8	1.8	6.2	98.2
LBW	0.6	1.6	0.9	0.8	1.0	99.2

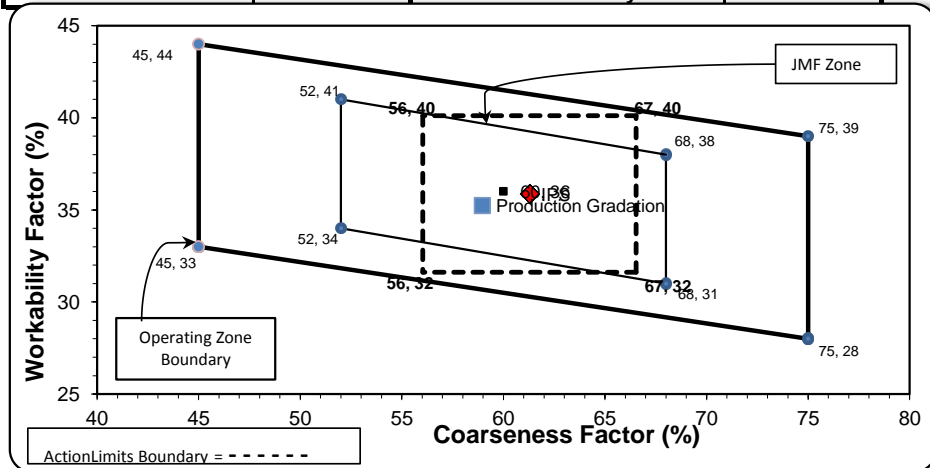


Superior Materials, LLC
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*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% 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**



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: 8/7/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 8/7/2017 to 8/13/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	52.5
26A	71-47	Presque Isle	200	1.22	2.62	6.8
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"	99.4	100.0	100.0	99.7	0.3	0.3
3/4"	86.7	100.0	100.0	93.0	6.7	7.0
1/2"	47.5	97.7	100.0	72.3	20.8	27.7
3/8"	29.7	84.4	100.0	62.0	10.3	38.0
#4	6.3	11.4	96.0	43.1	18.9	56.9
#8	2.8	2.5	86.4	36.8	6.3	63.2
#16	2.3	1.6	71.5	30.4	6.4	69.6
#30	2.1	1.4	49.7	21.4	9.0	78.6
#50	2.1	1.4	22.1	10.2	11.2	89.8
#100	2.0	1.3	6.1	3.6	6.6	96.4
LBW	1.8	1.2	1.4	1.6	2.0	98.4

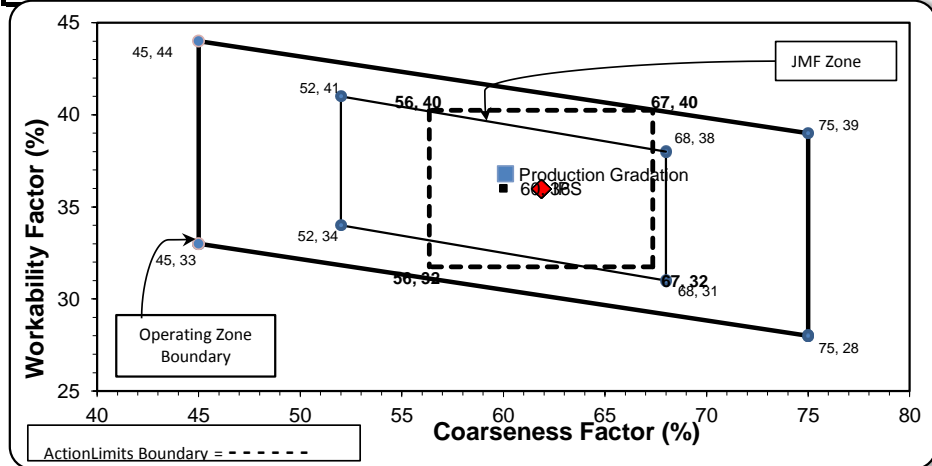
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.



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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 60 **Workability Factor: 37**



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: 8/7/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 8/7/2017 to 8/13/2017

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"	89.0	100.0	100.0	94.0	6.0	6.0
1/2"	50.2	97.7	100.0	72.7	21.3	27.3
3/8"	28.2	84.4	100.0	60.1	12.7	39.9
#4	3.8	11.4	98.2	42.4	17.7	57.6
#8	1.4	2.5	87.0	36.1	6.3	63.9
#16	1.6	1.6	70.2	29.4	6.7	70.6
#30	1.3	1.4	48.3	20.3	9.0	79.7
#50	1.0	1.4	18.1	7.9	12.4	92.1
#100	0.9	1.3	2.6	1.6	6.3	98.4
LBW	0.6	1.2	0.2	0.5	1.1	99.5

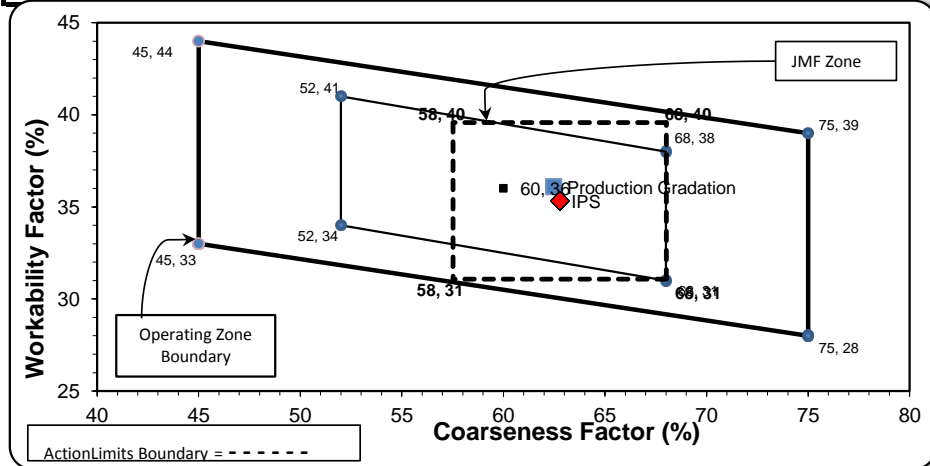


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 62 **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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Production Gradation Report

PLANT #: **P-38**

Sample Date: 8/7/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 8/7/2017 to 8/13/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1550	9.23	2.69	51.8
26A	58-003	Stoneco	200	1.19	2.69	6.7
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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"	89.0	100.0	100.0	94.3	5.7	5.7
1/2"	50.2	99.8	100.0	74.2	20.1	25.8
3/8"	28.2	85.4	100.0	61.8	12.4	38.2
#4	3.8	29.5	96.6	44.0	17.8	56.0
#8	1.4	6.2	82.2	35.2	8.8	64.8
#16	1.6	2.9	66.4	28.6	6.7	71.4
#30	1.3	2.1	46.9	20.3	8.3	79.7
#50	1.0	2.0	17.6	8.0	12.3	92.0
#100	0.9	1.9	2.8	1.8	6.2	98.2
LBW	0.6	1.6	0.9	0.8	1.0	99.2

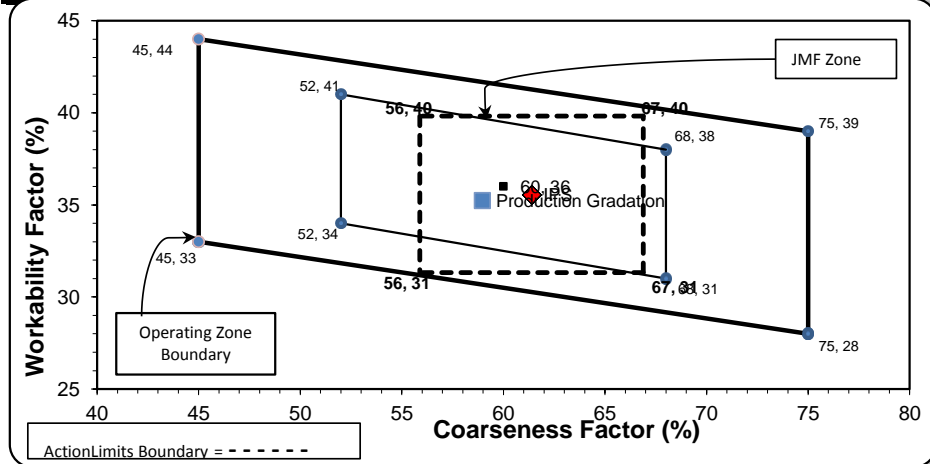


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

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
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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
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#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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