



Designation: D6024 – 07

# Standard Test Method for Ball Drop on Controlled Low Strength Material (CLSM) to Determine Suitability for Load Application<sup>1</sup>

This standard is issued under the fixed designation D6024; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope\*

1.1 This test method explains the determination of the ability of Controlled Low Strength Material (CLSM) to withstand loading by repeatedly dropping a metal weight onto the in-place material.

1.2 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice D6026.

1.2.1 The method used to specify how data are collected, calculated, or recorded in this test method is not directly related to the accuracy to which the data can be applied in design or other uses, or both. How one applies the results obtained using this standard is beyond its scope.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound equivalents are shown for information only.

1.4 CLSM is also known as flowable fill, controlled density fill, soil-cement slurry, soil-cement grout, unshrinkable fill, “K-Krete,” and other similar names.

1.5 *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.)<sup>2</sup>*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>3</sup>

C125 Terminology Relating to Concrete and Concrete Aggregates

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D4832 Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

D6023 Test Method for Density (Unit Weight), Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low-Strength Material (CLSM)

D6026 Practice for Using Significant Digits in Geotechnical Data

D6103 Test Method for Flow Consistency of Controlled Low Strength Material (CLSM) (Withdrawn 2013)<sup>4</sup>

## 3. Terminology

3.1 *Definitions*—For definitions of terms in this test method, refer to Terminology C125 and D653.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *Controlled Low Strength Material (CLSM), n*—a mixture of soil or aggregates, cementitious material, fly ash, water and sometimes chemical admixtures, that hardens into a material with a higher strength than the soil, but less than 8400 kPa (1200 psi).

3.2.1.1 *Discussion*—Used as a replacement for compacted backfill, CLSM can be placed as a slurry, a mortar, or a compacted material and typically has strengths of 350 to 700 kPa (50 to 100 psi) for most applications.

## 4. Summary of Test Method

4.1 A standard cylindrical weight is dropped five times from a specific height onto the surface of in-place CLSM. The diameter of the resulting indentation is measured and compared to established criteria. The indentation is inspected for any free water brought to the surface from the impact.

<sup>4</sup>The last approved version of this historical standard is referenced on www.astm.org.

<sup>1</sup> 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.

Current edition approved Nov. 1, 2007. Published December 2007. Originally approved in 1995. Last previous edition approved in 2002 as D6024 – 02. DOI: 10.1520/D6024-07.

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

<sup>3</sup> 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