
Standard Method of Test for Compressive Strength of Hot Mix Asphalt

AASHTO Designation: T 167-22

Technically Revised: 2022

**Technical Subcommittee: 2d, Proportioning
of Asphalt–Aggregate Mixtures**



**American Association of State Highway and Transportation Officials
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1. SCOPE

- 1.1. This test method provides a method for measuring the compressive strength of compacted asphalt mixtures. It is for use with specimens weighed, batched, mixed, and fabricated in the laboratory, as well as for mixtures manufactured in a hot mix plant.
- 1.2. The values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information only.
- 1.3. *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.*
- 1.4. *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
 - < M 339M/M 339, Thermometers Used in the Testing of Construction Materials
 - < R 18, Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
 - < R 66, Sampling Asphalt Materials
 - < R 76, Reducing Samples of Aggregate to Testing Size
 - < R 90, Sampling Aggregate Products
 - < R 97, Sampling Asphalt Mixtures
 - < T 27, Sieve Analysis of Fine and Coarse Aggregates
 - < T 166, Bulk Specific Gravity (G_{mb}) of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens
 - < T 201, Kinematic Viscosity of Asphalts (Bitumens)
 - < T 209, Theoretical Maximum Specific Gravity (G_{mm}) and Density of Asphalt Mixtures
 - < T 269, Percent Air Voids in Compacted Dense and Open Asphalt Mixtures

- 2.2. *ASTM Standards:*
- < C670, Standard Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials
 - < D341, Standard Practice for Viscosity-Temperature Equations and Charts for Liquid Petroleum Products
 - < D1075, Standard Test Method for Effect of Water on Compressive Strength of Compacted Bituminous Mixtures (withdrawn 2019; no replacement)
 - < D2493/D2493M, Standard Practice for Viscosity-Temperature Chart for Asphalt Binders
 - < E1, Standard Specification for ASTM Liquid-in-Glass Thermometers
 - < E4, Standard Practices for Force Verification of Testing Machines
 - < E230/E230M, Standard Specification for Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples
 - < E879, Standard Specification for Thermistor Sensors for General Purpose and Laboratory Temperature Measurements
 - < E1137/E1137M, Standard Specification for Industrial Platinum Resistance Thermometers
 - < E2877, Standard Guide for Digital Contact Thermometers
- 2.3. *FHWA Standard:*
- < FP-03, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects
- 2.4. *International Electrotechnical Commission Standards:*
- < IEC 60584-1: 2013 Thermocouples - Part 1: EMF Specifications and Tolerances
 - < IEC 60751: 2008 Industrial Platinum Resistance Thermometers and Platinum Temperature Sensors

3. SIGNIFICANCE AND USE

- 3.1. The compressive strength of specimens prepared and tested by this test method along with density and voids properties are used for laboratory mix design of asphalt mixtures.
- 3.1.1. This test method also describes methods that can be used for molding, curing, and testing of specimens being evaluated by ASTM D1075.
- 3.1.2. When used in conjunction with other mixture physical properties, the compressive strength may contribute to the overall mixture characterization and is one factor determining its suitability for use under given loading conditions and environment as a highway paving material.
- 3.2. Typical values of minimum compressive strengths for design of asphalt mixtures by this test method for different traffic densities are given in Table 402-1 of the “Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, 2003.” Some state departments of transportation and federal agencies have specific requirements of their own based on their experience with this test method. The agencies should be consulted for their specific requirements if work is to meet their standards.
- 3.3. Reheated field mixtures are permissible in this test method, but the resulting compressive strengths will be higher than for newly prepared mixtures due to the change in the binder viscosity, an element of the compressive strength as measured under these loading conditions and temperature (Note 7).