

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 7/3/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 7/3/2017 to 7/9/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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
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"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	79.2	100.0	100.0	89.6	10.4	10.4
1/2"	39.8	99.6	100.0	69.8	19.8	30.2
3/8"	21.4	88.9	100.0	59.6	10.1	40.4
#4	3.2	17.2	98.7	44.0	15.7	56.0
#8	1.2	4.7	84.9	36.2	7.8	63.8
#16	1.0	2.2	69.0	29.3	6.9	70.7
#30	0.9	1.6	48.8	20.8	8.5	79.2
#50	0.8	1.4	21.6	9.5	11.3	90.5
#100	0.7	1.3	5.2	2.6	6.9	97.4
LBW	0.7	1.2	1.9	1.2	1.4	98.8

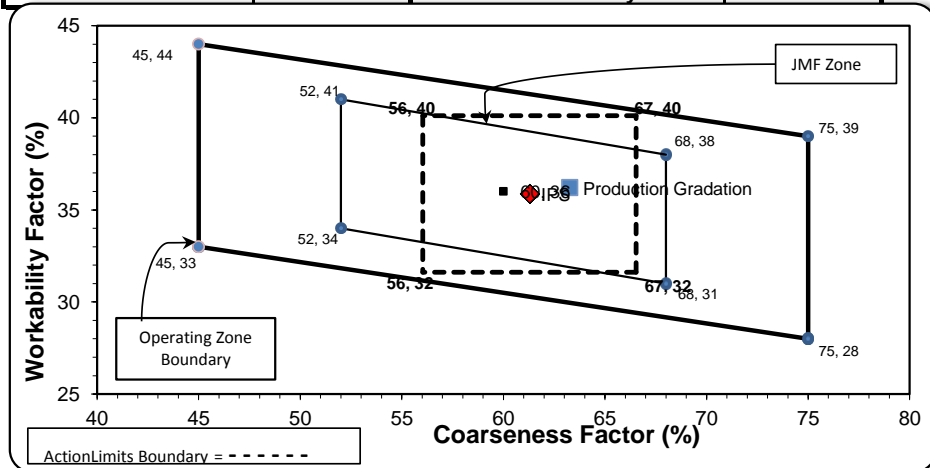


Superior Materials, LLC
 30701 W. 10 Mile Rd.
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 Farmington Hills, MI 48336

*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: 63 **Workability Factor: 36**



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: 7/3/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 7/3/2017 to 7/9/2017

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"	87.6	100.0	100.0	93.7	6.3	6.3
1/2"	46.8	97.4	100.0	72.7	21.0	27.3
3/8"	26.9	84.2	100.0	61.5	11.2	38.5
#4	4.6	11.6	96.2	42.5	19.0	57.5
#8	2.4	2.6	86.2	36.5	5.9	63.5
#16	2.1	1.8	71.0	30.1	6.4	69.9
#30	2.0	1.8	50.3	21.6	8.5	78.4
#50	1.9	1.7	22.6	10.3	11.3	89.7
#100	1.8	1.6	7.8	4.2	6.1	95.8
LBW	1.6	1.5	1.7	1.6	2.6	98.4

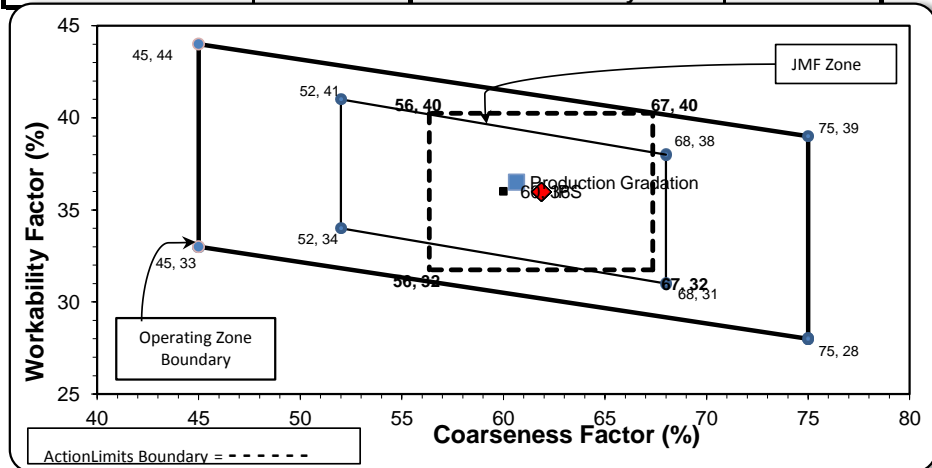
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **61** **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: 7/3/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 7/3/2017 to 7/9/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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
Total Wt			2990	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"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	79.2	100.0	100.0	89.4	10.5	10.6
1/2"	39.8	97.4	100.0	69.2	20.3	30.8
3/8"	21.4	84.2	100.0	58.7	10.5	41.3
#4	3.2	11.6	98.6	42.5	16.1	57.5
#8	1.2	2.6	87.4	36.2	6.3	63.8
#16	1.0	1.8	69.6	28.8	7.4	71.2
#30	0.9	1.8	48.1	20.1	8.8	79.9
#50	0.8	1.7	18.3	8.0	12.1	92.0
#100	0.7	1.6	2.6	1.5	6.4	98.5
LBW	0.7	1.5	0.2	0.6	1.0	99.4

