

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 9/25/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/25/2017 to 10/1/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1400	8.34	2.69	46.8
26A	58-003	Stoneco	350	2.09	2.69	11.7
2NS	81-93	Burmeister	1240	7.53	2.64	41.5
Total Wt			2990	17.95		100.0

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



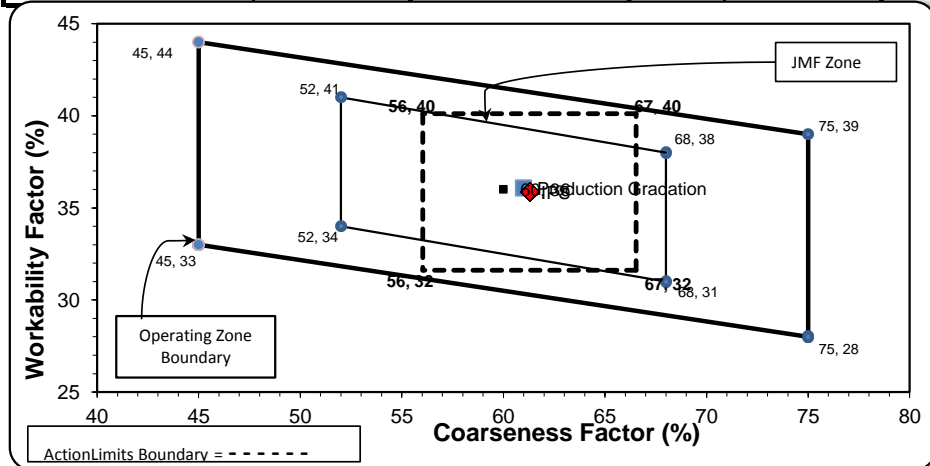
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	86.7	100.0	100.0	93.8	6.2	6.2
1/2"	43.2	99.8	100.0	73.4	20.4	26.6
3/8"	20.2	86.1	100.0	61.0	12.4	39.0
#4	3.1	25.9	97.0	44.7	16.3	55.3
#8	1.0	5.5	84.3	36.1	8.6	63.9
#16	0.8	1.9	69.5	29.4	6.7	70.6
#30	0.6	1.2	49.8	21.1	8.3	78.9
#50	0.5	1.0	19.3	8.4	12.7	91.6
#100	0.5	0.9	3.7	1.9	6.5	98.1
LBW	0.4	0.7	1.0	0.7	1.2	99.3

*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)

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: 9/25/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/25/2017 to 10/1/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	49.2
26A	71-47	Presque Isle	250	1.53	2.62	8.5
2NS	95-13	Smelter Bay	1250	7.56	2.65	42.4
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"	91.6	100.0	100.0	95.9	4.1	4.1
1/2"	41.0	97.8	100.0	70.8	25.1	29.2
3/8"	19.7	86.9	100.0	59.4	11.4	40.6
#4	2.1	14.4	96.6	43.2	16.2	56.8
#8	1.4	3.5	82.0	35.7	7.5	64.3
#16	1.3	2.1	65.5	28.6	7.2	71.4
#30	1.2	1.9	44.8	19.7	8.8	80.3
#50	1.2	1.8	18.7	8.7	11.1	91.3
#100	1.2	1.7	5.9	3.2	5.4	96.8
LBW	1.0	1.6	1.9	1.4	1.8	98.6

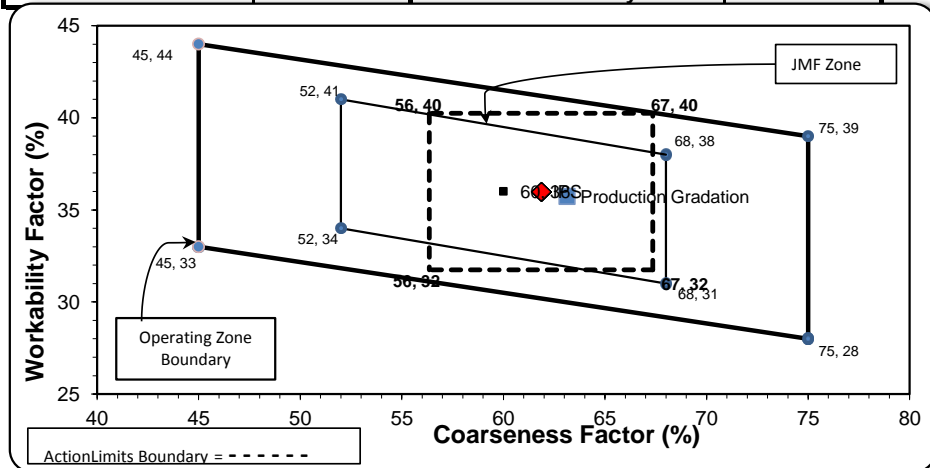


Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

*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: **63** **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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-36**

Sample Date: 9/25/17

Concrete Grade: DM

Contractor: _____

Dates Test Represents: 9/25/2017 to 10/1/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1430	8.52	2.69	47.8
26A	71-47	Presque Isle	350	2.14	2.62	11.7
2NS	63-92	AA Grange Hall	1210	7.32	2.65	40.5
Total Wt			2990	17.98		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"	86.7	100.0	100.0	93.6	6.4	6.4
1/2"	43.2	97.8	100.0	72.6	21.1	27.4
3/8"	20.2	86.9	100.0	60.3	12.3	39.7
#4	3.1	14.4	98.3	42.9	17.4	57.1
#8	1.0	3.5	87.2	36.2	6.8	63.8
#16	0.8	2.1	72.1	29.8	6.4	70.2
#30	0.6	1.9	52.4	21.7	8.1	78.3
#50	0.5	1.8	23.3	9.9	11.8	90.1
#100	0.5	1.7	3.4	1.8	8.1	98.2
LBW	0.4	1.6	0.4	0.5	1.3	99.5

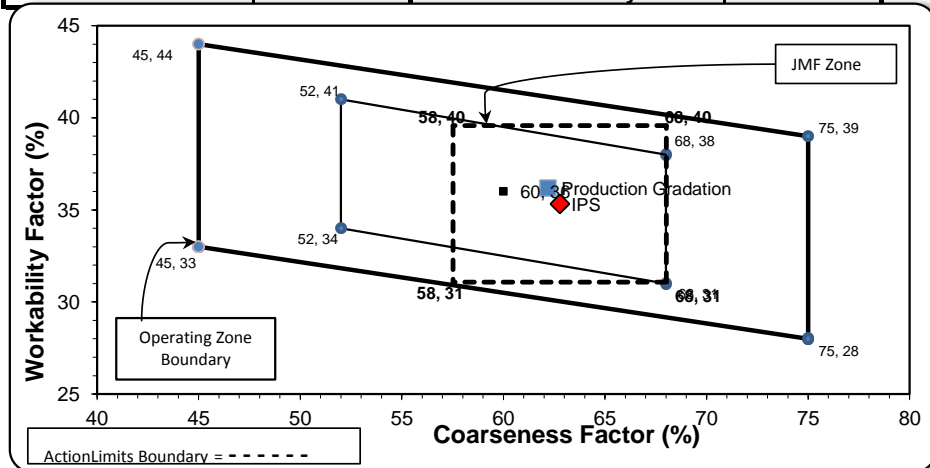


Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

*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:	62	Workability Factor:	36
---------------------------	-----------	----------------------------	-----------



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"	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 and DDD0K7E9

Production Gradation Report

PLANT #: **P-38**

Sample Date: 9/25/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 9/25/2017 to 10/1/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1400	8.34	2.69	46.8
26A	58-003	Stoneco	350	2.09	2.69	11.7
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"	86.7	100.0	100.0	93.8	6.2	6.2
1/2"	43.2	99.8	100.0	73.4	20.4	26.6
3/8"	20.2	86.1	100.0	61.0	12.4	39.0
#4	3.1	25.9	97.0	44.7	16.3	55.3
#8	1.0	5.5	84.3	36.1	8.6	63.9
#16	0.8	1.9	69.5	29.4	6.7	70.6
#30	0.6	1.2	49.8	21.1	8.3	78.9
#50	0.5	1.0	19.3	8.4	12.7	91.6
#100	0.5	0.9	3.7	1.9	6.5	98.1
LBW	0.4	0.7	1.0	0.7	1.2	99.3

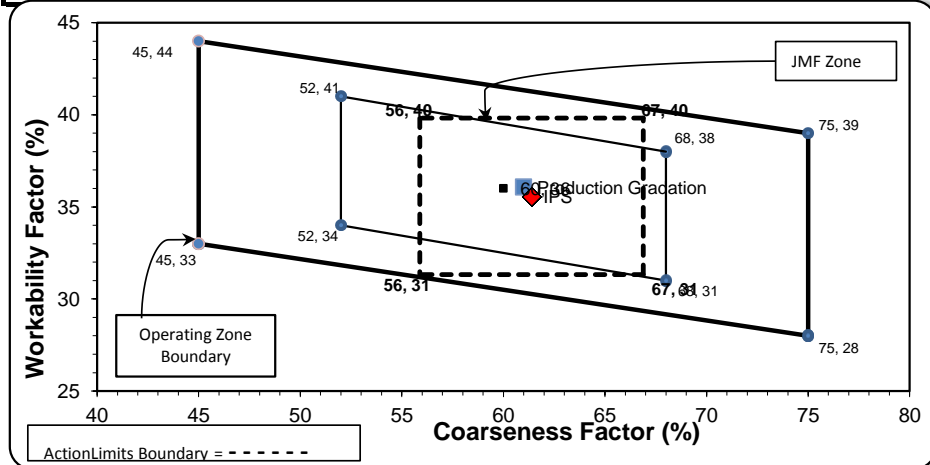


Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

*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: 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"	89.1	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

PREPARED BY:
 SM, LLC Technical Service

Approved By: