

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7, DDD0K7E8 and DDD0K7E9

Production Gradation Report

PLANT #: **P-102**

Sample Date: 6/11/18

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 6/12/2018 through 6/18/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1475	8.79	2.69	49.2
26A	58-003	Stoneco	320	1.91	2.69	10.7
2NS	38-046	Chelsea	1200	7.26	2.65	40.1
Total Wt			2995	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	100.0	0.0	0.0
3/4"	84.3	100.0	100.0	92.3	7.7	7.7
1/2"	47.2	99.6	100.0	74.0	18.3	26.0
3/8"	25.1	82.7	100.0	61.3	12.7	38.7
#4	3.8	20.8	100.0	44.2	17.1	55.8
#8	1.2	7.0	87.0	36.2	8.0	63.8
#16	0.8	3.2	64.0	26.4	9.8	73.6
#30	0.7	2.0	40.0	16.6	9.8	83.4
#50	0.6	1.8	19.0	8.1	8.5	91.9
#100	0.6	1.6	3.0	1.7	6.4	98.3
LBW	0.5	1.4	0.9	0.8	0.9	99.2

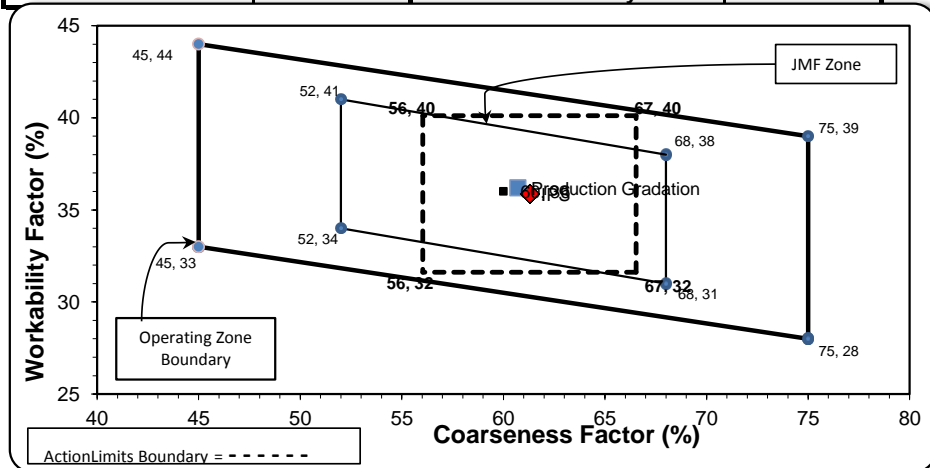


Superior Materials, LLC
 30701 W. 10 Mile Rd.
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*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. 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: 61 **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, DDD0K7E8 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 6/11/18

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 6/12/2018 through 6/18/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1475	8.79	2.69	49.2
26A	58-003	Stoneco	320	1.91	2.69	10.7
2NS	38-046	Chelsea	1200	7.26	2.65	40.1
Total Wt			2995	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	100.0	0.0	0.0
3/4"	84.3	100.0	100.0	92.3	7.7	7.7
1/2"	47.2	99.6	100.0	74.0	18.3	26.0
3/8"	25.1	82.7	100.0	61.3	12.7	38.7
#4	3.8	20.8	100.0	44.2	17.1	55.8
#8	1.2	7.0	87.0	36.2	8.0	63.8
#16	0.8	3.2	64.0	26.4	9.8	73.6
#30	0.7	2.0	40.0	16.6	9.8	83.4
#50	0.6	1.8	19.0	8.1	8.5	91.9
#100	0.6	1.6	3.0	1.7	6.4	98.3
LBW	0.5	1.4	0.9	0.8	0.9	99.2

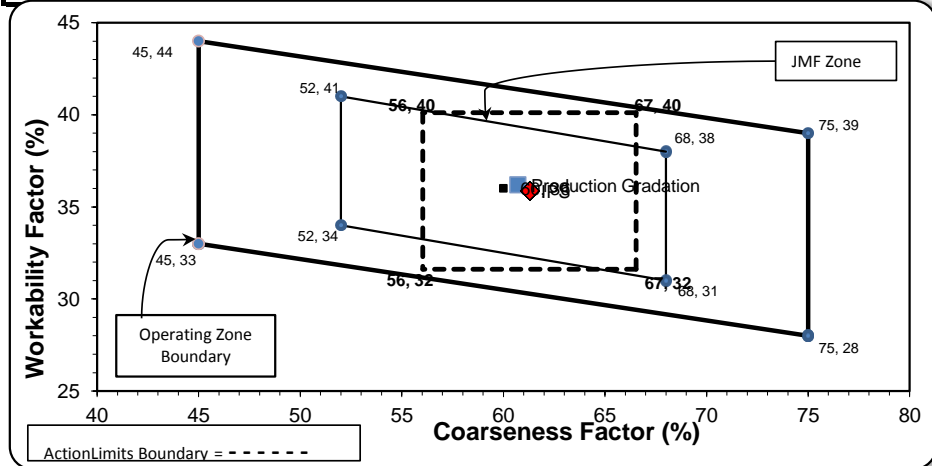


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 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 61 **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, DDD0K7E8 and DDD0K7E9

Production Gradation Report

PLANT #: **P-35**

Sample Date: 6/11/18

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 6/12/2018 through 6/18/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1510	9.00	2.69	50.5
26A	58-003	Stoneco	200	1.19	2.69	6.7
2NS	81-93	Burmeister	1280	7.77	2.64	42.8
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"	84.3	100.0	100.0	92.1	7.9	7.9
1/2"	47.2	99.6	100.0	73.3	18.8	26.7
3/8"	25.1	82.7	100.0	61.0	12.3	39.0
#4	3.8	20.8	95.0	44.0	17.0	56.0
#8	1.2	7.0	80.1	35.4	8.6	64.6
#16	0.8	3.2	62.0	27.2	8.2	72.8
#30	0.7	2.0	43.0	18.9	8.3	81.1
#50	0.6	1.8	18.8	8.5	10.4	91.5
#100	0.6	1.6	3.1	1.7	6.7	98.3
LBW	0.5	1.4	1.0	0.8	1.0	99.2

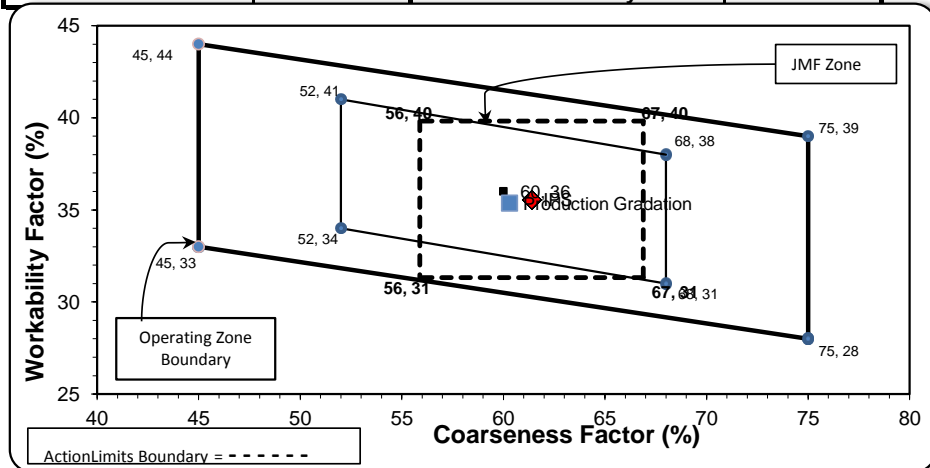
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **60** Workability Factor: **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"	89.1	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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Approved By:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7, DDD0K7E8 and DDD0K7E9

Production Gradation Report

PLANT #: **P-36**

Sample Date: 6/11/18

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 6/12/2018 through 6/18/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1650	10.09	2.62	55.9
26A	71-47	Presque Isle	100	0.61	2.62	3.4
2NS	63-92	AA Grange Hall	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"	92.1	100.0	100.0	95.6	4.4	4.4
1/2"	51.2	96.5	100.0	72.6	23.0	27.4
3/8"	27.2	85.6	100.0	58.8	13.8	41.2
#4	4.8	24.6	97.1	43.0	15.8	57.0
#8	2.6	8.4	83.5	35.7	7.3	64.3
#16	2.2	4.7	68.0	29.1	6.7	70.9
#30	2.1	3.7	49.6	21.5	7.6	78.5
#50	2.0	3.3	22.5	10.4	11.1	89.6
#100	2.0	3.1	2.9	2.4	8.0	97.6
LBW	1.6	2.5	0.3	1.1	1.3	98.9

