



Standard Test Method for Determining Consistency and Density of Roller-Compacted Concrete Using a Vibrating Table¹

This standard is issued under the fixed designation C1170/C1170M; 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.

^{ε1} NOTE—Editorial corrections were made to 10.2.6 in June 2014.

1. Scope*

1.1 This test method is used to determine the consistency of concrete using a vibrating table and a surcharge and to determine the density of the consolidated concrete specimen. This test method is applicable to freshly mixed concrete, prepared in both the laboratory and the field, having a nominal maximum size aggregate of 50 mm [2 in.] or less. If the nominal maximum size of aggregate is larger than 50 mm [2 in.], the test method is applicable only when performed on the fraction passing the 50-mm [2-in.] sieve with the larger aggregate being removed in accordance with Practice C172.

1.2 This test method, intended for use in testing roller-compacted concrete, may be applicable to testing other types of concrete such as cement-treated aggregate and mixtures similar to soil-cement.

1.3 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.

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. (Warning—Fresh hydraulic cementitious mixtures are caustic and may cause chemical burns to skin and tissue upon prolonged exposure.²)*

¹ This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.45 on Roller-Compacted Concrete.

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² Section on Safety Precautions, Manual of Aggregate and Concrete Testing, *Annual Book of ASTM Standards*, Vol 04.02.

2. Referenced Documents

2.1 ASTM Standards:³

C29/C29M Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate

C125 Terminology Relating to Concrete and Concrete Aggregates

C172 Practice for Sampling Freshly Mixed Concrete

C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

C1067 Practice for Conducting a Ruggedness Evaluation or Screening Program for Test Methods for Construction Materials

D1557 Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this test method, refer to Terminology C125.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *extremely dry consistency, n*—for the purpose of this standard, the consistency of concrete having no slump and a Vebe consistency greater than 30 s when measured with Procedure A.

3.2.2 *stiff consistency, n*—for the purpose of this standard, the consistency of concrete having no slump and a Vebe consistency ranging from 5 to 20 s when measured with Procedure B.

³ 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