

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-103**

Sample Date: 10/23/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 10/23/2017 to 10/29/2017

MDOT No.: _____

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | % Contribution |
|-----------------|--------|------------|--------------|-----------------|------------------|----------------|
| 6AA | 58-003 | Stoneco | 1600 | 9.53 | 2.69 | 53.5 |
| 26A | 58-003 | Stoneco | 150 | 0.89 | 2.69 | 5.0 |
| 2NS | 81-93 | Burmeister | 1240 | 7.53 | 2.64 | 41.5 |
| 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" | 88.8 | 100.0 | 100.0 | 94.0 | 6.0 | 6.0 |
| 1/2" | 51.7 | 99.2 | 100.0 | 74.1 | 19.9 | 25.9 |
| 3/8" | 28.5 | 85.4 | 100.0 | 61.0 | 13.1 | 39.0 |
| #4 | 4.9 | 21.5 | 95.4 | 43.3 | 17.7 | 56.7 |
| #8 | 1.4 | 5.2 | 81.9 | 35.0 | 8.3 | 65.0 |
| #16 | 1.1 | 1.9 | 67.4 | 28.6 | 6.3 | 71.4 |
| #30 | 1.0 | 1.2 | 48.5 | 20.7 | 7.9 | 79.3 |
| #50 | 1.0 | 1.0 | 20.7 | 9.2 | 11.5 | 90.8 |
| #100 | 0.9 | 1.0 | 3.7 | 2.1 | 7.1 | 97.9 |
| LBW | 0.7 | 0.6 | 1.0 | 0.8 | 1.2 | 99.2 |

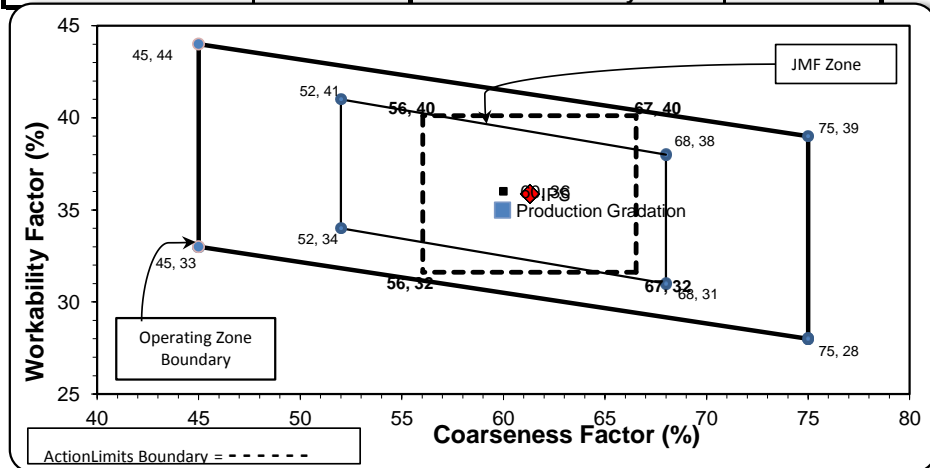
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **60** Workability Factor: **35**



Initial Production Sample (IPS)

| Coarseness Factor: 61 | | 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" | 99.3 | 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:

Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-32**

Sample Date: 10/23/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 10/23/2017 to 10/29/2017

MDOT No.: _____

| Agg. Class | Pit # | Source | Weight (SSD) | ft ³ | Specific Gravity | % Contribution |
|-----------------|-------|--------------|--------------|-----------------|------------------|----------------|
| 6AA | 71-47 | Presque Isle | 1575 | 9.63 | 2.62 | 53.4 |
| 26A | 71-47 | Presque Isle | 150 | 0.92 | 2.62 | 5.1 |
| 2NS | 95-13 | Smelter Bay | 1225 | 7.41 | 2.65 | 41.5 |
| Total Wt | | | 2950 | 17.96 | | 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" | 92.5 | 100.0 | 100.0 | 96.0 | 4.0 | 4.0 |
| 1/2" | 52.6 | 97.5 | 100.0 | 74.6 | 21.4 | 25.4 |
| 3/8" | 28.2 | 87.9 | 100.0 | 61.1 | 13.5 | 38.9 |
| #4 | 3.9 | 21.8 | 96.4 | 43.2 | 17.8 | 56.8 |
| #8 | 1.8 | 4.9 | 82.2 | 35.3 | 7.9 | 64.7 |
| #16 | 1.5 | 2.3 | 65.8 | 28.2 | 7.1 | 71.8 |
| #30 | 1.4 | 1.8 | 45.0 | 19.5 | 8.7 | 80.5 |
| #50 | 1.4 | 1.7 | 20.4 | 9.3 | 10.2 | 90.7 |
| #100 | 1.3 | 1.5 | 6.7 | 3.6 | 5.8 | 96.4 |
| LBW | 1.2 | 1.2 | 2.4 | 1.7 | 1.9 | 98.3 |