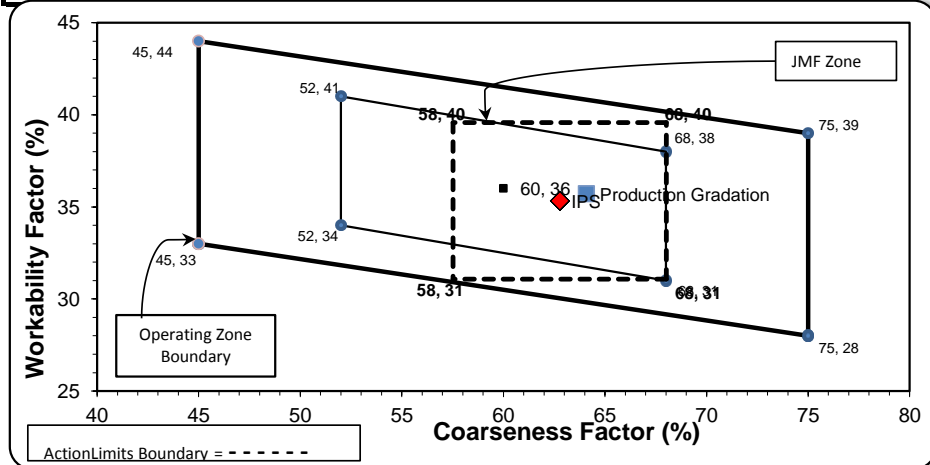


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*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must 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: 64 **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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7, DDD0K7E8 and DDD0K7E9

Production Gradation Report

PLANT #: P-02

Sample Date: 6/11/18

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 6/12/2018 through 6/18/2018

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1650	10.09	2.62	55.9
26A	71-47	Presque Isle	120	0.73	2.62	4.1
2NS	47-16	Buno Road	1180	7.14	2.65	40.0
Total Wt			2950	17.96		100.0

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



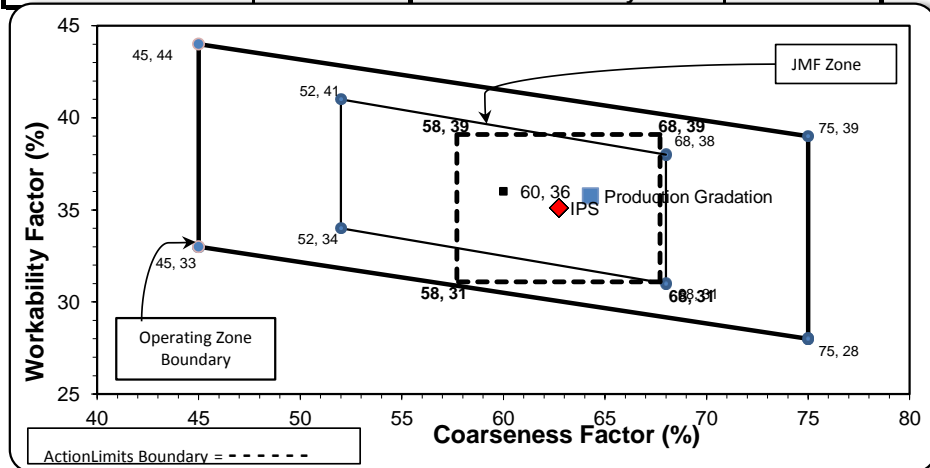
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 Farmington Hills, MI 48336

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"	92.1	100.0	100.0	95.6	4.4	4.4
1/2"	51.2	96.5	100.0	72.6	23.0	27.4
3/8"	27.2	85.6	100.0	58.7	13.9	41.3
#4	4.8	24.6	95.6	41.9	16.8	58.1
#8	2.6	8.4	84.9	35.8	6.2	64.2
#16	2.2	4.7	71.9	30.2	5.6	69.8
#30	2.1	3.7	53.1	22.6	7.6	77.4
#50	2.0	3.3	19.1	8.9	13.7	91.1
#100	2.0	3.1	2.3	2.2	6.7	97.8
LBW	1.6	2.5	0.5	1.2	1.0	98.8

*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:	64	Workability Factor:	36
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Initial Production Sample (IPS)

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"	95.1	4.9	4.9
1/2"	74.6	20.5	25.4
3/8"	59.3	15.3	40.7
#4	42.1	17.2	57.9
#8	35.1	7.1	64.9
#16	29.2	5.9	70.8
#30	21.9	7.3	78.1
#50	9.6	12.4	90.4
#100	2.4	7.2	97.6
LBW	0.9	1.5	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By: