PLANT #: P-103

Sample Date:

Dates Test Represents

Production Gradation

11/28/22 Concrete Grade: DM, 4500HP

3:	11/29/2022	through	12/5/2022		
	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
7	Stoneco	1500	8.94	2.69	50.8
	Ctonooo	200	1.70	2.60	10.2

MDOT No.:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

36.1

Contractor:



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

	Total Wt	2950 17.68		100.0	< Verify this n	umber 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"	74.7	100.0	100.0	87.1	12.9	12.9
1/2"	36.7	99.7	100.0	67.8	19.4	32.2
3/8"	20.4	86.3	100.0	58.1	9.7	41.9
#4	3.5	6.1	97.6	40.4	17.7	59.6
#8	1.9	1.3	83.5	33.6	6.8	66.4
#16	1.8	1.0	68.5	27.7	5.9	72.3
#30	1.5	0.9	51.2	20.8	6.9	79.2
#50	1.4	0.9	26.6	11.2	9.6	88.8
#100	1.3	0.9	7.3	3.6	7.6	96.4
LBW	1.1	0.8	1.3	1.1	2.5	98.9

Aggregate Supplier Gradations

*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.

Coarseness Factor:	63	Workability Factor:	34	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 34	68, 38 68, 38 Froduction Gradation	JMF Zone 75, 39	
25 40 45 ActionLimits Boundary =	50 55	Coarseness Factor (%)	75	80

O Batch Plant Gradations

Work	ability 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"	89.2	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:

PLANT #:

Sample Date:

Concrete Grade: DM, 4500HP 11/28/22

Contractor:

Dates Test Represents:		11/29/2022	through	12/5/2022		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1
26A	71-47	Presque Isle	300	1.83	2.62	10.3
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6

Superior Materials, LLC 30701 W. 10 Mile Rd.

Suite 500

Farmington Hills, MI 48336

	Total Wt	2905	17.69		100.0	< Verify this no	umber 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"	98.8	100.0		100.0	99.4	0.6	0.6
3/4"	88.1	100.0		100.0	94.0	5.4	6.0
1/2"	48.6	98.6		100.0	74.1	19.9	25.9
3/8"	26.6	89.4		100.0	62.1	12.0	37.9
#4	4.7	25.1		95.9	42.9	19.2	57.1
#8	2.6	5.8		84.0	35.2	7.8	64.8
#16	2.3	2.9		68.8	28.7	6.5	71.3
#30	2.2	2.2		49.9	21.1	7.6	78.9
#50	2.1	2.1		24.4	10.9	10.2	89.1
#100	2.0	2.0		6.7	3.9	7.1	96.1
LBW	1.8	1.7		1.4	1.6	2.2	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 Gra	dations	ons	Adjusted WF	Intial Product	ion Sample (IPS
Coarseness Factor: 58		Workability Factor:	35	37.7	Coars	seness Factor:
7 45				$\neg \top$	Worl	cability Factor:
45, 44			JMF Zone	7 I I	Sieve	Cumulative
1 1 1	52, 41		31111 20110	-	Sieve	% Passing
_ 40 -	5	67, 40			2"	100.0
ଛିଁ		68, 38	75, 39	- 11	1.5"	100.0
		Production Gradation 60, 3BS			1"	100.0
유			- 11	3/4"	95.0	
Factor (%)		i il		- 11	1/2"	72.3
1 7	52, 34	<u> </u>			3/8"	60.4
North 45, 33 Operating Zor Boundary	50	32			#4	42.6
2 30		67 _{68,31}			#8	36.0
Operating Zon	ie.				#16	29.5
Boundary			75, 28		#30	20.3
25					#50	9.5
40 45	50 5	5 60 65 70	75	80	#100	3.4
		Coarseness Factor (%)			LBW	1.3
ActionLimits Boundary = -						

Work	ability 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

PLANT #: P-32

Sample Date:

Production Gradation

1/28/22 Concrete Grade: **DM**, **4500HP**

Agg. Class	Pit#	Source	Weight (SSD)	ft ³	Specific	% ••••••••••••••••••••••••••••••••••••
Dates Test	Represents:	11/29/2022	through	12/5/2022		

