

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 7/10/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 7/10/2017 to 7/16/2017

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"	98.8	100.0	100.0	99.4	0.6	0.6
3/4"	79.9	100.0	100.0	89.6	9.8	10.4
1/2"	48.6	99.8	100.0	73.3	16.2	26.7
3/8"	20.9	86.1	100.0	58.1	15.3	41.9
#4	3.0	28.9	99.1	44.6	13.5	55.4
#8	1.0	6.2	85.4	36.3	8.2	63.7
#16	1.3	2.9	70.2	30.0	6.4	70.0
#30	1.0	2.3	50.2	21.5	8.5	78.5
#50	0.8	2.0	24.6	10.8	10.7	89.2
#100	0.7	1.9	5.9	2.9	7.8	97.1
LBW	0.5	1.6	1.4	0.9	2.0	99.1

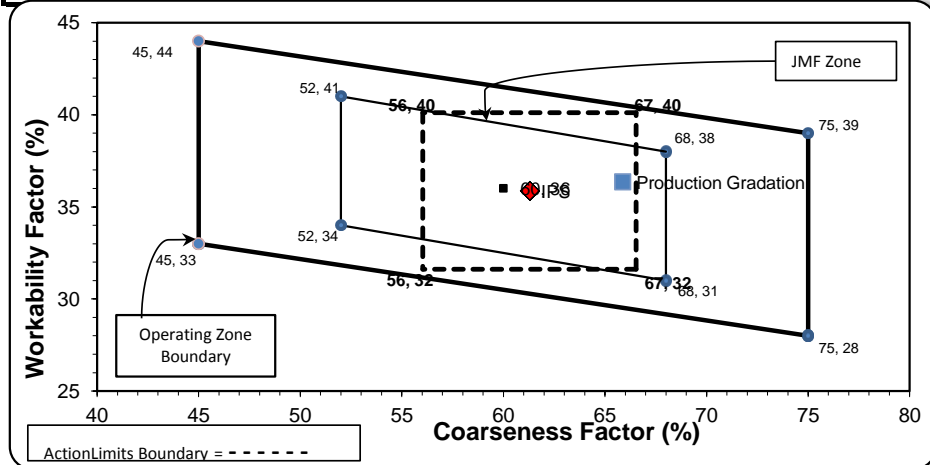


Superior Materials, LLC
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 Farmington Hills, MI 48336

*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: **66** 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: 7/10/17

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 7/10/2017 to 7/16/2017

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"	87.4	100.0	100.0	93.6	6.4	6.4
1/2"	46.2	98.4	100.0	72.5	21.1	27.5
3/8"	27.2	86.4	100.0	61.8	10.7	38.2
#4	6.0	13.5	96.0	43.2	18.6	56.8
#8	3.0	2.8	85.1	36.4	6.9	63.6
#16	2.5	1.8	70.7	30.2	6.2	69.8
#30	2.3	1.6	50.5	21.8	8.3	78.2
#50	2.2	1.6	23.3	10.7	11.1	89.3
#100	2.1	1.4	9.4	5.0	5.7	95.0
LBW	1.9	1.4	1.9	1.9	3.2	98.1

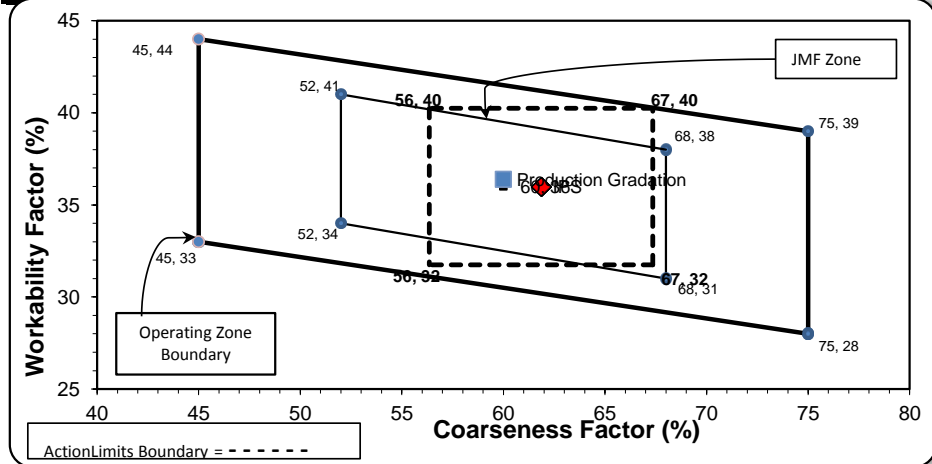
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **60** **Workability Factor:** **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: 7/10/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 7/10/2017 to 7/16/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1580	9.41	2.69	52.8
26A	71-47	Presque Isle	200	1.22	2.62	6.7
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"	98.8	100.0	100.0	99.4	0.6	0.6
3/4"	79.9	100.0	100.0	89.4	10.0	10.6
1/2"	48.6	98.4	100.0	72.7	16.6	27.3
3/8"	20.9	86.4	100.0	57.3	15.4	42.7
#4	3.0	13.5	98.3	42.3	15.0	57.7
#8	1.0	2.8	86.7	35.8	6.5	64.2
#16	1.3	1.8	68.8	28.6	7.2	71.4
#30	1.0	1.6	46.7	19.5	9.1	80.5
#50	0.8	1.6	16.8	7.3	12.2	92.7
#100	0.7	1.4	2.6	1.5	5.8	98.5
LBW	0.5	1.4	0.3	0.5	1.0	99.5

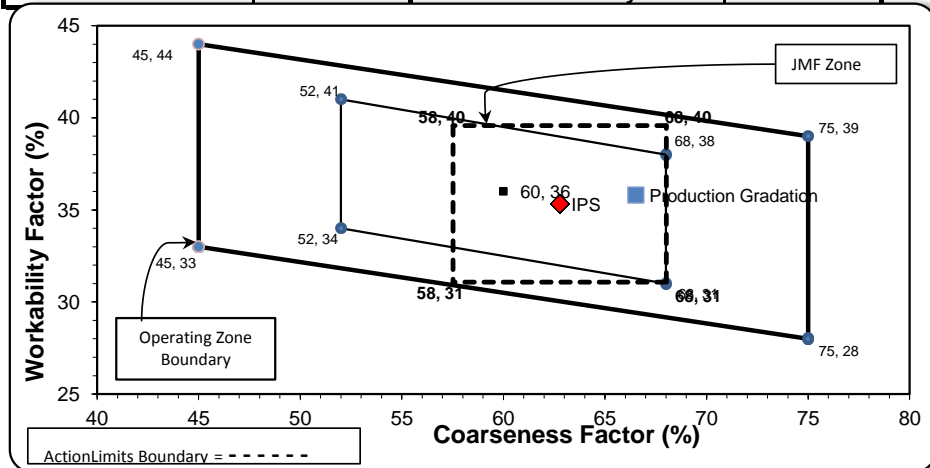
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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	67	Workability Factor:	36
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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: 7/10/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 7/10/2017 to 7/16/2017

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

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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"	98.8	100.0	100.0	99.4	0.6	0.6
3/4"	79.9	100.0	100.0	89.6	9.8	10.4
1/2"	48.6	99.8	100.0	73.3	16.2	26.7
3/8"	20.9	86.1	100.0	58.1	15.3	41.9
#4	3.0	28.9	99.1	44.6	13.5	55.4
#8	1.0	6.2	85.4	36.3	8.2	63.7
#16	1.3	2.9	70.2	30.0	6.4	70.0
#30	1.0	2.3	50.2	21.5	8.5	78.5
#50	0.8	2.0	24.6	10.8	10.7	89.2
#100	0.7	1.9	5.9	2.9	7.8	97.1
LBW	0.5	1.6	1.4	0.9	2.0	99.1

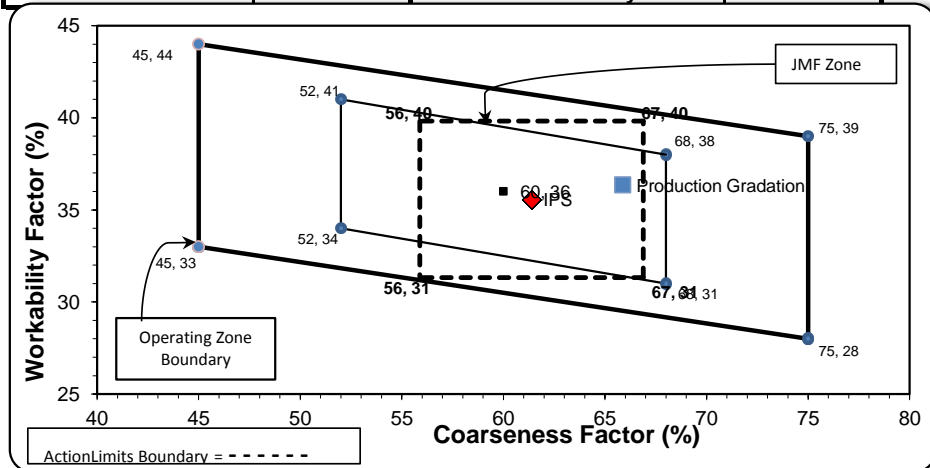
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Coarseness Factor: 66 **Workability Factor: 36**



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"	89.1	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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