Standard Method of Test for
Sieve Analysis of Fine and Coarse Aggregates
SCDOT Designation: SC-T-4 (9/16)

1. SCOPE

1.1. This method of test covers a field procedure for the determination of particle size
distribution of fine and coarse aggregates, using sieves with square openings.

1.2. This standard may involve hazardous materials, operations and equipment. This
standard does not purport to address all of the safety problems associated with its use.
It is the responsibility of the user of this standard to consult and establish appropriate
safety and health practices and determine the applicability of regulatory limitations prior
to use.

2. REFERENCED DOCUMENT

2.1. SC-T-3.

3. SUMMARY OF TEST METHOD

3.1. A sample of aggregate is sieved to determine the gradation.

4. SIGNIFICANCE AND USE

4.1. The gradation of fine and coarse aggregate samples must be tested to determine
compliance with the specifications for these materials.

5. APPARATUS

5.1. Sieves in a series of sizes to determine compliance with the specifications for the
material in question, balance or electronic scales.

6. TEST SPECIMENS

6.1. Samples that are too large for testing should be reduced to the proper size by SC-T-3.

6.2. Samples for sieve analysis shall be dried to a saturated, surface dry condition prior to
testing. Drying may be in air or by use of a method such that the temperature of the
sample does not exceed 140°F.

6.2.1. Samples of fine aggregate for sieve analysis shall weigh, after drying, a minimum of 500
grams.

6.2.2. In no case, however, shall the fraction retained on any sieve at the completion of the
sieving operation weigh more than 4 grams per square inch of sieving surface. This
amounts to 200 grams for the usual 8-inch diameter sieve.
6.2.3. Samples of coarse aggregate for sieve analysis shall weigh, after drying, not less than the amount shown in Figure SC-T-4A.

<table>
<thead>
<tr>
<th>TYPE OF AGGREGATE</th>
<th>MINIMUM DRY WEIGHT OF TEST SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(pounds)</td>
</tr>
<tr>
<td>Clean Stone (5, 57, 67, etc.)</td>
<td>20</td>
</tr>
<tr>
<td>Aggregate Base (macadam, mlbc, rpcc)</td>
<td>35</td>
</tr>
</tbody>
</table>

**TABLE OF MINIMUM DRY SAMPLE WEIGHTS**  
Figure SC-T-4A

7. **PROCEDURE**

7.1. Separate into a series of sizes using such sieves as necessary to determine compliance with the specifications for the material under test.

7.2. Conduct sieving operations by means of lateral and vertical motion of the sieve, accompanied by jarring action so as to keep the sample moving continuously over the surface of the sieve. The motion of the sieve may be accomplished by mechanical shaker or by hand. Do not turn or manipulate fragments through the sieve by hand.

1.1. Continue the sieving operation until not more than 0.5 percent by weight of the total sample passes any sieve during one (1) minute of hand sieving.

1.2. Weigh the sieved material and record the weights. The total weight after sieving must check within 0.3 percent of the original dry sample weight.

8. **CALCULATIONS**

8.1. A sample calculation to determine the results of the sieving operations follows with the results reported in Figure SC-T-4B:

8.2. Total Weight of Sample = 17,327 grams

Passing 1½-inch Sieve = \( \frac{17,327}{17,327} \times 100 = 100\% \)

Passing 1-inch Sieve = \( \frac{15,876}{17,327} \times 100 = 92\% \)
Passing ½-inch Sieve \[= \left( \frac{8,210}{17,327} \right) \times 100 = 47\% \]

Passing No. 4 Sieve \[= \left( \frac{1,678}{17,327} \right) \times 100 = 10\% \]

Passing No. 8 Sieve \[= \left( \frac{454}{17,327} \right) \times 100 = 3\% \]

<table>
<thead>
<tr>
<th>SIEVE DESIGNATION</th>
<th>WEIGHT PASSING (grams)</th>
<th>PERCENT PASSING (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½-inch</td>
<td>17,327</td>
<td>100</td>
</tr>
<tr>
<td>1-inch</td>
<td>15,876</td>
<td>92</td>
</tr>
<tr>
<td>½-inch</td>
<td>8,210</td>
<td>47</td>
</tr>
<tr>
<td>No. 4</td>
<td>1,678</td>
<td>10</td>
</tr>
<tr>
<td>No. 8</td>
<td>454</td>
<td>3</td>
</tr>
</tbody>
</table>

**SIEVING OPERATIONS RESULTS**

*Figure SC-T-4B*

9. **REPORT**

9.1. Report the percentage of material passing each sieve to the nearest whole percent, except the No. 200 sieve shall be reported to the nearest 0.1 percent.