
Standard Method of Test for

**Determination of Cement Content
in Cement-Treated Aggregate by
the Method of Titration**

AASHTO Designation: T 211-90 (2021)

Technically Revised: 1990

Reviewed but Not Updated: 2021

Editorially Revised: 2021

Technical Subcommittee: 1c, Aggregates



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1. SCOPE

- 1.1. This method of test covers a procedure for determining cement content based on the continuous neutralization of an aqueous solution from the cement-treated aggregate specimen for a specified time period. This is accomplished by adding sufficient acid to just neutralize the OH^- ion that is continuously being liberated during the hydration of the cement. The amount of acid used is directly proportional to the cement content of the treated base sample.
- 1.2. 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. *The quality of the results produced by this standard are dependent on the competence of the personnel performing the procedure and the capability, calibration, and maintenance of the equipment used. Agencies that meet the criteria of [R 18](#) are generally considered capable of competent and objective testing/sampling/inspection/etc. Users of this standard are cautioned that compliance with [R 18](#) alone does not completely assure reliable results. Reliable results depend on many factors; following the suggestions of [R 18](#) or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.*

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
 - [M 231](#), Weighing Devices Used in the Testing of Materials
 - [R 18](#), Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
- 2.2. *ASTM Standard:*
 - [E29](#), Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications