



Standard Specification for Hydraulic Hydrated Lime for Structural Purposes¹

This standard is issued under the fixed designation C 141; 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 Department of Defense.

1. Scope

1.1 This specification covers hydraulic hydrated lime for structural purposes.

1.2 Hydraulic hydrated lime may be used in the scratch or brown coat of plaster, stucco, mortar, or in portland-cement concrete either as blend, amendment, or admixture.

1.3 The values stated in inch-pound units are to be regarded as the standard.

1.4 The following precautionary caveat 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:

C 25 Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime²

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

C 150 Specification for Portland Cement²

C 151 Test Method for Autoclave Expansion of Portland Cement²

C 184 Test Method for Fineness of Hydraulic Cement by the 150- μm (No. 100) and 75- μm (No. 200) Sieves²

C 187 Test Method for Normal Consistency of Hydraulic Cement²

C 230 Specification for Flow Table for Use in Tests of Hydraulic Cement²

C 266 Test Method for Time of Setting of Hydraulic-Cement Paste by Gillmore Needles²

C 305 Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency²

C 778 Specification for Standard Sand²

E 11 Specification for Wire-Cloth Sieves for Testing Purposes³

3. Terminology

3.1 Definitions:

3.1.1 *hydraulic hydrated lime*—the hydrated dry cementitious product obtained by calcining a limestone containing silica and alumina, or a synthetic mixture of similar composition, to a temperature short of incipient fusion so as to form sufficient free lime (CaO) to permit hydration and at the same time leaving unhydrated sufficient calcium silicates to give the dry powder, meeting the requirements herein prescribed, its hydraulic properties.

NOTE 1—The purchaser may increase the hydraulicity by the addition of pulverized portland cement clinker, or a pulverized pozzolan, either natural or artificial.

3.1.1.1 *high calcium hydraulic hydrated lime*—a lime that contains not more than 5 % magnesium oxide (of the nonvolatile portion).

3.1.1.2 *magnesium hydraulic hydrated lime*—a lime containing more than 5 % magnesium oxide (of the nonvolatile portion).

4. Chemical Composition

4.1 The hydraulic hydrated lime shall conform to the following requirements as to chemical composition, calculated to the nonvolatile basis:

	Min	Max
Calcium and magnesium oxides (CaO and MgO calculated to the nonvolatile basis), %	65	75
Silica (SiO ₂ calculated to the nonvolatile basis), %	16	26
Iron and aluminum oxides (Fe ₂ O ₃ and Al ₂ O ₃ calculated to the nonvolatile basis), %	...	12
Carbon dioxide (CO ₂ on an as received basis), %	...	8

5. Fineness

5.1 The sample shall leave a residue of not more than 0.5 % on a No. 30 (600- μm) sieve and not more than 10 % on a No. 200 (75- μm) sieve when tested as described in 10.2.

6. Time of Setting

6.1 The neat lime paste mixed to normal consistency shall not develop an initial set in less than 2 h as determined by the Gillmore needle method (see 10.4). Final set shall be attained within 24 h.

7. Soundness

7.1 The neat bars when made, stored, and autoclaved as

¹ This specification is under the jurisdiction of ASTM Committee C-7 on Lime and is the direct responsibility of Subcommittee C07.10 on Hydraulic Lime.

Current edition approved Nov. 10, 1997. Published June 1998. Originally published as C 141 – 38 T. Last previous edition C 141 – 96.

² Annual Book of ASTM Standards, Vol 04.01.

³ Annual Book of ASTM Standards, Vol 14.02.