



Standard Specification for Packaged, Pre-Blended, Dry, Combined Materials for Use in Wet or Dry Shotcrete Application¹

This standard is issued under the fixed designation C 1480; 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 laboratory performance standards for pre-blended, dry, packaged, combined materials for use in wet or dry shotcrete applications that are delivered to a purchaser with the ingredients uniformly mixed. The use of supplemental materials, placement, curing, or protection of the shotcrete after delivery to the purchaser is not addressed by this specification.

1.2 The values stated in SI units shall be regarded as the standard. The inch-pound values in parentheses are for information only.

1.3 The following safety hazards caveat pertains only to the test method portion of this specification: *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 ASTM Standards:

- C 78 Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)²
- C 150 Specification for Portland Cement³
- C 387 Specification for Packaged, Dry, Combined Materials for Mortar and Concrete²
- C 595 Specification for Blended Hydraulic Cements³
- C 1012 Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution³
- C 1140 Practice for Preparing and Testing Specimens from Shotcrete Test Panels²
- C 1157 Performance Specification for Blended Hydraulic Cement³
- C 1202 Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration²
- C 1385 Practice for Sampling Materials for Shotcrete²
- C 1399 Test Method for Obtaining Average Residual-

Strength of Fiber-Reinforced Concrete²

C 1436 Specification for Materials for Shotcrete²

E 96 Test Methods for Water Vapor Transmission of Materials⁴

2.2 *American Concrete Institute Standards Manual of Concrete Practice:*

506.2 Specification for Materials Proportioning and Application of Shotcrete⁵

2.3 *National Institute of Standards and Technology:*

Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing Devices⁶

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *Packaged, pre-blended, dry, combined materials*—for use in wet or dry shotcrete applications consist primarily of hydraulic cement and concrete aggregates blended, in a dry state, with other ingredients to enhance one or more properties of the mixture.

4. Classification

4.1 Dry packaged shotcrete materials are categorized as to type and grade.

4.1.1 Shotcrete type is based on aggregate size.

4.1.2 Type FA shotcrete shall contain aggregate in accordance with the requirements of Specification C 1436 Grading #1. Aggregates failing to comply with Grading #1 can be used only if preconstruction testing proves that they give satisfactory results or if acceptable service records are available.

4.1.3 Type CA shotcrete shall contain coarse and fine aggregates in accordance with the requirements of Specification C 1436, Grading No. 2. Aggregates failing to comply with Grading #2 can be used only if preconstruction testing proves that they give satisfactory results or if acceptable service records are available.

4.2 Shotcrete grade is based on the desired physical properties of the material.

¹ This specification is under the jurisdiction of ASTM committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.46 on Shotcrete.

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² *Annual Book of ASTM Standards*, Vol 04.02

³ *Annual Book of ASTM Standards*, Vol 04.01

⁴ *Annual Book of ASTM Standards*, Vol 04.06

⁵ Available from American Concrete Institute, P.O. Box 9094, Farmington Hills, Michigan 48333

⁶ Available from National Institute of Standards and Technology (NIST), Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402