



Designation: C 110 – 02a

Standard Test Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone¹

This standard is issued under the fixed designation C 110; 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 These test methods cover physical testing of quicklime and hydrated lime, and of limestone not otherwise covered in ASTM standards.²

NOTE 1—Quicklime and hydrated lime have a high affinity for moisture and carbon dioxide. Caution should be taken to protect both hydrated and quicklime during sampling, storage, and testing (see Practice C 50).

1.2 The test procedures appear in the following order:

	Section
Air Entrainment	13
Apparent Loose Density of Hydrated Lime, Pulverized Quicklime, and Limestone	16
Apparent Packed Density of Hydrated Lime, Pulverized Quicklime, and Limestone	17
Autoclave Expansion of Hydrated Lime	8
Dry Brightness of Pulverized Limestone	15
Dry Screening by Air Jet Sieve	19
Fineness of Pulverized Quicklime and Hydrated Lime by Air Permeability	18
Limestone Grindability	20
Particle Size of Pulverized Limestone	14
Plasticity of Lime Putty	7
Popping and Pitting of Hydrated Lime	9
Residue and Sieve Analysis	5
Settling Rate of Hydrated Lime	11
Slaking Rate of Quicklime	12
Specific Gravity of Hydrated Lime Products	21
Standard Consistency of Lime Putty	6
Water Retention of Hydrated Lime	10
Wet Sieve Analysis of Agricultural Liming Materials	22

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

1.4 *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 Lime³
- C 28 Specification for Gypsum Plasters³
- C 50 Practice for Sampling, Inspection, Packaging, and Marking of Lime and Limestone Products³
- C 51 Terminology Relating to Lime and Limestone (as used by the Industry)³
- C 91 Specification for Masonry Cement³
- C 109/C 109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)³
- C 117 Test Method for Material Finer than 75–Micrometre (No. 200) Sieve in Mineral Aggregates by Washing⁴
- C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates⁴
- C 150 Specification for Portland Cement³
- C 185 Test Method for Air Content of Hydraulic Cement Mortar³
- C 188 Test Method for Density of Hydraulic Cement³
- C 204 Test Method for Fineness of Hydraulic Cement by Air Permeability Apparatus³
- C 207 Specification for Hydrated Lime for Masonry Purposes³
- C 230 Specification for Flow Table for Use in Tests of Hydraulic Cement³
- C 305 Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency³
- C 430 Test Method for Fineness of Hydraulic Cement by the 45- μ m (No. 325) Sieve³
- C 472 Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete³
- C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials⁴
- C 702 Practice for Reducing Field Samples of Aggregate to Testing Size⁴

¹ These test methods are under the jurisdiction of ASTM Committee C07 on Lime and are the direct responsibility of Subcommittee C07.06 on Physical Tests. Current edition approved Dec. 10, 2002. Published February 2003. Originally approved in 1934. Last previous edition approved in 2002 as C 110–02.

² For tests on limestone as aggregate, see Vol 04.02 of the *Annual Book of ASTM Standards*. For tests on limestone as building stone, see Vol 04.05 of the *Annual Book of ASTM Standards*.

³ *Annual Book of ASTM Standards*, Vol 04.01.

⁴ *Annual Book of ASTM Standards*, Vol 04.02.