

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

Sample Date: **3/7/22**

Dates Test Represents: **3/8/2022** through **3/14/2022**

Concrete Grade: **DM, 4500HP**

Contractor: _____

MDOT No.: _____



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

Verify this number is 100%

| 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 |
| | | Total Wt: | 2905 | 17.69 | | 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" | 98.8 | 100.0 | 100.0 | 99.4 | 0.6 | 0.6 |
| 3/4" | 87.6 | 100.0 | 100.0 | 93.8 | 5.6 | 6.2 |
| 1/2" | 48.6 | 96.9 | 100.0 | 73.9 | 19.9 | 26.1 |
| 3/8" | 29.5 | 84.3 | 100.0 | 63.1 | 10.9 | 36.9 |
| #4 | 5.9 | 23.3 | 96.0 | 43.4 | 19.7 | 56.6 |
| #8 | 2.3 | 8.2 | 83.4 | 35.0 | 8.4 | 65.0 |
| #16 | 1.8 | 3.8 | 68.0 | 28.2 | 6.8 | 71.8 |
| #30 | 1.6 | 2.6 | 48.3 | 20.2 | 8.0 | 79.8 |
| #50 | 1.5 | 2.3 | 24.0 | 10.5 | 9.7 | 89.5 |
| #100 | 1.5 | 2.1 | 7.4 | 3.9 | 6.6 | 96.1 |
| LBW | 1.2 | 1.8 | 1.6 | 1.4 | 2.5 | 98.6 |

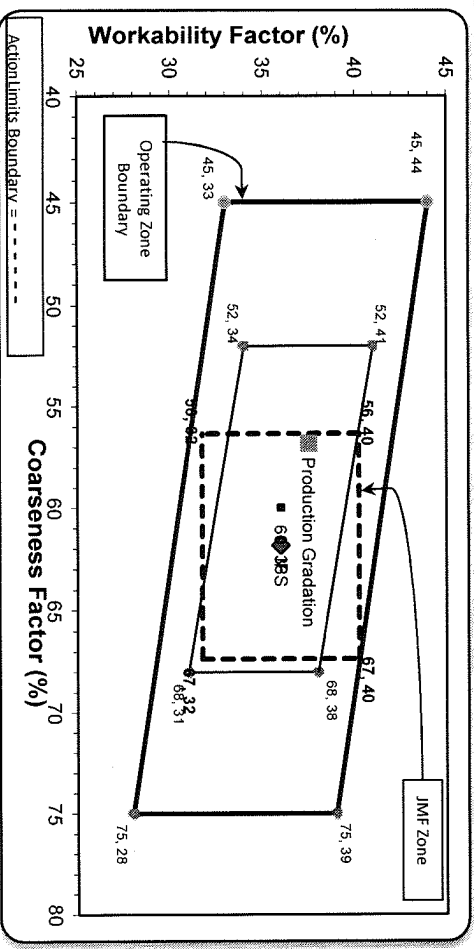
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when
 a 2" max size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **57** Workability Factor: **35** Adjusted WF: **37.5**

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: _____

Plant 958-JMT

Product 1022-2NS GR - Smelter Bay

Name/Title Casey Smith / QC Manager

Period: 03/04/2022 - 03/11/2022

Report Date 03/11/2022

| Procedure | Sieve/Test | Result | Unit | 2NS GR Spec |
|-----------|-----------------------|--------|------|-------------|
| | 3/8" (9.5mm) | 100.0 | % | 100-100 |
| | #4 (4.75mm) | 96.0 | % | 95-100 |
| | #8 (2.36mm) | 83.4 | % | 65-95 |
| | #16 (1.18mm) | 68.0 | % | 35-75 |
| | #30 (.6mm) | 48.3 | % | 20-55 |
| | #50 (.3mm) | 24.0 | % | 10-30 |
| | #100 (.15mm) | 7.4 | % | 0-10 |
| | #200 (75µm) | 1.9 | % | |
| | FM | 2.73 | | 2.6-3 |
| | Wash Loss (#200/75um) | 1.6 | % | 0-3 |
| | Total Moisture | 4.1 | % | |

Plant 958-JMT

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 03/06/2022 - 03/12/2022

Report Date 03/11/2022

| 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) | 96.9 | % | 95-100 |
| | 3/8" (9.5mm) | 84.3 | % | 60-95 |
| | #4 (4.75mm) | 23.3 | % | 5-30 |
| | #8 (2.36mm) | 8.2 | % | 0-12 |
| | #16 (1.18mm) | 3.8 | % | |
| | #30 (.6mm) | 2.6 | % | |
| | #50 (.3mm) | 2.3 | % | |
| | #100 (.15mm) | 2.1 | % | |
| | #200 (75µm) | 2.0 | % | |
| | Wash Loss (#200/75um) | 1.8 | % | 0-3 |
| | Total Moisture | 4.8 | % | |

Edw. C. Levy Co.

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

Plant 958-JMT

Product 1054-6AA LS PI

Name/Title Casey Smith / QC Manager

Period: 03/04/2022 - 03/11/2022

Report Date 03/11/2022

| Procedure | Sieve/Test | Result | Unit | 6AA LS PI Spec |
|-----------|-----------------------|--------|------|----------------|
| | 2" (50mm) | 100.0 | % | |
| | 1 1/2" (37.5mm) | 100.0 | % | 100-100 |
| | 1" (25mm) | 98.8 | % | 95-100 |
| | 3/4" (19mm) | 87.6 | % | |
| | 1/2" (12.5mm) | 48.6 | % | 30-60 |
| | 3/8" (9.5mm) | 29.5 | % | |
| | #4 (4.75mm) | 5.9 | % | 0-8 |
| | #8 (2.36mm) | 2.3 | % | |
| | #16 (1.18mm) | 1.8 | % | |
| | #30 (.6mm) | 1.6 | % | |
| | #50 (.3mm) | 1.5 | % | |
| | #100 (.15mm) | 1.5 | % | |
| | #200 (75µm) | 1.3 | % | |
| | Wash Loss (#200/75µm) | 1.2 | % | 0-2 |
| | Total Moisture | 4.2 | % | |