Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-32

Sample Date: 11/27/23

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 11/28/2023 through 12/4/2023

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1000	6.12	2.62	32.6
IA	71-47	Presque Isle	870	5.32	2.62	28.3
2NS	95-013	Smelter Bay	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

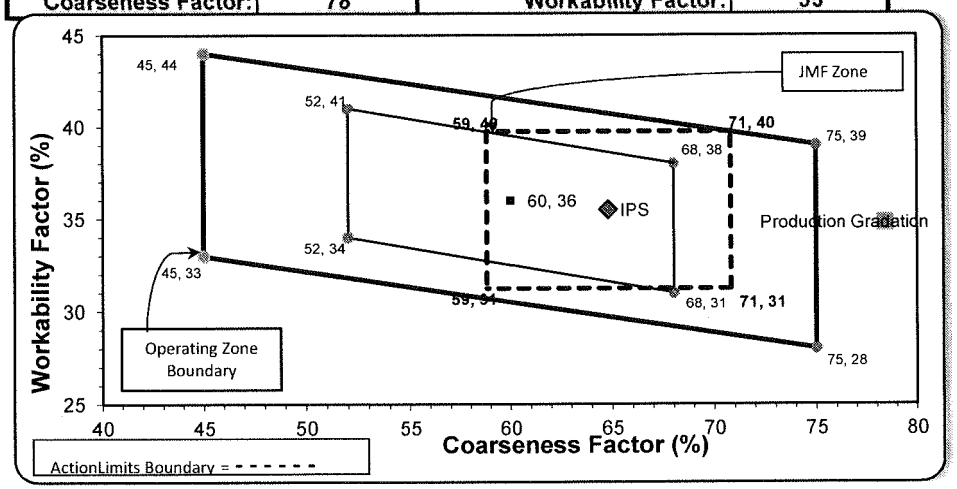
<------ Verify this number is 100%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	87.6	100.0	100.0	96.0	4.0	4.0
1"	21.8	100.0	100.0	74.5	21.4	25.5
3/4"	4.4	97.4	100.0	68.1	6.4	31.9
1/2"	2.1	58.6	100.0	56.4	11.7	43.6
3/8"	2.0	32.3	100.0	48.9	7.5	51.1
#4	2.0	3.6	96.2	39.3	9.6	60.7
#8	2.0	1.8	86.1	34.8	4.5	65.2
#16	2.0	1.5	72.3	29.3	5.5	70.7
#30	2.0	1.5	52.9	21.8	7.6	78.2
#50	1.9	1.4	25.8	11.1	10.7	88.9
#100	1.8	1.3	8.0	4.1	7.0	95.9
LBW	1.4	1.1	1.7	1.4	2.6	98.6

*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:	78	Workability Factor:	35



Intial Production Sample (IPS)

Coarseness Factor:	65
Workability Factor:	36

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.0	0.6	0.6
1"	84.0	15.3	16.0
3/4"	73.5	10.5	26.5
1/2"	65.2	8.2	34.8
3/8"	58.2	7.1	41.8
#4	44.1	14.1	55.9
#8	35.5	8.6	64.5
#16	29.1	6.4	70.9
#30	21.9	7.3	78.1
#50	9.6	12.2	90.4
#100	2.6	7.1	97.4
LBW	1.0	1.6	99.0

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

PREPARED BY:
SM, LLC Technical Service

Approved By:

Edw. C. Levy Co.

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

Basic Quality Statistical Summary Report

Plant 958-JMT
Product 7919-COARSE AGG P1M LS PI
Specification Coarse Agg P1M LS PI Target
Period 11/26/2023 - 12/02/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0		100-100	
1 1/2" (37.5mm)	1	87.6		93-100	
1" (25mm)	1	21.8		35-55	
3/4" (19mm)	1	4.4		8-24	
1/2" (12.5mm)	1	2.1		0-6	
3/8" (9.5mm)	1	2.0		0-5	
#4 (4.75mm)	1	2.0		0-3	
#8 (2.36mm)	1	2.0			
#16 (1.18mm)	1	2.0			
#30 (.6mm)	1	2.0			
#50 (.3mm)	1	1.9			
#100 (.15mm)	1	1.8			
#200 (75µm)	1	1.6		0-2	
Pan	1	0.0			
Wash Loss (#200/75um)	1	1.4			0-2
Total Moisture	1	1.5			

Edw. C. Levy Co.

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

Basic Quality Statistical Summary Report

Plant 958-JMT
Product 7920-INTERMED AGG P1M LS PI
Specification Intermed Agg P1M LS PI Target
Period 11/26/2023 - 12/02/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
2" (50mm)	1	100.0			
1 1/2" (37.5mm)	1	100.0			
1" (25mm)	1	100.0		100-100	
3/4" (19mm)	1	97.4		98-100	
1/2" (12.5mm)	1	58.6		72-92	
3/8" (9.5mm)	1	32.3		39-68	
#4 (4.75mm)	1	3.6		2-23	
#8 (2.36mm)	1	1.8			
#16 (1.18mm)	1	1.5			
#30 (.6mm)	1	1.5			
#50 (.3mm)	1	1.4			
#100 (.15mm)	1	1.3			
#200 (75µm)	1	1.2		0-3	
Pan	1	0.0			
Wash Loss (#200/75um)	1	1.1			0-3
Total Moisture	1	2.6			

Edw. C. Levy Co.

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

Basic Quality Statistical Summary Report

Plant 958-JMT
Product 1022-2NS GR - Smelter Bay
Specification 2NS GR Spec
Period 11/26/2023 - 12/02/2023

Sieve/Test	Tests	Average	St Dev	Target	Specification
3/8" (9.5mm)	1	100.0			100-100
#4 (4.75mm)	1	96.2			95-100
#8 (2.36mm)	1	86.1			65-95
#16 (1.18mm)	1	72.3			35-75
#30 (.6mm)	1	52.9			20-55
#50 (.3mm)	1	25.8		18-28	10-30
#100 (.15mm)	1	8.0			0-10
#200 (75µm)	1	2.0			
Pan	1	0.0			
FM	1	2.59		2.7-2.9	2.6-3
Wash Loss (#200/75um)	1	1.7			0-3