

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-02

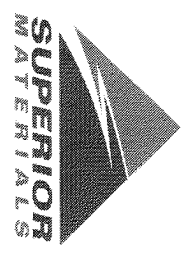
Sample Date: 3/28/22

Dates Test Represents: 3/29/2022 through 4/4/2022

Concrete Grade: S2M, 3500HP

Contractor: _____

MDOT No.: _____



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

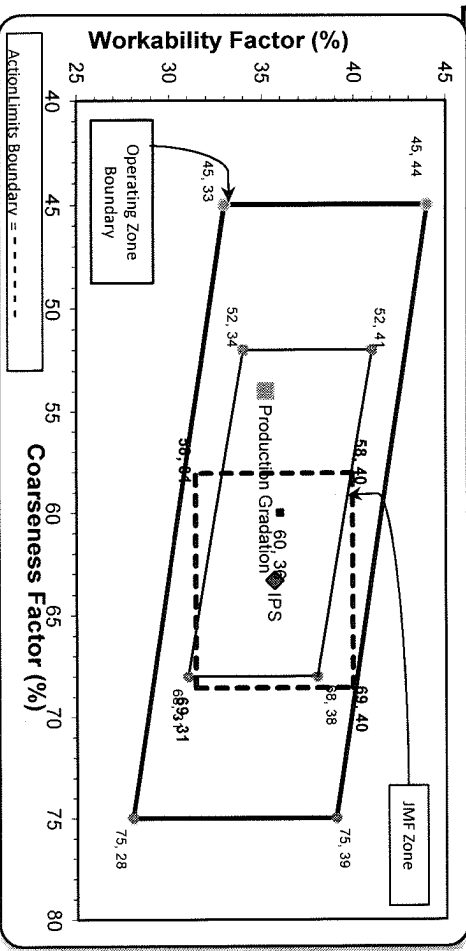
Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1450	8.87	2.62	47.5
26A	71-47	Presque Isle	350	2.14	2.62	11.5
2NS	63-115	Ray Rd	1250	7.56	2.65	41.0
Total Wt			3050	18.57		100.0

Sieve	% Retained	Cumulative % Retained
2"	0.0	0.0
1.5"	0.0	0.0
1"	0.0	0.0
3/4"	3.6	3.6
1/2"	18.2	21.8
3/8"	13.1	35.0
#4	19.5	54.5
#8	10.3	64.8
#16	7.4	72.2
#30	6.7	78.9
#50	9.9	88.8
#100	7.5	96.3
LBW	2.1	98.4

*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: 54 **Workability Factor:** 35



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"	95.6	4.4	4.4
1/2"	73.1	22.6	26.9
3/8"	59.3	13.8	40.7
#4	42.8	16.5	57.2
#8	35.7	7.1	64.3
#16	28.9	6.8	71.1
#30	20.7	8.2	79.3
#50	9.9	10.8	90.1
#100	2.1	7.8	97.9
LBW	0.9	1.2	99.1

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Plant S02-Superior Hoover

Product 1022-2NS GR

Period: 03/27/2022 - 04/02/2022

Name/Title Doug Storey / QC Technician

Report Date 04/01/2022

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)	80.2	%	65-95
	#16 (1.18mm)	64.1	%	35-75
	#30 (.6mm)	48.4	%	20-55
	#50 (.3mm)	24.4	%	10-30
	#100 (.15mm)	6.3	%	0-10
	#200 (75µm)	1.9	%	
	FM	2.79		2.6-3
	Wash Loss (#200/75um)	1.6	%	0-3
	Total Moisture	3.80	%	



Plant S02-Superior Hoover

Product 1067-26A Mod LS

Period: 03/27/2022 - 04/02/2022

Name/Title Doug Storey / QC Technician

Report Date 04/01/2022

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)	97.0	%	95-100
	3/8" (9.5mm)	89.0	%	60-95
	#4 (4.75mm)	30.8	%	5-30
	#8 (2.36mm)	10.6	%	0-12
	#16 (1.18mm)	5.0	%	
	#30 (.6mm)	3.5	%	
	#50 (.3mm)	3.1	%	
	#100 (.15mm)	2.8	%	
	#200 (75µm)	2.6	%	
	Wash Loss (#200/75um)	2.5	%	0-3
	Total Moisture	3.35	%	



Plant: S02-Superior Hoover

Product: 1051-6AA LS

Period: 03/27/2022 - 04/02/2022

Name/Title: Doug Storey / QC Technician

Report Date: 04/01/2022

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	100.0	%	95-100
	3/4" (19mm)	92.4	%	
	1/2" (12.5mm)	54.8	%	30-60
	3/8" (9.5mm)	29.1	%	
	#4 (4.75mm)	4.3	%	0-8
	#8 (2.36mm)	2.4	%	
	#16 (1.18mm)	2.0	%	
	#30 (.6mm)	1.9	%	
	#50 (.3mm)	1.8	%	
	#100 (.15mm)	1.7	%	
	#200 (75µm)	1.49	%	
	Wash Loss (#200/75um)	1.4	%	0-2
	Total Moisture	2.56	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

Sample Date: **3/28/22**

Dates Test Represents: **3/29/2022** through **4/4/2022**

Concrete Grade: **S2M, 3500HP**

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	1570	9.60	2.62	51.5	
26A	71-47	Presque Isle	250	1.53	2.62	8.2	
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3	
Total Wt						3050	100.0

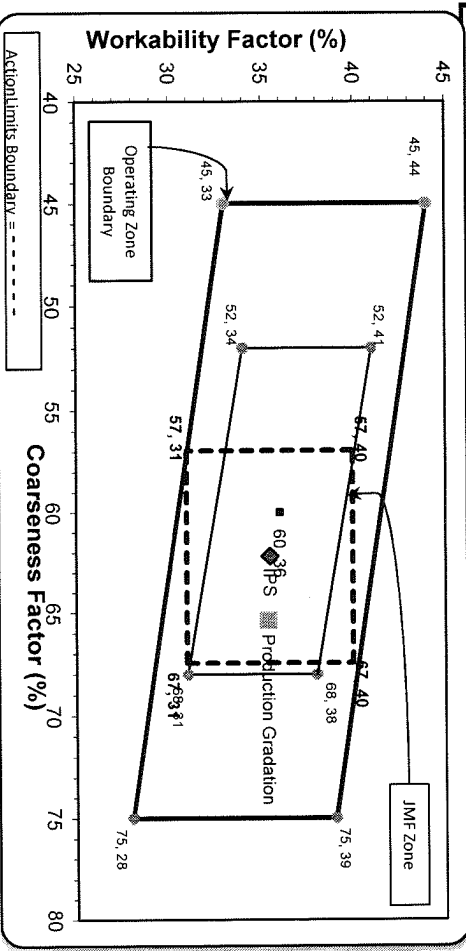
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	97.2	100.0	100.0	98.6	1.4	1.4
3/4"	85.7	100.0	100.0	92.6	5.9	7.4
1/2"	35.6	96.1	100.0	66.5	26.1	33.5
3/8"	19.8	88.1	100.0	57.7	8.8	42.3
#4	3.8	32.8	95.4	43.1	14.6	56.9
#8	2.4	11.9	82.2	35.4	7.8	64.6
#16	2.0	5.3	67.6	28.7	6.6	71.3
#30	1.8	3.6	48.9	20.9	7.8	79.1
#50	1.7	3.1	24.4	11.0	10.0	89.0
#100	1.6	2.8	7.4	4.0	6.9	96.0
LBW	1.1	2.0	1.8	1.5	2.6	98.5

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



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

PREPARED BY:
SM, LLC Technical Service

Approved By: _____

Plant 958-JMT
 Product 1022-2NS GR - Smelter Bay
 Period: 03/27/2022 - 04/02/2022

Name/Title Doug Storey / QC Technician
 Report Date 03/31/2022

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.4	%	95-100
	#8 (2.36mm)	82.2	%	65-95
	#16 (1.18mm)	67.6	%	35-75
	#30 (.6mm)	48.9	%	20-55
	#50 (.3mm)	24.4	%	10-30
	#100 (.15mm)	7.4	%	0-10
	#200 (75µm)	2.1	%	
	FM	2.74		2.6-3
	Wash Loss (#200/75um)	1.8	%	0-3
	Total Moisture	4.1	%	

Plant 958-JMT
 Product 1067-26A Mod LS
 Period: 03/27/2022 - 04/02/2022

Name/Title Doug Storey / QC Technician
 Report Date 03/31/2022

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)	96.1	%	95-100
	3/8" (9.5mm)	88.1	%	60-95
	#4 (4.75mm)	32.8	%	5-30
	#8 (2.36mm)	11.9	%	0-12
	#16 (1.18mm)	5.3	%	
	#30 (.6mm)	3.6	%	
	#50 (.3mm)	3.1	%	
	#100 (.15mm)	2.8	%	
	#200 (75µm)	2.3	%	
	Wash Loss (#200/75um)	2.0	%	0-3
	Total Moisture	3.9	%	

Edw. C. Levy Co.

JMT
 8911 W. Jefferson
 Detroit, 48209
 (313) 429-2429

Plant 958-JMT

Product 1054-6AA LS PI

Name/Title Doug Storey / QC Technician

Period: 03/27/2022 - 04/02/2022

Report Date 03/31/2022

Procedure	Sieve/Test	Result	Unit	6AA LS PI Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	97.2	%	95-100
	3/4" (19mm)	85.7	%	
	1/2" (12.5mm)	35.6	%	30-60
	3/8" (9.5mm)	19.8	%	
	#4 (4.75mm)	3.8	%	0-8
	#8 (2.36mm)	2.4	%	
	#16 (1.18mm)	2.0	%	
	#30 (.6mm)	1.8	%	
	#50 (.3mm)	1.7	%	
	#100 (.15mm)	1.6	%	
	#200 (75µm)	1.3	%	
	Wash Loss (#200/75um)	1.1	%	0-2
	Total Moisture	3.2	%	