
Standard Method of Test for Evaluation by Freezing and Thawing of Air-Entraining Additions to Hydraulic Cement

AASHTO Designation: T 188-05 (2021)

Technically Revised: 2005

Reviewed but Not Updated: 2021

Editorially Revised: 2021

Technical Subcommittee: 3b, Fresh Concrete



**American Association of State Highway and Transportation Officials
555 12th Street NW, Suite 1000
Washington, DC 20004**

Standard Method of Test for

Evaluation by Freezing and Thawing of Air-Entraining Additions to Hydraulic Cement

AASHTO Designation: T 188-05 (2021)



Technically Revised: 2005

Reviewed but Not Updated: 2021

Editorially Revised: 2021

Technical Subcommittee: 3b, Fresh Concrete

1. SCOPE

- 1.1. This method is intended for use in determining the ability of cement containing an air-entraining agent to produce frost-resistant concrete when tested in accordance with the procedures described below.
- 1.2. The values stated in SI units are to be regarded as the standard.
- 1.3. *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 6, Fine Aggregate for Hydraulic Cement Concrete
 - M 80, Coarse Aggregate for Hydraulic Cement Concrete
 - M 85, Portland Cement
 - M 240M/M 240, Blended Hydraulic Cement
 - R 18, Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
 - R 39, Making and Curing Concrete Test Specimens in the Laboratory
 - T 161, Resistance of Concrete to Rapid Freezing and Thawing
- 2.2. *ASTM Standard:*
- C215, Standard Test Method for Fundamental Transverse, Longitudinal, and Torsional Resonant Frequencies of Concrete Specimens

3. APPARATUS

- 3.1. *Molds and Tamping Rod*—The molds and tamping rods shall be as specified in R 39.