Section 1

Overview


This test method describes the procedure for determining the slump of freshly mixed plastic hydraulic cement concrete in the laboratory and in the field. Except for editorial differences and the indicated technical differences (see NOTE), this test method is the same as ASTM C 143 and AASHTO T 119.

NOTE: ASTM requires removal of coarse aggregate larger than 1-1/2 in. (3.75 mm) by wet sieving. The department allows removal of the larger aggregate by hand.

Units of Measurement

The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.
Section 2

General Information

The following is general information regarding applicability of this test method.

This test method is applicable to plastic concrete having coarse aggregate up to 1-1/2 in. (37.5 mm). If the concrete contains coarse aggregate larger than 1-1/2 in. (37.5 mm), remove the oversized particles by hand before performing the test.
Section 3

Apparatus

The following apparatus is required:

♦ metal mold
  • not readily attacked by cement paste
  • not thinner than 0.060 in. (1.5 mm) unless formed by the spinning process, where there must be no point at which the thickness is less than 0.045 in. (1.15 mm)
  • conforming to the dimensions of 'Mold for Slump Test' to within ±1/8 in. (3 mm) with the base and top open, parallel and at right angles to the axis of the cone
  • foot pieces and handles similar to those shown in the ‘Mold for Slump Test.’ (A mold which clamps to a nonabsorbent base plate is acceptable instead of the one illustrated, provided the clamping arrangement is such that it can be fully released without movement of the mold and the base is large enough to contain all of the slumped concrete in an acceptable test.)
  • interior which is smooth and free from projections such as rivets
  • free from dents.

♦ wide-mouth funnel

♦ tamping rod, a round, straight steel rod 5/8 in. (16 mm) in diameter and approximately 24 in. (600 mm) long with the tamping end rounded to a hemispherical tip the diameter of which is 5/8 in. (16 mm)

♦ small hand-scoop

♦ rule, graduated in 1/8-in. (3-mm) increments.
Section 4

Sampling Requirements

Perform sampling of the fresh concrete as specified in "Tex-407-A, Sampling Freshly Mixed Concrete."
Section 5
Procedure

The following table describes the steps used in obtaining the slump of hydraulic cement concrete.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
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| 1    | ♦ Dampen both the slump cone and the surface beneath it before initiating the test. The surface beneath the slump cone must be clean, nonabsorbent, level, rigid and free from vibration.  
♦ Take special care to avoid vibration while testing near heavy machinery.  
♦ Hold the slump cone down firmly by standing on the 2 foot pieces while placing, rodding, and finishing the sample. |
| 2    | ♦ Using the small hand-scoop, place the concrete into the mold in 3 layers in such a manner as to secure a uniform distribution of the concrete.  
**NOTE:** Each layer should occupy approximately 1/3 the volume of the mold. (One third of the volume of the mold fills it to a depth of 2-5/8 in. [70 mm]; 2/3 of the volume of the mold fills it to a depth of 6-1/8 in. [155 mm]). |
| 3    | ♦ Rod each layer with 25 strokes of the tamping rod uniformly distributed over the cross-section of each layer.  
**NOTE:** For the bottom layer this will necessitate inclining the rod slightly and making approximately half of the strokes near the perimeter, and then progressing with vertical strokes spirally toward the center.  
♦ Rod the bottom layer throughout the full depth of the concrete.  
♦ Rod the second and top layers each throughout its depth so that the rod just penetrates into the underlying layer. |
| 4    | ♦ In filling and rodding the top layer, heap the concrete above the mold before starting the rodding.  
• If the rodding operation results in subsidence of the concrete below the top edge of the mold, add additional concrete to keep an excess of concrete above the top of the mold at all times.  
• If adding additional concrete, stop the rodding operation, heap a representative amount of concrete above the mold and then resume rodding.  
**NOTE:** It is not permissible to add concrete after the rodding is complete. |
| 5    | ♦ After the top layer has been rodded, strike off the surface of the concrete level with the top of the mold by means of a screeding and rolling motion of the tamping rod.  
♦ Remove any excess material that may have accumulated at the base of the mold by wiping it away with the hand.  
**NOTE:** Apply equal downward force to both sides of the mold during this process to prevent the mold from moving. Achieve this by pressing down with 1 hand on the handle and leaving a foot on the opposite foot tab during the removal of excess material from the base of the mold.  
♦ Raise the mold a distance of 12 in. (300 mm) in 5 ±2 sec. by a steady upward lift with no lateral or torsional motion.  
**NOTE:** When using a mold, which clamps to a nonabsorbent base plate, apply equal downward force to both sides of the mold when releasing the clamps.  
♦ Complete the entire test from the start of the filling through removal of the mold without interruption and complete it within an elapsed time of 2-1/2 min. |
| 6    | ♦ Immediately measure the slump by determining the vertical difference between the top of the mold and the displaced original center of the top surface of the specimen.  
♦ If a decided falling away or shearing off of concrete from one side or portion of the mass occurs, disregard the test and make a new test on another portion of the sample. |
| 7    | Record the slump in terms of inches (millimeters) to the nearest 0.25 in. (5 mm) of subsidence of the specimen during the test. |
Section 6

Archived Versions

Archived versions of "Tex-415-A, Slump of Portland Cement Concrete" are available through the following links:

♦ Click on [415-0898](#) for the test procedure effective August 1998 through November 2004.