Standard Practice for

Sampling and Amount of Testing of Hydraulic Cement

AASHTO Designation: R 71-16 (2020)[1]

Technical Subcommittee: 3a, Hydraulic Cement and Lime

Release: Group 1 (April)

ASTM Designation: C183/C183M-15

AASHTO

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1. SCOPE

1.1. This practice covers procedures for sampling and for the amount of testing of hydraulic cement after it has been manufactured and is ready to be offered for sale.

1.2. 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 the 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. Values in SI units [or inch-pound units] shall be obtained by measurement in SI units [or inch-pound units] or by appropriate conversion, using the Rules for Conversion and Rounding given in ASTM Standard IEEE/ASTM SI10. Values are stated in only SI units when inch-pound units are not used in practice.

1.3. The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered requirements of 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.*

2. REFERENCED DOCUMENTS

2.1. *AASHTO Standards*:

- M 85, Portland Cement
- M 240M/M 240, Blended Hydraulic Cement
- T 98M/T 98, Fineness of Portland Cement by the Turbidimeter
- T 105, Chemical Analysis of Hydraulic Cement
- T 106M/T 106, Compressive Strength of Hydraulic Cement Mortar (Using 50-mm or 2-in. Cube Specimens)
- T 107M/T 107, Autoclave Expansion of Hydraulic Cement
- T 131, Time of Setting of Hydraulic Cement by Vicat Needle
- T 137, Air Content of Hydraulic Cement Mortar

- T 153, Fineness of Hydraulic Cement by Air Permeability Apparatus
- T 154, Time of Setting of Hydraulic Cement Paste by Gillmore Needles
- T 160, Length Change of Hardened Hydraulic Cement Mortar and Concrete
- T 186, Early Stiffening of Hydraulic Cement (Paste Method)
- T 192, Fineness of Hydraulic Cement by the 45-µm (No. 325) Sieve

2.2. *ASTM Standards*:

- C10/C10M, Standard Specification for Natural Cement
- C91/C91M, Standard Specification for Masonry Cement
- C157/C157M, Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
- C186, Standard Test Method for Heat of Hydration of Hydraulic Cement (withdrawn 2019; replaced by C1702)
- C227, Standard Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method) (withdrawn 2018)
- C452, Standard Test Method for Potential Expansion of Portland-Cement Mortars Exposed to Sulfate
- C806, Standard Test Method for Restrained Expansion of Expansive Cement Mortar
- C807, Standard Test Method for Time of Setting of Hydraulic Cement Mortar by Modified Vicat Needle
- C845/C845M, Standard Specification for Expansive Hydraulic Cement
- C1012/C1012M, Standard Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution
- C1038/C1038M, Standard Test Method for Expansion of Hydraulic Cement Mortar Bars Stored in Water
- C1157/C1157M, Standard Performance Specification for Hydraulic Cement
- C1328/C1328M, Standard Specification for Plastic (Stucco) Cement
- C1329/C1329M, Standard Specification for Mortar Cement
- C1357, Standard Test Methods for Evaluating Masonry Bond Strength (withdrawn 2016; replaced by C1072)
- C1506, Standard Test Method for Water Retention of Hydraulic Cement-Based Mortars and Plasters

2.3. *ACI Standard*:

- ACI 225.1R, Guide to the Selection and Use of Hydraulic Cements

2.4. *IEEE/ASTM Standard*:

- SI10, American National Standard for Metric Practice

3. TERMINOLOGY

3.1. *Definitions of Terms Specific to This Standard*:

3.1.1. *lot (of cement)*—specific quantity of cement offered for inspection at any one time. A lot may be one or more storage bins filled consecutively. A lot may also be the contents of one or more transport units representing cement drawn from the same storage bin.

3.1.2. *reduced testing rate*—test program that provides for the testing of only two samples from any given lot of samples obtained and prepared for testing at the normal rate as described herein. The