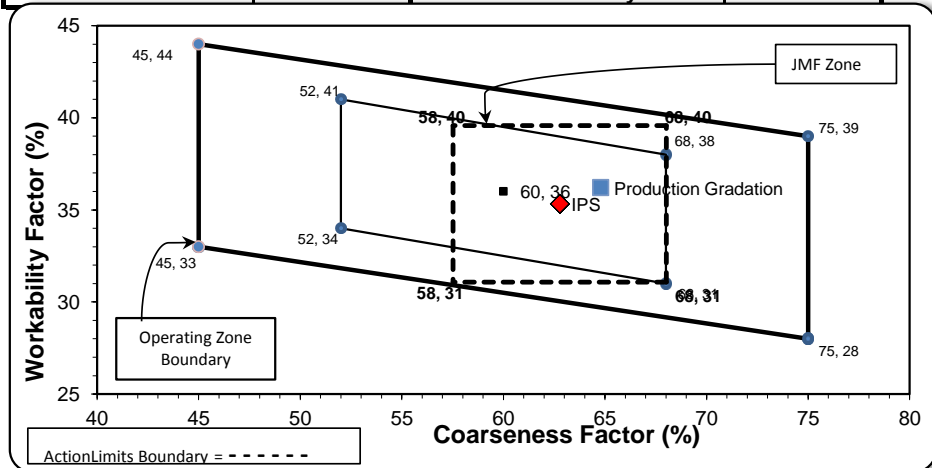


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 65 **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: 7/3/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 7/3/2017 to 7/9/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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
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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"	99.9	100.0	100.0	99.9	0.1	0.1
3/4"	79.2	100.0	100.0	89.6	10.4	10.4
1/2"	39.8	99.6	100.0	69.8	19.8	30.2
3/8"	21.4	88.9	100.0	59.6	10.1	40.4
#4	3.2	17.2	98.7	44.0	15.7	56.0
#8	1.2	4.7	84.9	36.2	7.8	63.8
#16	1.0	2.2	69.0	29.3	6.9	70.7
#30	0.9	1.6	48.8	20.8	8.5	79.2
#50	0.8	1.4	21.6	9.5	11.3	90.5
#100	0.7	1.3	5.2	2.6	6.9	97.4
LBW	0.7	1.2	1.9	1.2	1.4	98.8

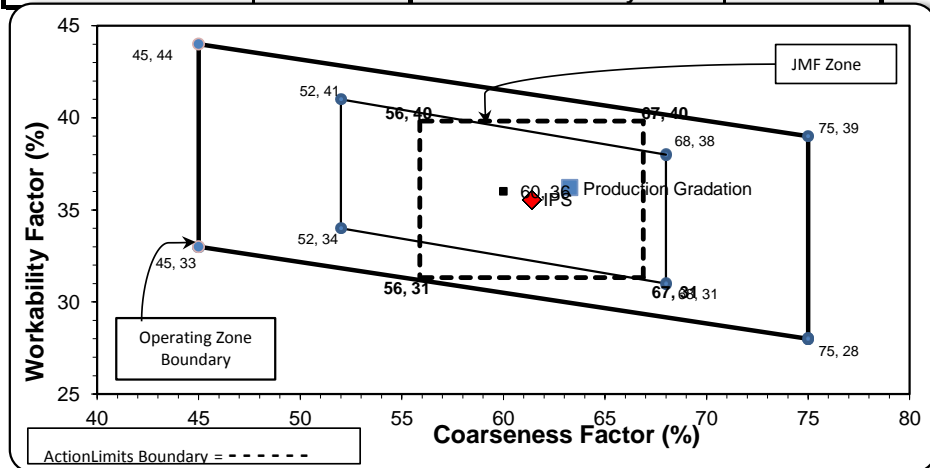
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Initial Production Sample (IPS)

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"	89.1	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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