



Designation: C 1240 – 00^{€1}

Standard Specification for Use of Silica Fume as a Mineral Admixture in Hydraulic- Cement Concrete, Mortar, and Grout¹

This standard is issued under the fixed designation C 1240; 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} NOTE—Manufacturer addresses in Note 3 were editorially updated July 2000.

1. Scope

1.1 This specification covers silica fume for use in concrete and other systems containing hydraulic cement.

1.2 In the cases of slurried or densified silica fume, perform the tests on the raw silica fume from which these products have been made.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 The following safety hazards caveat pertains only to the test methods portions, Sections 10-19, 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.* Read the material safety data sheets for materials used.

1.5 The text of this standard references notes and footnotes that provide explanatory information. These notes and footnotes (excluding those in tables) shall not be considered as requirements of this standard.

2. Referenced Documents

2.1 ASTM Standards:

C 109/C 109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)²

C 114 Test Methods for Chemical Analysis of Hydraulic Cement²

C 125 Terminology Relating to Concrete and Concrete Aggregates³

C 157 Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete³

C 183 Practice for Sampling and the Amount of Testing of Hydraulic Cement²

C 185 Test Method for Air Content of Hydraulic Cement Mortar²

C 219 Terminology Relating to Hydraulic Cement²

C 311 Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland-Cement Concrete³

C 430 Test Method for Fineness of Hydraulic Cement by the 45- μ m (No. 325) Sieve²

C 441 Test Method for Effectiveness of Mineral Admixtures or Ground Blast-Furnace Slag in Preventing Excessive Expansion of Concrete Due to the Alkali-Silica Reaction³

C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials³

C 1005 Specification for Reference Masses and Devices for Determining Mass for Use in the Physical Testing of Hydraulic Cements²

C 1012 Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution²

C 1069 Test Method for Specific Surface Area of Alumina or Quartz by Nitrogen Adsorption⁴

3. Terminology

3.1 Definitions:

3.1.1 *silica fume*—very fine pozzolonic material, composed mostly of amorphous silica produced by electric arc furnaces as a byproduct of the production of elemental silicon or ferro-silicon alloys (also known as condensed silica fume and microsilica).

3.1.2 Other terms in this specification are defined in Terminologies C 125 and C 219.

4. Ordering Information

4.1 The purchaser shall specify any optional chemical or physical requirements.

5. Chemical Composition

5.1 Silica fume shall conform to the requirements for

¹ This specification is under the jurisdiction of ASTM Committee C-9 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.24 on Ground Slag and Pozzolonic Admixtures.

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² Annual Book of ASTM Standards, Vol 04.01.

³ Annual Book of ASTM Standards, Vol 04.02.

⁴ Annual Book of ASTM Standards, Vol 15.02.