

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-32

Sample Date: 9/16/19

Dates Test Represents: 9/17/2019 through 9/23/2019

Concrete Grade: S2M

Contractor:

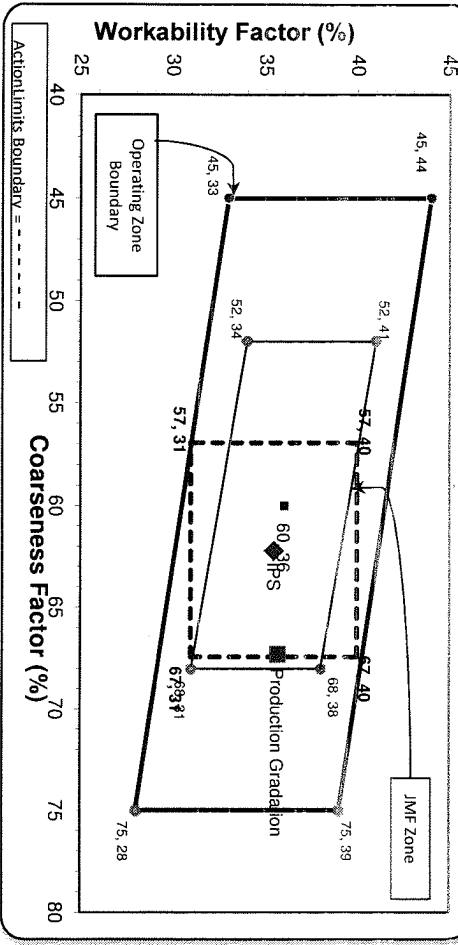
MDOT No.:

Aggr. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1570	9.60	2.62	51.5
26A	71-47	Presque Isle	250	1.53	2.62	8.2
2NS	95-013	Smeller Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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"	96.0	100.0	100.0	97.9	2.1	2.1
3/4"	75.6	100.0	100.0	87.4	10.5	12.6
1/2"	38.9	96.2	100.0	68.2	19.2	31.8
3/8"	18.3	84.8	100.0	56.7	11.5	43.3
#4	3.4	25.4	95.6	42.4	14.3	57.6
#8	2.2	7.5	84.1	35.7	6.7	64.3
#16	1.9	3.7	70.4	29.7	6.0	70.3
#30	1.8	2.9	51.1	21.8	7.9	78.2
#50	1.7	2.6	18.6	8.6	13.2	91.4
#100	1.6	2.4	3.0	2.2	6.4	97.8
LBW	1.0	2.0	0.8	1.0	1.2	99.0

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

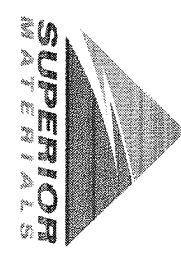
Coarseness Factor: 67 Workability Factor: 36



Initial Production Sample (IPS)

Coarseness Factor: 62 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"	100.0	0.0	0.0
3/4"	94.0	6.0	6.0
1/2"	70.2	23.7	29.8
3/8"	59.9	10.4	40.1
#4	42.7	17.2	57.3
#8	35.5	7.2	64.5
#16	28.4	7.0	71.6
#30	19.2	9.2	80.8
#50	8.9	10.3	91.1
#100	3.1	5.9	96.9
LBW	1.4	1.7	98.6



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.

PREPARED BY:
SM, LLC Technical Service

Approved By:

Plant 958-JMT

Product 1054-6AA LS PI

Name/Title Doug Storey / QC Technician

Period: 09/15/2019 - 09/21/2019

Report Date 09/20/2019

Procedure	Sieve/Test	Result	Unit	6AA LS PI Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	96.0	%	95-100
	3/4" (19mm)	75.6	%	
	1/2" (12.5mm)	38.9	%	30-60
	3/8" (9.5mm)	18.3	%	
	#4 (4.75mm)	3.4	%	0-8
	#8 (2.36mm)	2.2	%	
	#16 (1.18mm)	1.9	%	
	#30 (0.6mm)	1.8	%	
	#50 (0.3mm)	1.7	%	
	#100 (0.15mm)	1.6	%	
	#200 (75µm)	1.3	%	
	Wash Loss (#200/75um)	1.0	%	0-2
	Total Moisture	2.8	%	

Plant 958-JMT
 Product 1067-26A Mod LS
 Period: 09/15/2019 - 09/21/2019

Name/Title Doug Storey / QC Technician
 Report Date 09/19/2019

Procedure	Sieve/Test	Result	Unit	26A Mod LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	96.4	%	95-100
	3/8" (9.5mm)	85.1	%	60-95
	#4 (4.75mm)	24.2	%	5-30
	#8 (2.36mm)	6.7	%	0-12
	#16 (1.18mm)	3.5	%	
	#30 (0.6mm)	2.7	%	
	#50 (0.3mm)	2.4	%	
	#100 (0.15mm)	2.2	%	
	#200 (75µm)	1.8	%	
	Wash Loss (#200/75um)	1.6	%	0-3
	Total Moisture	5.0	%	

Plant 958-JMT

Product 1022-2NS GR - Smelter Bay

Name/Title Doug Storey / QC Technician

Period: 09/15/2019 - 09/21/2019

Report Date 09/19/2019

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.3	%	95-100
	#8 (2.36mm)	83.1	%	65-95
	#16 (1.18mm)	67.8	%	35-75
	#30 (0.6mm)	49.0	%	20-55
	#50 (0.3mm)	22.2	%	10-30
	#100 (0.15mm)	5.2	%	0-10
	#200 (75µm)	1.4	%	
	FM	2.77		2.6-3
	Wash Loss (#200/75um)	1.0	%	0-3
	Total Moisture	4.5	%	

Aggregate Optimization Chart

Production Gradation Report

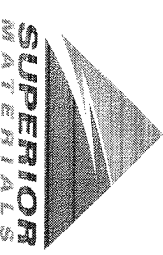
PLANT #: P-36

Sample Date: 9/16/19

Dates Test Represents: 9/17/2019 through 9/23/2019

Concrete Grade: S2M

Contractor: _____
MDOT No.: _____



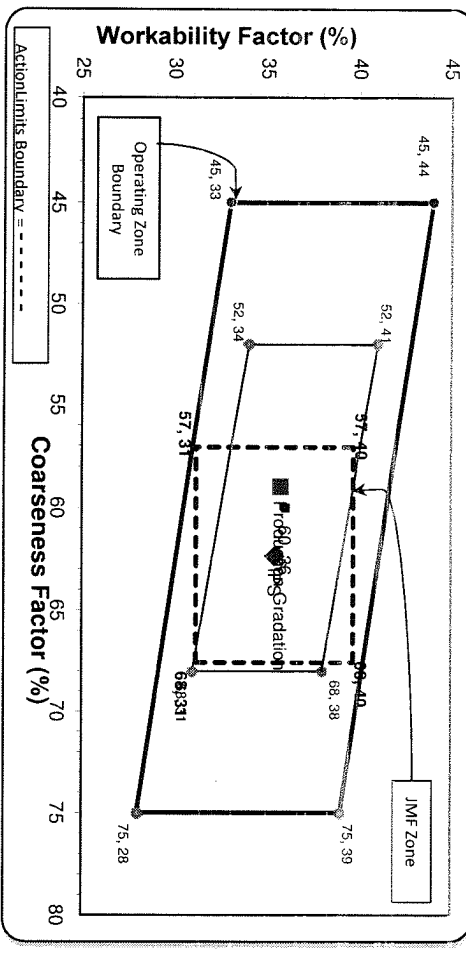
Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1600	9.79	2.62	52.5
26A	71-47	Presque Isle	250	1.53	2.62	8.2
2NS	63-92	Grange Hall	1200	7.26	2.65	39.3
		Total Wt	3050	18.57		100.0

Sieve	% Retained	Cumulative % Retained
2"	0.0	0.0
1.5"	0.0	0.0
1"	0.6	0.6
3/4"	8.6	9.2
1/2"	19.6	28.7
3/8"	9.2	37.9
#4	18.1	56.0
#8	8.3	64.3
#16	7.2	71.5
#30	7.3	78.8
#50	10.9	89.7
#100	7.6	97.3
LBW	1.3	98.6

Verify this number is 100%
 *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: 59 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"	99.1	0.9	0.9
3/4"	90.5	8.6	9.5
1/2"	69.8	20.7	30.2
3/8"	59.8	10.0	40.2
#4	42.2	17.6	57.8
#8	35.4	6.7	64.6
#16	28.8	6.7	71.2
#30	21.4	7.4	78.6
#50	8.8	12.6	91.2
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Superior Auburn Hills
 2470 Auburn Road
 Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 09/15/2019 - 09/21/2019

Report Date 09/19/2019

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	98.9	%	95-100
	3/4" (19mm)	82.5	%	
	1/2" (12.5mm)	45.5	%	30-60
	3/8" (9.5mm)	28.8	%	
	#4 (4.75mm)	6.1	%	0-8
	#8 (2.36mm)	3.3	%	
	#16 (1.18mm)	2.8	%	
	#30 (0.6mm)	2.7	%	
	#50 (0.3mm)	2.5	%	
	#100 (0.15mm)	2.3	%	
	#200 (75µm)	2.11	%	
	Wash Loss (#200/75um)	2.0	%	0-2
	Total Moisture	3.55	%	



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 Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 09/15/2019 - 09/21/2019

Report Date 09/19/2019

Procedure	Sieve/Test	Result	Unit	26A LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	97.3	%	95-100
	3/8" (9.5mm)	90.6	%	60-95
	#4 (4.75mm)	35.0	%	5-30
	#8 (2.36mm)	9.7	%	0-12
	#16 (1.18mm)	4.6	%	
	#30 (0.6mm)	3.6	%	
	#50 (0.3mm)	3.2	%	
	#100 (0.15mm)	2.8	%	
	#200 (75µm)	2.5	%	
	Wash Loss (#200/75um)	2.4	%	0-3
	Total Moisture	3.33	%	



Superior Auburn Hills
 2470 Auburn Road
 Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1022-2NS GR

Period: 09/15/2019 - 09/21/2019

Name/Title Doug Storey / QC Technician

Report Date 09/19/2019

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.5	%	95-100
	#8 (2.36mm)	84.3	%	65-95
	#16 (1.18mm)	67.7	%	35-75
	#30 (0.6mm)	49.5	%	20-55
	#50 (0.3mm)	22.1	%	10-30
	#100 (0.15mm)	3.2	%	0-10
	#200 (75µm)	0.5	%	
	FM	2.76		2.6-3
	Wash Loss (#200/75um)	0.3	%	0-3
	Total Moisture	3.53	%	