



Designation: D3203 – 22

Standard Test Method for Percent Air Voids in Compacted Asphalt Mixtures¹

This standard is issued under the fixed designation D3203; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This test method covers determination of the percent air voids in compacted asphalt mixtures.

1.2 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D8 Terminology Relating to Materials for Roads and Pavements

D1188/D1188M Test Method for Bulk Specific Gravity and Density of Compacted Asphalt Mixtures Using Coated Samples

D2041/D2041M Test Method for Theoretical Maximum Specific Gravity and Density of Asphalt Mixtures

D2726/D2726M Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Asphalt Mixtures

D3549/D3549M Test Method for Thickness or Height of Compacted Asphalt Mixture Specimens

D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

¹ This test method is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.21 on Specific Gravity and Density of Asphalt Mixtures.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D4460 Practice for Calculating Precision Limits Where Values Are Calculated from Other Test Methods

D6752/D6752M Test Method for Bulk Specific Gravity and Density of Compacted Asphalt Mixtures Using Automatic Vacuum Sealing Method

D6857/D6857M Test Method for Maximum Specific Gravity and Density of Asphalt Mixtures Using Automatic Vacuum Sealing Method

3. Terminology

3.1 *Definitions:*

3.1.1 *dense asphalt mixtures*—asphalt mixtures in which the air voids are less than 10 % when compacted.

3.1.2 *open asphalt mixtures*—asphalt mixtures in which the air voids are 10 % or more when compacted.

3.1.2.1 *Discussion*—For borderline cases, an asphalt mixture shall be designated an open asphalt mixture if the calculated percent air voids, based on either 6.1 or 6.2, is 10 % or more.

3.2 For definitions of other terms used in this test method, refer to Terminology D8.

4. Significance and Use

4.1 The percent of air voids in an asphalt mixture is used as one of the criteria in the design methods and for evaluation of the compaction imparted in asphalt paving projects.

NOTE 1—The text of this test method references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the test method.

NOTE 2—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 Specification D3666 are generally considered capable of competent and objective testing, sampling, inspection, etc. Users of this standard are cautioned that compliance with Specification D3666 alone does not completely ensure reliable results. Reliable results depend on many factors; following the suggestions of Specification D3666 or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.

5. Sampling

5.1 Samples for testing shall consist of specimens from laboratory-molded mixtures or cores from field-compacted mixtures.