



Designation: C1905/C1905M – 23

Standard Specification for Cements that Require Carbonation Curing¹

This standard is issued under the fixed designation C1905/C1905M; 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 specification covers cements that require controlled exposure to carbon dioxide to achieve strength, referred to as carbonation curing. These cements are for use in concrete that does not contain steel reinforcement. There are no restrictions on the constituents of the cement. The producer is required to demonstrate that carbon dioxide is chemically bound by the cement.

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 are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined. Values are stated in only SI units when inch-pound units are not used in practice.

1.3 If required results obtained from another standard are not reported in the same system of units as used by this standard, it is permitted to convert those results using the conversion factors found in the SI Quick Reference Guide, Annex A in Form and Style for ASTM Standards, www.astm.org/COMMIT/Blue_Book.pdf.

1.4 The text of this standard refers to notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) are not requirements of the standard.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This specification is under the jurisdiction of ASTM Committee C01 on Cement and is the direct responsibility of Subcommittee C01.14 on Non-hydraulic Cements.

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2. Referenced Documents

2.1 ASTM Standards:²

C114 Test Methods for Chemical Analysis of Hydraulic Cement

C183/C183M Practice for Sampling and the Amount of Testing of Hydraulic Cement

C204 Test Methods for Fineness of Hydraulic Cement by Air-Permeability Apparatus

C219 Terminology Relating to Hydraulic and Other Inorganic Cements

C1910/C1910M Test Methods for Cements that Require Carbonation Curing

2.2 IEEE/ASTM:³

SI 10 Standard for Use of the International System of Units (SI): the Modern Metric System

2.3 The standards referenced in this specification that are intended for use with hydraulic cement are applicable for testing and specifying materials covered by this standard as modified herein.

3. Terminology

3.1 Definitions:

3.1.1 Terms used in this specification are defined in Terminology C219.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 curing, carbonation, *n*—action taken to maintain moisture, temperature, and carbon dioxide conditions in a freshly-placed cement mixture so the potential properties of the mixture that require carbonation reactions may develop.

3.2.1.1 Discussion—Carbonation curing requires a confined chamber and control of temperature and moisture conditions as well as carbon dioxide concentration in the chamber.

4. Ordering Information

4.1 Orders for cement meeting the requirements of this specification shall include:

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.

³ Available from Institute of Electrical and Electronics Engineers, Inc. (IEEE), 445 Hoes Ln., Piscataway, NJ 08854-4141, <http://www.ieee.org>.