



Designation: D7227/D7227M – 17

Standard Practice for Rapid Drying of Compacted Asphalt Mixture Specimens Using Vacuum Drying Apparatus¹

This standard is issued under the fixed designation D7227/D7227M; 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 reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the process of drying compacted asphalt mixture specimens using vacuum drying apparatus.

1.2 The specimens dried by this practice remain at room temperature, which helps in maintaining specimen integrity during the drying process.

1.3 This practice can be used for compacted cylindrical and cubical laboratory and field asphalt mixture specimens.

1.4 This practice can also be used for drying other construction materials such as concrete, soils, aggregates, and loose asphalt mixtures. Use the manufacturer's recommendations for drying other construction materials.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalent; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

1.6 The text of this standard 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 standard.

1.7 *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 requirements prior to use.*

1.8 *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.*

¹ This practice 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. Referenced Documents

2.1 *ASTM Standards*:²

D8 Terminology Relating to Materials for Roads and Pavements

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

D5361 Practice for Sampling Compacted Bituminous Mixtures for Laboratory Testing

3. Terminology

3.1 For definitions of terms used in this standard, refer to Terminology D8.

4. Significance and Use

4.1 Specimen dry weight is a critical measure in determination of accurate density and many other tests in the construction and raw materials industries. Drying specimens at room temperature is required for some tests and provides an advantage for other tests to ensure the integrity and to preserve the characteristics of specimens.

4.2 This practice covers drying compacted asphalt mixture specimens in a vacuum chamber that is capable of keeping the specimen at close to room temperature. A vacuum pump reduces the pressure inside the chamber, thus allowing water to evaporate at low temperature. Since the specimen naturally cools during the evaporation process, making water harder to evaporate, it is important to have proper temperature controls in the chamber to ensure the specimen remains at close to room temperature. Automatic controls within the unit allow the specimen to remain at close to room temperature by periodically allowing a flow of warm air to enter the vacuum chamber. Cycling between vacuum and airflow conditions allows the specimen to dry in a short period of time. Completely saturated specimens with over 30 g [0.07 lb] of retained water can be dried in about 30 min. For most field cores that are not completely saturated, the drying time is generally less than 15 min.

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.