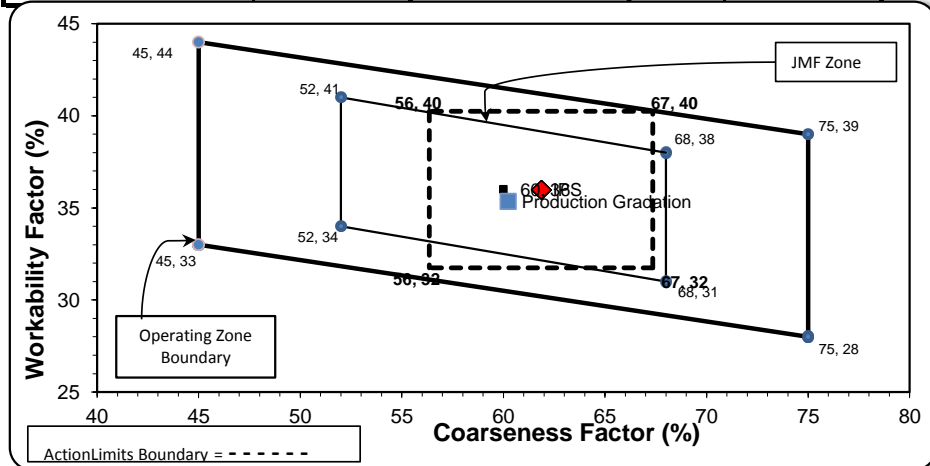


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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

| | | | |
|---------------------------|-----------|----------------------------|-----------|
| Coarseness Factor: | 60 | Workability Factor: | 35 |
|---------------------------|-----------|----------------------------|-----------|



Initial Production Sample (IPS)

| 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 |

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Aggregate Optimization Chart

MIX ID'S: DDD0K7E7 and DDD0K7E9

Production Gradation Report

PLANT #: **P-38**

Sample Date: 10/23/17

Concrete Grade: **DM**

Contractor: _____

Dates Test Represents: 10/23/2017 to 10/29/2017

MDOT No.: _____

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| 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" | 88.8 | 100.0 | 100.0 | 94.0 | 6.0 | 6.0 |
| 1/2" | 51.7 | 99.2 | 100.0 | 74.1 | 19.9 | 25.9 |
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| #50 | 1.0 | 1.0 | 20.7 | 9.2 | 11.5 | 90.8 |
| #100 | 0.9 | 1.0 | 3.7 | 2.1 | 7.1 | 97.9 |
| LBW | 0.7 | 0.6 | 1.0 | 0.8 | 1.2 | 99.2 |

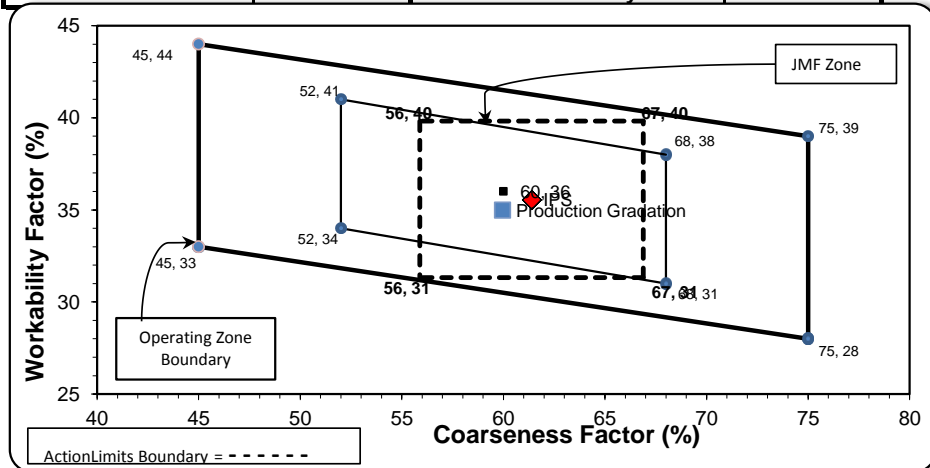
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| #30 | 20.6 | 7.1 | 79.4 |
| #50 | 8.7 | 11.8 | 91.3 |
| #100 | 1.6 | 7.1 | 98.4 |
| LBW | 1.1 | 0.6 | 98.9 |

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