



Standard Test Method for Flexural Strength of Soil-Cement Using Simple Beam with Third-Point Loading¹

This standard is issued under the fixed designation D1635/D1635M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This test method covers the determination of the flexural strength of soil-cement by the use of a simple beam with third-point loading.

NOTE 1—For methods of molding soil-cement specimens, see Practice [D1632](#).

1.2 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice [D6026](#) unless superseded by this standard.

1.3 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. The SI units are presented in brackets.

1.3.1 The gravitational system of inch-pound units is used when dealing with inch-pound units. In this system, the pound (lbf) represents a unit of force (weight), while the unit for mass is slugs. The rationalized slug unit is not given, unless dynamic ($F = ma$) calculations are involved.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards*:²

[D653 Terminology Relating to Soil, Rock, and Contained Fluids](#)

[D1632 Practice for Making and Curing Soil-Cement Com-](#)

[pression and Flexure Test Specimens in the Laboratory](#)
[D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction](#)

[D6026 Practice for Using Significant Digits in Geotechnical Data](#)

[E4 Practices for Force Verification of Testing Machines](#)

3. Terminology

3.1 For common definitions of terms in this standard, refer to Terminology [D653](#).

4. Significance and Use

4.1 This test method is used to determine the flexural strength of soil-cement. Flexural strength is significant in pavement design and is used to determine slab thickness.

NOTE 2—The quality of the result produced by this standard is dependent on the competence of the personnel performing it, and the suitability of the equipment and facilities used. Agencies that meet the criteria of Practice [D3740](#) are generally considered capable of competent and objective testing/sampling/inspection/etc. Users of this standard are cautioned that compliance with Practice [D3740](#) does not in itself assure reliable results. Reliable results depend on many factors; Practice [D3740](#) provides a means of evaluating some of those factors.

5. Apparatus

5.1 *Testing Machine*—The testing machine may be of any type having sufficient capacity and control to provide the rate of loading (prescribed in [7.2](#)). It shall conform to the requirements of Section 15 of Practices [E4](#). The testing machine shall be equipped with a spherically seated head block having a bearing surface of at least 75 % of the width of the beam but not greatly in excess of the width of the beam. The movable portion of this block shall be held closely in the spherical seat, but the design shall be such that the bearing face may be rotated freely and tilted through small angles in any direction.

5.2 The third-point loading method used in making flexure tests of soil-cement shall employ bearing blocks that will ensure that forces applied to the beam will be vertical only and applied without eccentricity. A diagrammatic drawing of an apparatus that accomplishes this purpose is shown in [Fig. 1](#). The apparatus shall be designed to incorporate the following principles:

¹ This test method is under the jurisdiction of ASTM Committee [D18](#) on Soil and Rock and is the direct responsibility of Subcommittee [D18.15](#) on Stabilization With Admixtures.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard.