Aggregate Specifications
Specifications

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Source: Standard Specifications for Road and Bridge Construction (TDOT, 2006)
Specifications

TDOT Specs for Concrete Fine Aggregate

Material Passing No. 200 Sieve < 3%

Clay Lumps < 0.5%

Coal and Lignite < 0.5%

L.A. Abrasion Loss < 40%

Sodium Soundness Loss < 10%
## Specifications

**TDOT Specs for Concrete Fine Aggregate**

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 in. (9.5 mm)</td>
<td>100</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>95 - 100</td>
</tr>
<tr>
<td>No. 16 (1.18 mm)</td>
<td>50 - 90</td>
</tr>
<tr>
<td>No. 50 (300 μm)</td>
<td>5 - 30</td>
</tr>
<tr>
<td>No. 100 (150 μm)</td>
<td>0 - 10</td>
</tr>
<tr>
<td>No. 200 (75 μm)</td>
<td>0 - 3</td>
</tr>
</tbody>
</table>
Specifications

Fine Aggregate for Concrete

Percent Passing

Opening Size (mm)
Specifications

TDOT Specs for Concrete Coarse Aggregate

- Material Passing No. 200 Sieve < 1%
- Flat and Elongated Particles (5:1) < 10%
  - Clay Lumps < 0.25%
  - Coal and Lignite < 1%
  - L.A. Abrasion Loss < 40%
- Sodium Soundness Loss < 9%
# Specifications

## TDOT Specs for Concrete Coarse Aggregate

<table>
<thead>
<tr>
<th>Application</th>
<th>Size No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Pavement</td>
<td>467</td>
</tr>
<tr>
<td>Concrete Base Course</td>
<td>467</td>
</tr>
<tr>
<td>Cement Treated Base Course</td>
<td>57</td>
</tr>
<tr>
<td>Structural Concrete</td>
<td>57</td>
</tr>
<tr>
<td>Prestressed Concrete</td>
<td>57 or 67</td>
</tr>
<tr>
<td>Precast Concrete</td>
<td>57 or 67</td>
</tr>
<tr>
<td>Size Number</td>
<td>Nominal Size, Square Openings</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>3 ½-in. to 1 ½-in. (90 to 37.5-mm)</td>
</tr>
<tr>
<td>2</td>
<td>2 ½-in. to 1 ½-in. (63 to 37.5-mm)</td>
</tr>
<tr>
<td>24</td>
<td>2 ½-in. to ¾-in. (63 to 19.0-mm)</td>
</tr>
<tr>
<td>3</td>
<td>2- to 1-in. (50 to 23.0-mm)</td>
</tr>
<tr>
<td>357</td>
<td>2-in. to No. 4 (50 to 4.75-mm)</td>
</tr>
<tr>
<td>4</td>
<td>1 ½-in. to ¾-in. (37.5 to 19.0-mm)</td>
</tr>
<tr>
<td>467</td>
<td>1 ½-in. to No. 4 (37.5 to 4.75-mm)</td>
</tr>
<tr>
<td>5</td>
<td>1- to ½-in. (25.0 to 12.5-mm)</td>
</tr>
<tr>
<td>56</td>
<td>1- to ⅜-in. (25.0 to 9.5-mm)</td>
</tr>
<tr>
<td>57</td>
<td>1-in. to No. 4 (25.0 to 4.75-mm)</td>
</tr>
<tr>
<td>6</td>
<td>¾-in. to ⅜-in. (19.0 to 9.5-mm)</td>
</tr>
<tr>
<td>67</td>
<td>¼-in. to No. 4 (19.0 to 4.75-mm)</td>
</tr>
<tr>
<td>68</td>
<td>¼-in. to No. 8 (19.0 to 2.36-mm)</td>
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<tr>
<td>7</td>
<td>½-in. to No. 4 (12.5 to 4.75-mm)</td>
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<tr>
<td>78</td>
<td>½-in. to No. 8 (12.5 to 2.36-mm)</td>
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<tr>
<td>8</td>
<td>⅜-in. to No. 8 (9.5 to 2.36-mm)</td>
</tr>
<tr>
<td>89</td>
<td>⅜-in. to No. 16 (9.5 to 1.18-mm)</td>
</tr>
<tr>
<td>9</td>
<td>No. 4 to No. 16 (4.75 to 1.18-mm)</td>
</tr>
<tr>
<td>10</td>
<td>No. 4 to No. 6 (4.75-mm)</td>
</tr>
</tbody>
</table>
Specifications

- 1½" nominal maximum
- No. 57
- #4 nominal minimum
Specifications

Opening Size (mm)

Percent Passing

1½" ¾" 3/8" 4 8 16 30 50 100 200

No. 57
Standard Sizes of Processed Aggregate (ASTM D448)
Standard Sizes of Processed Aggregate (ASTM D448)
Standard Sizes of Processed Aggregate (ASTM D448)
Standard Sizes of Processed Aggregate (ASTM D448)
Standard Sizes of Processed Aggregate (ASTM D448)
Aggregate Blending
Aggregate Blending

Percent Passing

Opening Size (mm)

1½" ¾" 3/8" 4 8 16 30 50 100 200

TDOT 411-E
Aggregate Blending

% Passing

- 1½"
- ¾"
- 3/8"
- 4
- 8
- 16
- 30
- 50
- 100
- 200

Opening Size (mm)

- Sand
- Screenings
- No. 78
Aggregate Blending

\[ p_{\text{blend}} = f_A p_A + f_B p_B + f_C p_C + \cdots \]
Example
Example

Gradation Analysis Chart

Percent Passing vs. Sieve Opening (mm)

- Curve A
- Curve B

Sieve Opening (mm): 100, 200, 50, 30, 16, 8, 4, 3/8", 3/4", 1 1/2"
Aggregate Blending

Percent Passing

Opening Size (mm)

1½"  ¾"  3/8"  4  8  16  30  50  100  200

0  20  40  60  80  100

Sand

No. 78

Screenings
Aggregate Blending

- TDOT 411-E
- 22.5% No. 78
- 60.0% Screenings
- 17.5% Sand

Percent Passing

Opening Size (mm)

CIVL 3137