Designation: C1438 – 11a

StandardSpecification for Latex and Powder Polymer Modifiers in Hydraulic Cement Concrete and Mortar[1]

This standard is issued under the fixed designation C1438; 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 performance criteria for latexes and redispersible powders when used as modifiers in hydraulic cement concretes and mortars to improve adhesion and reduce permeability (see Note 1).

NOTE 1—For further information concerning theory, benefits, limitations, and applications of polymer-modified hydraulic cementitious mixtures, refer to ACI 548.3R-09.[2]

1.2 The performance criteria are based on certain property changes that are achieved by use of the polymer modifier when compared to reference concrete or mortar (Test Methods C1439).

1.3 Prepackaged, proprietary mortar products are not included in this specification. Also, this specification covers only those materials contained in the reference or test mixtures listed in Test Methods C1439.

1.4 The values stated in SI units are to be regarded as standard.

1.5 The following precautionary statement pertains only to the test method portion, Section 10, 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:*[3]

C125 Terminology Relating to Concrete and Concrete Aggregates

C494/C494M Specification for Chemical Admixtures for Concrete

C1439 Test Methods for Evaluating Polymer Modifiers in Mortar and Concrete

3. Terminology

3.1 *Definitions of Terms Specific to This Standard*—Terms used in this specification are defined in Terminology C125 or in this section.

3.1.1 *latex, n*—a dispersion of organic polymer particles in water.

3.1.2 *polymer-modified concrete or mortar, n*—a hydraulic cement concrete or mortar containing a polymer modifier.

3.1.3 *polymer modifier, n*—latex or redispersible powder formulated for use with hydraulic cements.

3.1.4 *redispersible powder, n*—powder that redisperses in water to form a latex.

3.1.5 *reference concrete or mortar, n*—concrete or mortar having the amounts of cement and aggregates given in Test Methods C1439 and having an amount of water to achieve the specified slump or flow.

3.1.6 *test concrete or mortar, n*—concrete or mortar containing a polymer modifier and having the same composition (except for water content) and slump or flow as the reference concrete or mortar.

4. Classification

4.1 Polymer modifiers are classified into two product types:

4.1.1 *Type I*—For use in areas not exposed to moisture.

4.1.2 *Type II*—For general use.

5. Ordering Information

5.1 The purchaser shall specify the type of polymer modifier desired and the size and type of containers in which the material is to be supplied.

6. Physical and Mechanical Properties

6.1 The polymer modifier shall produce test mortar or test concrete which conforms to the requirements listed in Table 1 for the type specified.

[1] This specification is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregatesand is the direct responsibility of Subcommittee C09.44 on Polymer-Modified Concrete and Mortars.

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[2] ACI 548.3R-09 Report on Polymer-Modified Concrete. Available from American Concrete Institute (ACI), P.O. Box 9094, Farmington Hills, MI 48333-9094, http://www.concrete.org.

[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.

***A Summary of Changes section appears at the end of this standard**