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Standard Specification for Gypsum Keene's Cement¹

This standard is issued under the fixed designation C61/C61M; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This specification covers various grades of anhydrous calcined gypsum known as gypsum Keene's cement, designed for use in the base and finish coats of gypsum plaster.

NOTE 1—The setting time is accelerated by the addition of other materials.

NOTE 2—Keene's cements are generally available as quick-setting and standard-setting types. However, various grades of gypsum Keene's cement of different fineness and setting time are available. Grades intended for use in scagliola castings and other special purposes should conform to the requirements of this specification in all respects except fineness and setting time.

1.2 The values stated in either inch-pound or SI (metric) units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system shall be used independently of the other. Values from the two systems shall not be combined.

1.3 The text of this standard references notes and footnotes that provide explanatory material. These notes and footnotes shall not be considered as requirements of the standard.

1.4 The following safety hazards caveat pertains only to the test method in the appendix 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This specification is under the jurisdiction of ASTM Committee C11 on Gypsum and Related Building Materials and Systems and is the direct responsibility of Subcommittee C11.01 on Specifications and Test Methods for Gypsum Products.

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2. Referenced Documents

2.1 *ASTM Standards:*²

C11 Terminology Relating to Gypsum and Related Building Materials and Systems

C471M Test Methods for Chemical Analysis of Gypsum and Gypsum Products (Metric)

C472 Test Methods for Physical Testing of Gypsum, Gypsum Plasters, and Gypsum Concrete

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Terminology

3.1 *Definitions:*

3.1.1 Definitions of terms used in this specification shall be as defined in Terminology C11.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *scagliola, n*—an imitation marble used for ornamental interior work.

4. Chemical Composition

4.1 *Combined Water*—The cement shall show a combined water content not more than 2 % when tested in accordance with Test Methods C471M.

5. Physical Properties

5.1 Testing shall be in accordance with Test Methods C472, except that in the determination of the setting time and compressive strength, the consistency used shall be such that a 35-g conical plunger, described in Test Methods C472, shall give a penetration of 30 ± 2 mm, 20 s after release, the measurement being made 5 min after the addition of the gypsum Keene's cement to the gauging water.

5.1.1 *Setting Time*—The cement shall set in not less than 20 min and not more than 6 h when determined by the Vicat method.

5.1.2 *Compressive Strength*—Gypsum Keene's cement shall have a compressive strength of not less than 2500 psi

² 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

[17 MPa]. Soak standard Keene's cement in water for 20 min with occasional stirring before filling the mold in the compressive strength determination.

5.1.3 *Fineness*—The cement shall all pass a No. 14 [1.40 mm] sieve; not less than 98 % shall pass a No. 40 [425 μ m] sieve, and not less than 80 % shall pass a No. 100 [150 μ m] sieve.

NOTE 3—Detailed requirements for these sieves are given in ASTM Specification E11.

6. Sampling

6.1 Randomly select not less than 1 % of the packages, but not less than 5 packages. Take samples of approximately equal amounts from both the outer portion and the center of each package. Mix the samples so obtained to provide a composite sample of not less than 15 lb [6.8 kg]. Immediately place the sample in a clean, dry, airtight container for delivery to the laboratory.

7. Inspection

7.1 Inspection of the gypsum Keene's cement shall be agreed upon between the producer or supplier and the purchaser as part of the purchase agreement.

8. Rejection

8.1 Rejection of gypsum Keene's cement that fails to conform to the requirements of this specification shall be

reported to the producer or supplier promptly and in writing. The written notice of rejection shall contain a statement documenting how the gypsum Keene's cement has failed to conform to the requirements of this specification.

9. Certification

9.1 When specified in the purchase agreement, a producer's or supplier's report shall be furnished at the time of shipment certifying that the product is in compliance with this specification.

10. Packaging and Marking

10.1 Gypsum Keene's cement shall be dry, free of lumps, and shipped in packages.

10.2 When shipped for resale, the following information shall be legibly marked on each package or on a tag of suitable size attached thereto:

10.2.1 Name of producer or supplier,

10.2.2 Brand,

10.2.3 Description, and

10.2.4 Net weight of package. Gross weight shall be shown where required.

11. Keywords

11.1 anhydrous gypsum; gypsum; gypsum Keene's cement; gypsum plaster; Keene's cement; plaster

APPENDIX

(Nonmandatory Information)

X1. FIELD TEST FOR GYPSUM KEENE'S CEMENT

X1.1 Scope

X1.1.1 This method is a simple field test for the identification of gypsum Keene's cement. It does not indicate the quality of the cement, which shall be determined by the laboratory tests in the body of this specification.

X1.2 Significance and Use

X1.2.1 This method is of value to users in determining whether the material at hand is gypsum Keene's cement or some other material.

X1.3 Procedure

X1.3.1 Take a cupful of the material, mix with water to the consistency of a thick paste, and transfer to a plate or piece of glass. Let stand until fairly firm and definite signs of set having

begun are manifest. This will be some time less than 2 h, depending on climatic conditions.

X1.3.2 Divide the sample, allowing one half to remain undisturbed. Take the other half, add a little water, remix, and then allow it to "set up" again on the plate or glass.

X1.4 Interpretation of Results

X1.4.1 If the material is gypsum Keene's cement, the remixed portion will, within a few hours, become as hard and strong as the portion that was not remixed.

X1.5 Precision and Bias

X1.5.1 It is not possible to state either the precision or bias of this test method because the method only determines whether a material is or is not gypsum Keene's cement and there are no numerical results generated.