

Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP164E7 and DDP164E8

Production Gradation Report

PLANT #: **P-101**

Sample Date: 9/11/17

Concrete Grade: **P1M**

Contractor: _____

Dates Test Represents: 9/11/2017 to 9/17/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1150	7.03	2.62	37.5
IA	71-47	Presque Isle	600	3.67	2.62	19.5
2NS	63-115	Ray Road	1320	7.98	2.65	43.0
Total Wt			3070	18.69		100.0

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

Sieve	CA	IA	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"	62.4	100.0	100.0	85.9	14.1	14.1
3/4"	27.2	97.2	100.0	72.2	13.7	27.8
1/2"	14.5	82.6	100.0	64.6	7.6	35.4
3/8"	9.2	59.8	100.0	58.1	6.4	41.9
#4	3.3	12.3	96.9	45.3	12.8	54.7
#8	2.6	4.1	78.2	35.4	9.9	64.6
#16	2.4	3.1	59.0	26.9	8.5	73.1
#30	2.3	2.9	42.7	19.8	7.1	80.2
#50	2.2	2.7	22.4	11.0	8.8	89.0
#100	2.1	2.5	5.6	3.7	7.3	96.3
LBW	1.7	2.1	0.7	1.3	2.3	98.7

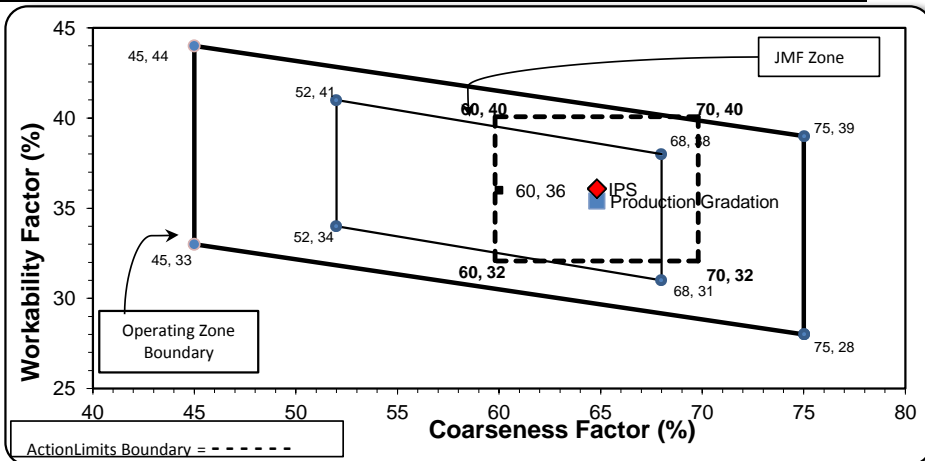


Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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

Coarseness Factor:	65		
Workability Factor:	36		
Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.3	0.7	0.7
1"	83.6	15.7	16.4
3/4"	73.0	10.6	27.0
1/2"	65.1	7.9	34.9
3/8"	58.6	6.5	41.4
#4	45.8	12.8	54.2
#8	36.1	9.7	63.9
#16	28.8	7.3	71.2
#30	21.7	7.1	78.3
#50	10.3	11.4	89.7
#100	3.1	7.2	96.9
LBW	1.3	1.8	98.7

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDP154E7 and DDP154E8

Production Gradation Report

PLANT #: **P-102**

Sample Date: 9/11/17

Concrete Grade: **P1M**

Contractor: _____

Dates Test Represents: 9/11/2017 to 9/17/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1370	8.16	2.69	43.5
IA	58-003	Stoneco	550	3.28	2.69	17.5
2NS	63-114	AA Highland	1230	7.44	2.65	39.0
Total Wt			3150	18.88		100.0

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

Sieve	CA	IA	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"	68.4	100.0	100.0	86.3	13.7	13.7
3/4"	43.4	100.0	100.0	75.4	10.9	24.6
1/2"	19.7	91.4	100.0	63.6	11.8	36.4
3/8"	8.9	76.8	100.0	56.3	7.2	43.7
#4	2.3	20.5	99.8	43.5	12.8	56.5
#8	1.3	4.0	86.8	35.2	8.4	64.8
#16	1.0	1.6	65.8	26.4	8.7	73.6
#30	0.9	1.3	43.8	17.7	8.7	82.3
#50	0.8	1.1	13.9	6.0	11.8	94.0
#100	0.7	1.0	1.9	1.2	4.7	98.8
LBW	0.7	0.8	0.3	0.6	0.7	99.4

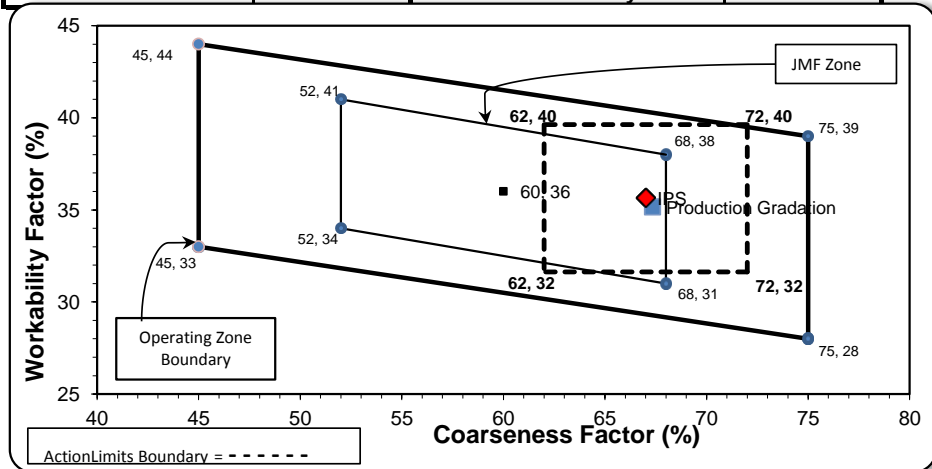
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 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **67** Workability Factor: **35**



Initial Production Sample (IPS)

Coarseness Factor: 67		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"	87.2	12.8	12.8
3/4"	76.6	10.6	23.4
1/2"	64.4	12.2	35.6
3/8"	56.9	7.6	43.1
#4	44.1	12.7	55.9
#8	35.6	8.5	64.4
#16	27.7	8.0	72.3
#30	19.5	8.2	80.5
#50	7.8	11.6	92.2
#100	2.3	5.6	97.7
LBW	0.6	1.6	99.4

PREPARED BY:

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP164E7 and DDP164E8

Production Gradation Report

PLANT #: **P-39**

Sample Date: 9/11/17

Concrete Grade: **P1M**

Contractor: _____

Dates Test Represents: 9/11/2017 to 9/17/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1150	7.03	2.62	37.5
IA	71-47	Presque Isle	600	3.67	2.62	19.5
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Total Wt			3070	18.69		100.0

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Sieve	CA	IA	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"	62.4	100.0	100.0	85.9	14.1	14.1
3/4"	27.2	97.2	100.0	72.2	13.7	27.8
1/2"	14.5	82.6	100.0	64.6	7.6	35.4
3/8"	9.2	59.8	100.0	58.1	6.4	41.9
#4	3.3	12.3	96.9	45.3	12.8	54.7
#8	2.6	4.1	78.2	35.4	9.9	64.6
#16	2.4	3.1	59.0	26.9	8.5	73.1
#30	2.3	2.9	42.7	19.8	7.1	80.2
#50	2.2	2.7	22.4	11.0	8.8	89.0
#100	2.1	2.5	5.6	3.7	7.3	96.3
LBW	1.7	2.1	0.7	1.3	2.3	98.7

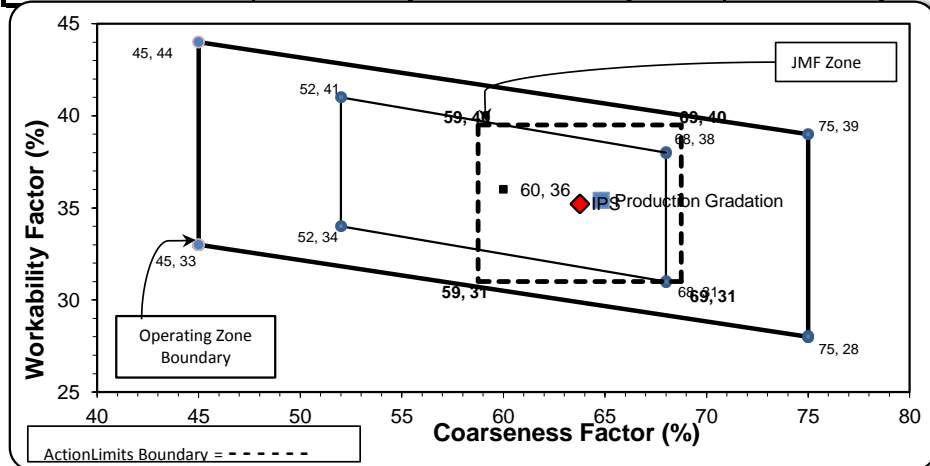


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **65** Workability Factor: **35**



Initial Production Sample (IPS)

Coarseness Factor: 64		Workability Factor: 35	
Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.4	0.6	0.6
1"	84.3	15.1	15.7
3/4"	73.9	10.4	26.1
1/2"	65.7	8.2	34.3
3/8"	58.7	7.0	41.3
#4	45.1	13.6	54.9
#8	35.3	9.8	64.7
#16	28.1	7.2	71.9
#30	21.2	6.9	78.8
#50	10.1	11.1	89.9
#100	3.1	7.0	96.9
LBW	1.4	1.7	98.6

PREPARED BY:
 SM, LLC Technical Service

Approved By: