



Standard Specification for Cold-Weather Admixture Systems¹

This standard is issued under the fixed designation C1622/C1622M; 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.

^{ε1} NOTE—Editorially corrected ASTM designation references in October 2016.

1. Scope*

1.1 This specification covers cold-weather admixture systems to be added to hydraulic-cement concrete when the temperature of the concrete immediately after placement will be as low as -5.0 °C [23.0 °F] prior to the time of initial set.

1.2 This specification stipulates tests of the cold-weather admixture system with suitable materials as described in 11.1 – 11.3 or with materials proposed for specific work (See 11.5). Unless otherwise requested by the purchaser, tests shall be made using suitable concreting materials as described in 11.1 – 11.3.

NOTE 1—Whenever practicable, tests should be made using the concreting materials, the mixture proportions, and batching sequence proposed for the specific work (See 11.5) because the time of setting, compressive strength gain, and other properties may vary.

1.3 This specification provides three levels of testing.

1.3.1 *Level 1*—During the initial approval stage, proof of compliance with the performance requirements defined in Table 1 demonstrates that the cold-weather admixture system meets the requirements of this specification. Uniformity and equivalence tests (See Section 6) shall be carried out to provide results against which later comparisons can be made.

1.3.2 *Level 2*—Limited retesting is described in 5.2, 5.2.1, and 5.2.2. Proof of compliance with the requirements of Table 1 demonstrates conformity of the admixture system with the requirements of this specification.

1.3.3 *Level 3*—For acceptance of a lot or for measuring uniformity within or between lots, when specified by the purchaser, uniformity and equivalence tests (See Section 6) shall be used.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. Within the text, the inch-pound units are shown in brackets. 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.

1.5 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 as requirements of the standard.

1.6 The following precautionary caveat pertains to the test methods portion, Sections 11 – 18, 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.* **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

- C33/C33M Specification for Concrete Aggregates
- C39/C39M Test Method for Compressive Strength of Cylindrical Concrete Specimens
- C125 Terminology Relating to Concrete and Concrete Aggregates
- C136/C136M Test Method for Sieve Analysis of Fine and Coarse Aggregates
- C138/C138M Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
- C143/C143M Test Method for Slump of Hydraulic-Cement Concrete
- C150/C150M Specification for Portland Cement
- C157/C157M Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
- C183/C183M Practice for Sampling and the Amount of Testing of Hydraulic Cement

¹ This specification is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.23 on Chemical Admixtures.

Current edition approved Oct. 1, 2016. Published October 2016. Originally approved in 2005. Last previous edition approved in 2010 as C1622/C1622M-10. DOI: 10.1520/C1622_C1622M-10R16E01.

² Section on Safety Precautions, Manual of Aggregates 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.