

Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

PLANT #: **P-103**

Sample Date: 7/31/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 7/31/2017 to 8/6/2017

MDOT No.: _____

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | % Contribution |
|-----------------|--------|------------|--------------|-----------------|------------------|----------------|
| 6AA | 58-003 | Stoneco | 1655 | 9.86 | 2.69 | 52.5 |
| 26A | 58-003 | Stoneco | 200 | 1.19 | 2.69 | 6.3 |
| 2NS | 81-93 | Burmeister | 1300 | 7.89 | 2.64 | 41.2 |
| Total Wt | | | 3155 | 18.94 | | 100.0 |

<----- Verify this number 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" | 75.1 | 100.0 | 100.0 | 86.9 | 13.1 | 13.1 |
| 1/2" | 41.1 | 99.9 | 100.0 | 69.1 | 17.8 | 30.9 |
| 3/8" | 19.0 | 89.8 | 100.0 | 56.9 | 12.2 | 43.1 |
| #4 | 2.6 | 7.9 | 97.7 | 42.1 | 14.7 | 57.9 |
| #8 | 1.3 | 2.0 | 83.6 | 35.3 | 6.9 | 64.7 |
| #16 | 1.3 | 1.4 | 68.0 | 28.8 | 6.5 | 71.2 |
| #30 | 1.1 | 1.2 | 48.2 | 20.5 | 8.3 | 79.5 |
| #50 | 1.0 | 1.1 | 18.2 | 8.1 | 12.4 | 91.9 |
| #100 | 1.0 | 1.1 | 2.9 | 1.8 | 6.3 | 98.2 |
| LBW | 0.7 | 0.9 | 0.9 | 0.8 | 1.0 | 99.2 |

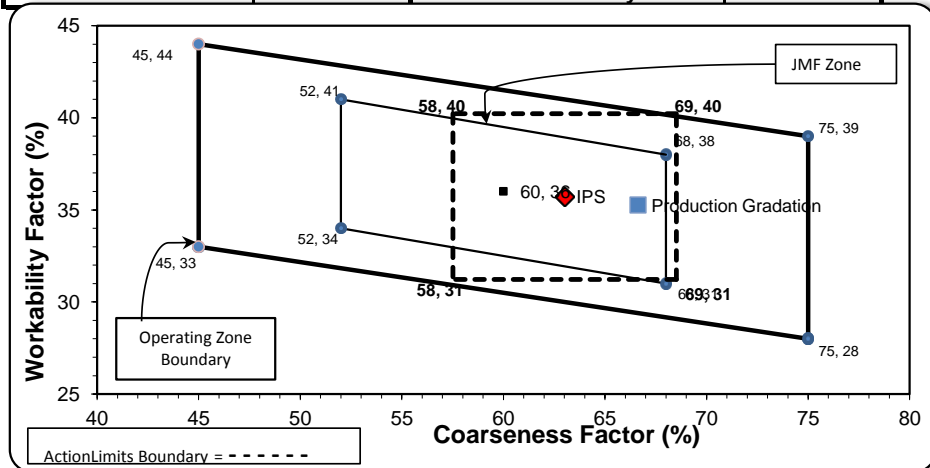


Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

*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.
 *% 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: 35**



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" | 99.2 | 0.8 | 0.8 |
| 3/4" | 90.9 | 8.3 | 9.1 |
| 1/2" | 71.3 | 19.6 | 28.7 |
| 3/8" | 59.5 | 11.8 | 40.5 |
| #4 | 43.8 | 15.7 | 56.2 |
| #8 | 35.7 | 8.1 | 64.3 |
| #16 | 27.0 | 8.7 | 73.0 |
| #30 | 18.6 | 8.4 | 81.4 |
| #50 | 6.8 | 11.8 | 93.2 |
| #100 | 1.4 | 5.4 | 98.6 |
| LBW | 0.6 | 0.8 | 99.4 |

PREPARED BY:
 SM, LLC Technical Service

Approved BY:

Aggregate Optimization Chart

MIX ID'S: WSN175E9

Production Gradation Report

PLANT #: **P-36**

Sample Date: 7/31/17

Dates Test Represents: 7/31/2017 to 8/6/2017

Concrete Grade: **S2M (SPECIAL, 5000 PSI)**

Contractor: _____

MDOT No.: _____

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | % Contribution |
|-----------------|--------|----------------|--------------|-----------------|------------------|----------------|
| 6AA | 58-003 | Stoneco | 1580 | 9.41 | 2.69 | 52.8 |
| 26A | 71-47 | Presque Isle | 200 | 1.22 | 2.62 | 6.7 |
| 2NS | 63-92 | AA Grange Hall | 1210 | 7.32 | 2.65 | 40.5 |
| Total Wt | | | 2990 | 17.95 | | 100.0 |

<----- Verify this number 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" | 75.1 | 100.0 | 100.0 | 86.8 | 13.2 | 13.2 |
| 1/2" | 41.1 | 97.3 | 100.0 | 68.7 | 18.1 | 31.3 |
| 3/8" | 19.0 | 82.2 | 100.0 | 56.0 | 12.7 | 44.0 |
| #4 | 2.6 | 11.8 | 98.2 | 41.9 | 14.1 | 58.1 |
| #8 | 1.3 | 2.8 | 86.4 | 35.8 | 6.1 | 64.2 |
| #16 | 1.3 | 1.8 | 69.6 | 29.0 | 6.9 | 71.0 |
| #30 | 1.1 | 1.6 | 47.7 | 20.0 | 9.0 | 80.0 |
| #50 | 1.0 | 1.4 | 17.7 | 7.8 | 12.2 | 92.2 |
| #100 | 1.0 | 1.4 | 2.6 | 1.7 | 6.1 | 98.3 |
| LBW | 0.7 | 1.2 | 0.3 | 0.6 | 1.1 | 99.4 |

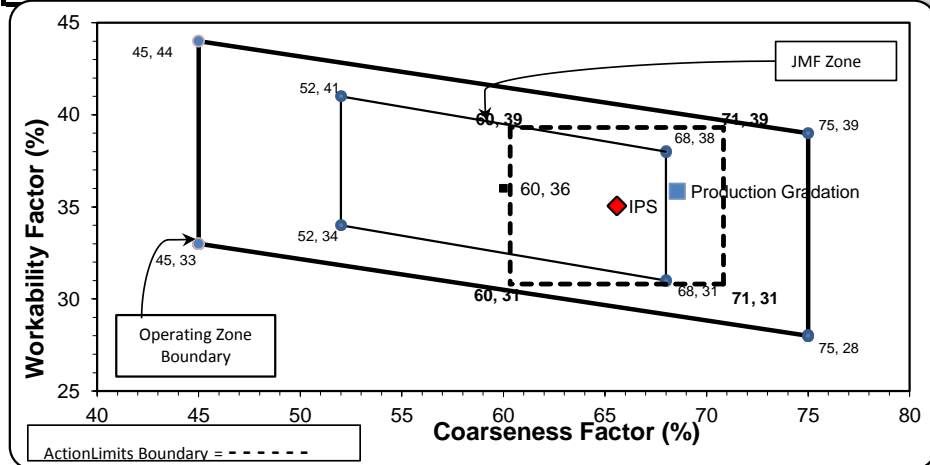


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 69 **Workability Factor: 36**



Initial Production Sample (IPS)

| Coarseness Factor: 66 | | 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" | 91.7 | 8.3 | 8.3 |
| 1/2" | 66.8 | 24.8 | 33.2 |
| 3/8" | 57.4 | 9.4 | 42.6 |
| #4 | 43.0 | 14.4 | 57.0 |
| #8 | 35.1 | 7.9 | 64.9 |
| #16 | 28.0 | 7.1 | 72.0 |
| #30 | 19.5 | 8.5 | 80.5 |
| #50 | 8.1 | 11.4 | 91.9 |
| #100 | 2.0 | 6.1 | 98.0 |
| LBW | 0.7 | 1.3 | 99.3 |

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 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7, DDS257E5 and DDS257E8

Production Gradation Report

PLANT #: **P-38**

Sample Date: 7/31/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 7/31/2017 to 8/6/2017

MDOT No.: _____

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | % Contribution |
|-----------------|--------|------------|--------------|-----------------|------------------|----------------|
| 6AA | 58-003 | Stoneco | 1655 | 9.86 | 2.69 | 52.5 |
| 26A | 58-003 | Stoneco | 200 | 1.19 | 2.69 | 6.3 |
| 2NS | 81-93 | Burmeister | 1300 | 7.89 | 2.64 | 41.2 |
| Total Wt | | | 3155 | 18.94 | | 100.0 |

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| 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" | 75.1 | 100.0 | 100.0 | 86.9 | 13.1 | 13.1 |
| 1/2" | 41.1 | 99.9 | 100.0 | 69.1 | 17.8 | 30.9 |
| 3/8" | 19.0 | 89.8 | 100.0 | 56.9 | 12.2 | 43.1 |
| #4 | 2.6 | 7.9 | 97.7 | 42.1 | 14.7 | 57.9 |
| #8 | 1.3 | 2.0 | 83.6 | 35.3 | 6.9 | 64.7 |
| #16 | 1.3 | 1.4 | 68.0 | 28.8 | 6.5 | 71.2 |
| #30 | 1.1 | 1.2 | 48.2 | 20.5 | 8.3 | 79.5 |
| #50 | 1.0 | 1.1 | 18.2 | 8.1 | 12.4 | 91.9 |
| #100 | 1.0 | 1.1 | 2.9 | 1.8 | 6.3 | 98.2 |
| LBW | 0.7 | 0.9 | 0.9 | 0.8 | 1.0 | 99.2 |

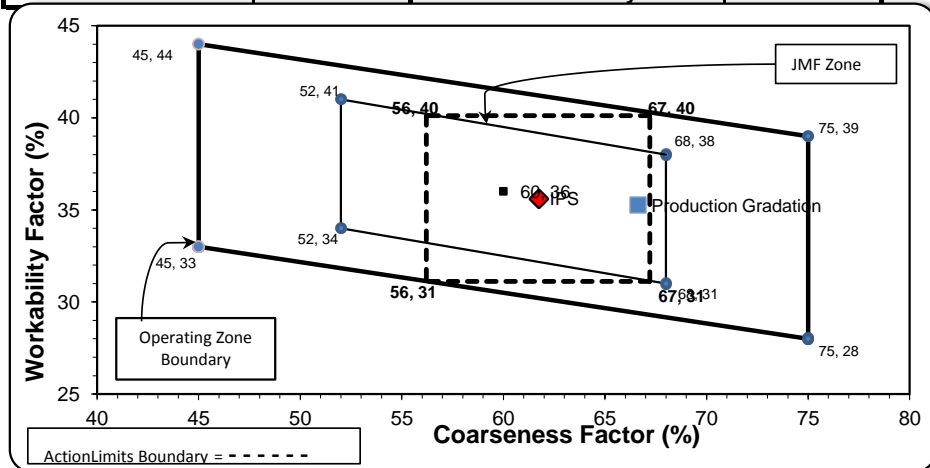


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

| | | | |
|---------------------------|-----------|----------------------------|-----------|
| Coarseness Factor: | 67 | Workability Factor: | 35 |
|---------------------------|-----------|----------------------------|-----------|



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" | 99.2 | 0.8 | 0.8 |
| 3/4" | 91.1 | 8.1 | 8.9 |
| 1/2" | 72.0 | 19.1 | 28.0 |
| 3/8" | 60.3 | 11.7 | 39.7 |
| #4 | 43.4 | 16.9 | 56.6 |
| #8 | 35.6 | 7.8 | 64.4 |
| #16 | 28.4 | 7.2 | 71.6 |
| #30 | 21.8 | 6.7 | 78.2 |
| #50 | 9.1 | 12.6 | 90.9 |
| #100 | 1.7 | 7.4 | 98.3 |
| LBW | 1.1 | 0.6 | 98.9 |

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Approved By: