



Standard Practice for Accelerated Curing of Concrete Cylinders¹

This standard is issued under the fixed designation C1768/C1768M; 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 practice covers two procedures for making and curing cylindrical specimens of concrete under conditions that increase the rate of hydration at early ages. The procedures are: A—Warm Water Method and B—Autogenous Curing Method.

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 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.

1.3 *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)*

2. Referenced Documents

2.1 *ASTM Standards:*³

- C31/C31M Practice for Making and Curing Concrete Test Specimens in the Field
- C39/C39M Test Method for Compressive Strength of Cylindrical Concrete Specimens
- C125 Terminology Relating to Concrete and Concrete Aggregates
- C143/C143M Test Method for Slump of Hydraulic-Cement Concrete
- C172/C172M Practice for Sampling Freshly Mixed Concrete
- C173/C173M Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method

¹ This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.61 on Testing for Strength.

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

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.

- C192/C192M Practice for Making and Curing Concrete Test Specimens in the Laboratory
- C231/C231M Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
- C470/C470M Specification for Molds for Forming Concrete Test Cylinders Vertically
- C918/C918M Test Method for Measuring Early-Age Compressive Strength and Projecting Later-Age Strength
- C1064/C1064M Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
- C1231/C1231M Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders

3. Terminology

3.1 *Definitions:*

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

4. Summary of Practice

4.1 Molded concrete cylindrical specimens are cured under conditions that increase the early-age concrete temperature and the rate of hydration. This permits the specimens to develop a significant portion of their ultimate properties within a time period ranging from 24 to 49 h, depending upon the procedure used. In Procedure A, specimens are stored in a warm water bath for 24 h. In Procedure B, specimens are stored for 48 h in insulated curing containers in which the elevated curing temperature is obtained from heat of hydration of the cement. If specimens are to be used for estimating strength potential in accordance with Test Method C918/C918M, specimen temperature is monitored during the accelerated curing period.

4.2 Table 1 summarizes important characteristics of these curing procedures.

5. Significance and Use

5.1 By increasing the concrete temperature, the rate of hydration increases and a larger portion of the later-age properties of the concrete can be attained during the short curing period compared with standard temperature curing as described in Practice C31/C31M and Practice C192/C192M.

5.2 Specimens subjected to accelerated curing can be used to estimate the later-age strength under standard-curing conditions by using this practice in conjunction with Test Method