Agg Class	Pit #	Source	Weight (SSD)	ft ³	Specific	%
Agg. Class				π	Gravity	Contribution
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1
26A	71-47	Presque Isle	300	1.83	2.62	10.3
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6
		Total Wt	2905	17.69		100.0

Contractor:

MDOT No.:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

37.7



---- Verify this number is 100%

<u>s</u>	uperior Materials, LLC
3	0701 W. 10 Mile Rd.
S	uite 500
F	armington Hills, MI 48336

	TOtal Wit	2903 17.09		100.0	< verily trils ii	uniber 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"	98.8	100.0	100.0	99.4	0.6	0.6
3/4"	88.1	100.0	100.0	94.0	5.4	6.0
1/2"	48.6	98.6	100.0	74.1	19.9	25.9
3/8"	26.6	89.4	100.0	62.1	12.0	37.9
#4	4.7	25.1	95.9	42.9	19.2	57.1
#8	2.6	5.8	84.0	35.2	7.8	64.8
#16	2.3	2.9	68.8	28.7	6.5	71.3
#30	2.2	2.2	49.9	21.1	7.6	78.9
#50	2.1	2.1	24.4	10.9	10.2	89.1
#100	2.0	2.0	6.7	3.9	7.1	96.1
LBW	1.8	1.7	1.4	1.6	2.2	98.4

Aggregate Supplier Gradations

*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.

Coarseness Factor:	58	Workability Factor:	35	
45 45, 44 45, 44 45, 33 Operating Zone Boundary	52, 34	6, 40 67, 40 Production Gradation 68, 38 69, 38 68, 38	75, 39	
25 40 45 ActionLimits Boundary =	50 58	Coarseness Factor (%)	75	80

Batch Plant Gradations

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

62

PREPARED BY: SM, LLC Technical Service Approved By

PLANT #: P-02

Sample Date:

Dates Test Represents:

11/28/22 Concrete Grade: DM, 4500HP

11/29/2022	through	12/5/2022		
Source	Weight (SSD)	ft ³	Specific	%
Source	weight (SSD)	11	Gravity	Contribution
Presque Isle	1505	9.21	2.62	51.8

Contractor:

MDOT No.:

Agg. Class	Pit#	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1505	9.21	2.62	51.8
26A	71-47	Presque Isle	250	1.53	2.62	8.6
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
		Total Wt	2905	17.69		100.0

Coarseness Factor:

SUP	FR	10)B

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.

63

*% Retained must be at least 8% for the 1" sieve when

a 2" max. size (nom. Max. 1.5") aggregate is used.

100.0 < Verify this number is 10
Cumulative % Retained % Retained % Retained
100.0 0.0 0.0
100.0 0.0 0.0
99.0 1.0 1.0
88.9 10.2 11.
68.1 20.7 31.9
56.5 11.7 43.9
42.3 14.2 57.7
33.4 8.9 66.0
26.6 6.8 73.4
20.3 6.3 79.
11.4 9.0 88.0
3.1 8.3 96.9
1.1 2.0 98.9
_

Coarseness Factor: Workability Factor: 33 35.9 65 45 JMF Zone 45, 44 52, 41 Workability Factor (%) ■ 60, 36 Production Gradation 52, 34 Operating Zone Boundary 75, 28

Coarseness Factor (%)⁷⁰

75

80

Workability Factor:		35	
Sieve	Cumulative	%	Cumulative
Oleve	% Passing	Retained	% 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"	95.1	4.9	4.9
1/2"	74.6	20.5	25.4
3/8"	59.3	15.3	40.7
#4	42.1	17.2	57.9
#8	35.1	7.1	64.9
#16	29.2	5.9	70.8
#30	21.9	7.3	78.1
#50	9.6	12.4	90.4
#100	2.4	7.2	97.6
LBW	0.9	1.5	99.1

PREPARED BY: SM, LLC Technical Service

50

55

45

ActionLimits Boundary = - - -

25