Standard Method of Test for

Testing Lime for Chemical Constituents and Particle Sizes

AASHTO Designation: T 219-87 (2018)

Technical Subcommittee: 3a, Hydraulic Cement and Lime

Release: Group 1 (April)



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1. SCOPE

1.1.	This test procedure is intended to serve as a reasonably accurate, fairly rapid means of
	determining the chemical limits of Type I hydrated lime and the particle size requirements of
	Types I and II hydrated lime on a routine basis. (See Note 1.)
	Note 1—The chemical limits of Type II lime shall be determined in accordance with ASTM C25.

- 1.2. The entire procedure and the calculations it involves are based on certain hypothetical assumptions. Lime products by their very nature contain many ingredients other than those mentioned or considered in the test procedure. For our purposes, only the principal constituents usually present are considered. This aids greatly in the simplification of the test procedure to the obvious loss of some degree of accuracy. All test values to be reported shall be rounded off to the first decimal place. *Example*: percent Ca(OH)₂ = 95.5 percent (rather than the 95.53 percent shown on the sample calculation sheets). The inherent accuracy obtainable through the use of this procedure is believed to be adequate for the purpose intended. The limitations of this test procedure, along with the object and intent of this same procedure, should be fully realized so that it may be evaluated as merely one approach to the problem of routine quality control.
- 1.2.1. The following applies to all specified limits in this standard: For the purposes of determining conformance with these specifications, an observed value or a calculated value shall be rounded off "to the nearest unit" in the last right-hand place of figures used in expressing the limiting value, in accordance with ASTM E29.
- 1.3. The values stated in SI units are to be regarded as the standard.
- 1.4. Refer to 29 CFR 1910.1200 for regulatory information for chemicals.
- **1.5.** This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user of the standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. **REFERENCED DOCUMENTS**

- 2.1. *AASHTO Standards*:
 - M 231, Weighing Devices Used in the Testing of Materials

4.	REAGENTS
3.13.	Desiccator.
3.12.	pH Meter Electrode—Standard combination.
3.11.	<i>pH Meter</i> —Having an accuracy of 0.1 pH.
3.10.	Sieves—Conforming to ASTM E11 as follows: 3.35, 2.00, 0.600, and 0.075 mm.
3.9.	<i>Stopwatch</i> —With 60-s long hand to indicate 0.2 s. The long hand is to complete one turn of the dial in 60 s. The watch should also have a short hand to register up to 30 min. Operation should preferably be by successive depressions of the crown to accomplish starting, stopping, and returning to zero.
3.8.	Magnetic-Type Stirrer—With stirring bars preferably of the Teflon-covered type.
3.7.	Buret—50-mL capacity of alkali-resistant glass and fitted with a Teflon stopcock.
3.6.	Buret—100-mL capacity.
3.5.	Beakers—400-mL capacity.
3.4.	<i>Balances</i> —A general-purpose balance shall have sufficient capacity, be readable to 0.1 percent of the sample mass or better, and conform to the requirements of M 231. The analytical balance shall conform to M 231, Class A.
3.3.	Metallic Tongs for Muffle Furnace—750 mm in length.
3.2.	<i>Platinum Crucible</i> —Low-form, wide-bottom type with reinforced rim and bottom, 30-mL capacity.
3.1.	<i>Electric Muffle Furnace with Temperature Controlling Device</i> —Capable of sustained operation at a temperature of $1100 \pm 11^{\circ}$ C (2012 $\pm 20^{\circ}$ F).
3.	APPARATUS
2.3.	 Federal Standard: Fed. Std. No. 29, CFR 1910.1200 OSHA Hazard Communication Standard; see also Permissible Exposure Limits—Annotated Tables, available at https://www.osha.gov/dsg/annotated-pels/
	 E23, Standard Test Methods for Chemical Analysis of Emissione, Questione, and Hydraed Lime E11, Standard Specification for Wire-Cloth Sieves for Testing Purposes E29, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
2.2.	ASTM Standards:
	■ T 192, Fineness of Hydraulic Cement by the 45-µm (No. 325) Sieve

4.1. Reagent grade chemicals shall be used in all tests.

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