



Designation: D243/D243M – 22

Standard Test Method for Residue of Specified Penetration¹

This standard is issued under the fixed designation D243/D243M; 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 test method is used to thermally reduce cutback asphalt, a road oil or a semisolid asphalt, having a penetration greater than 100, to a residue of specified penetration. It is primarily used with slow-curing cutback asphalt as specified in Specification [D2026/D2026M](#).

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.3 **Warning**—Mercury has been designated by the United States Environmental Protection Agency (EPA) and many state agencies as a hazardous material that can cause central nervous system, kidney, and liver damage. Mercury, or its vapor, may be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury-containing products. See the applicable product Material Safety Data Sheet (MSDS) for details and EPA's website—<http://www.epa.gov/mercury/>—for additional information. Users should be aware that selling mercury, mercury-containing products, or both, into your state may be prohibited by state law.

1.4 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.

1.5 *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.*

1.6 *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

[D5/D5M](#) Test Method for Penetration of Bituminous Materials

[D8](#) Terminology Relating to Materials for Roads and Pavements

[D2026/D2026M](#) Specification for Cutback Asphalt (Slow-Curing Type)

[D3666](#) Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

[D8055](#) Guide for Selecting an Appropriate Electronic Thermometer for Replacing Mercury Thermometers in D04 Road and Paving Standards

[E1](#) Specification for ASTM Liquid-in-Glass Thermometers

[E230/E230M](#) Specification for Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples

2.2 IEC Standards:³

[IEC 60584](#) Thermocouples—Part 3: Extension and Compensating Cables—Tolerances and Identification System

3. Terminology

3.1 Definitions of terms used in this practice may be found in Terminology [D8](#), determined from common English usage, or combinations of both.

4. Summary of Test Method

4.1 The material to be tested is rapidly heated to 249 °C [480 °F] and maintained at 249 to 260 °C [480 to 500 °F] during evaporation of the volatiles. Penetration of the residue is determined and if not within the specified limits, the evaporation procedure is repeated. Change in sample mass is used to calculate the percentage of residue having the specified penetration.

¹ This test method is under the jurisdiction of ASTM Committee [D04](#) on Road and Paving Materials and is the direct responsibility of Subcommittee [D04.46](#) on Durability and Distillation Tests.

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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.

³ Available from International Electrotechnical Commission (IEC), 3, rue de Varembe, 1st floor, P.O. Box 131, CH-1211, Geneva 20, Switzerland, <https://www.iec.ch>.