

Aggregate Optimization Chart

PLANT #: **P-32**

Sample Date: 5/3/21

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 5/4/2021 through 5/10/2021

MDOT No.: _____

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| 6AA | 71-47 | Presque Isle | 1500 | 9.17 | 2.62 | 49.2 |
| 26A | 71-47 | Presque Isle | 320 | 1.96 | 2.62 | 10.5 |
| 2NS | 95-013 | Smelter Bay | 1230 | 7.44 | 2.65 | 40.3 |
| Total Wt | | | 3050 | 18.57 | | 100.0 |

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



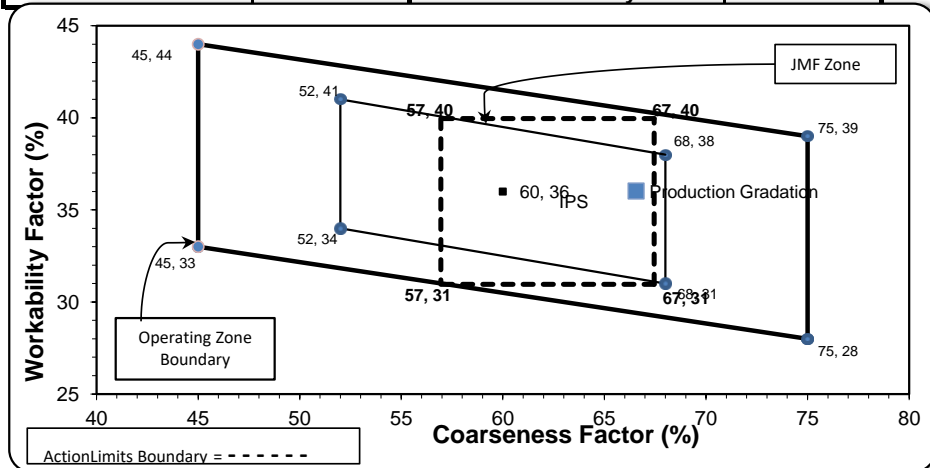
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

| 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" | 98.6 | 100.0 | 100.0 | 99.3 | 0.7 | 0.7 |
| 3/4" | 76.2 | 100.0 | 100.0 | 88.3 | 11.0 | 11.7 |
| 1/2" | 31.6 | 97.6 | 100.0 | 66.1 | 22.2 | 33.9 |
| 3/8" | 15.8 | 88.9 | 100.0 | 57.4 | 8.7 | 42.6 |
| #4 | 3.6 | 22.0 | 97.1 | 43.2 | 14.2 | 56.8 |
| #8 | 2.6 | 9.9 | 83.6 | 36.0 | 7.2 | 64.0 |
| #16 | 2.4 | 3.6 | 66.1 | 28.2 | 7.8 | 71.8 |
| #30 | 2.3 | 2.6 | 43.0 | 18.7 | 9.5 | 81.3 |
| #50 | 2.2 | 2.2 | 19.1 | 9.0 | 9.7 | 91.0 |
| #100 | 2.1 | 2.0 | 5.5 | 3.5 | 5.6 | 96.5 |
| LBW | 1.6 | 1.7 | 1.6 | 1.6 | 1.9 | 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: **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 |

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-02**

Sample Date: 5/3/21 Concrete Grade: **S2M**
 Dates Test Represents: 5/4/2021 through 5/10/2021

Contractor: _____

MDOT No.: _____

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | % Contribution |
|-----------------|--------|--------------|--------------|-----------------|------------------|----------------|
| 6AA | 71-47 | Presque Isle | 1500 | 9.17 | 2.62 | 49.2 |
| 26A | 71-47 | Presque Isle | 300 | 1.83 | 2.62 | 9.8 |
| 2NS | 63-115 | Ray Rd | 1250 | 7.56 | 2.65 | 41.0 |
| Total Wt | | | 3050 | 18.57 | | 100.0 |

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



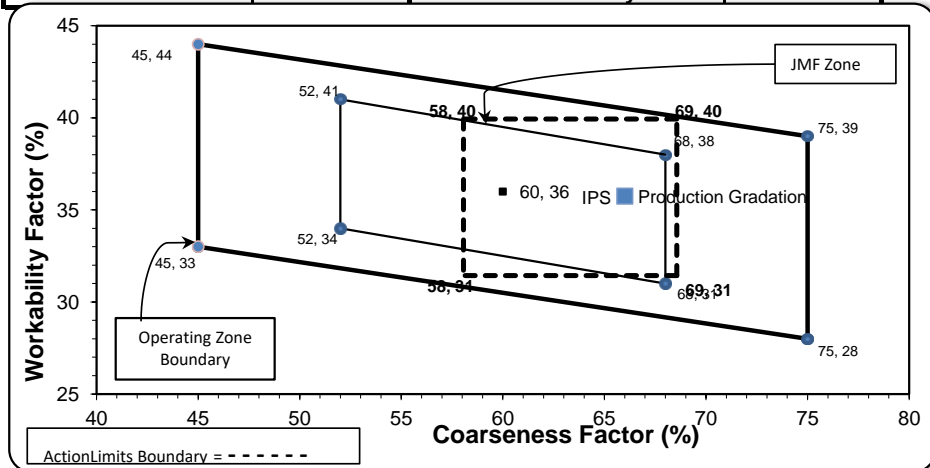
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

| 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" | 97.1 | 100.0 | 100.0 | 98.6 | 1.4 | 1.4 |
| 3/4" | 76.8 | 100.0 | 100.0 | 88.6 | 10.0 | 11.4 |
| 1/2" | 33.6 | 97.6 | 100.0 | 67.1 | 21.5 | 32.9 |
| 3/8" | 16.0 | 88.9 | 100.0 | 57.6 | 9.5 | 42.4 |
| #4 | 3.4 | 22.0 | 96.7 | 43.5 | 14.1 | 56.5 |
| #8 | 2.3 | 9.9 | 82.1 | 35.8 | 7.7 | 64.2 |
| #16 | 2.0 | 3.6 | 67.9 | 29.2 | 6.6 | 70.8 |
| #30 | 2.0 | 2.6 | 50.7 | 22.0 | 7.1 | 78.0 |
| #50 | 1.9 | 2.2 | 24.7 | 11.3 | 10.7 | 88.7 |
| #100 | 1.8 | 2.0 | 4.5 | 2.9 | 8.3 | 97.1 |
| LBW | 1.6 | 1.7 | 0.4 | 1.1 | 1.8 | 98.9 |

*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: **66** **Workability Factor:** **36**



Initial Production Sample (IPS)

Coarseness Factor: **63**
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" | 95.6 | 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 |

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 SM, LLC Technical Service

Approved By: