



Designation: D8188 – 23

Standard Test Method for Determination of Density and Relative Density of Asphalt, Semi-Solid Bituminous Materials, and Soft-Tar Pitch by Use of a Digital Density Meter (U-Tube)¹

This standard is issued under the fixed designation D8188; 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 covers the determination of the relative density and density of semi-solid asphalt materials, asphalt binders, asphalt cements, and soft-tar pitches by use of a digital density meter (U-tube).

NOTE 1—Alternate methods for determining the density of semi-solid and solid asphalt materials and asphalt binders include Test Methods [D3289](#), [D3142/D3142M](#), and [D70/D70M](#).

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only. No other units of measurement are included in this standard, with the exception of temperature measurements. Units provided in degrees Fahrenheit are for reference purposes only. Temperatures given in degrees Celsius are to be considered standard.

1.3 This test method should not be applied to petroleum distillates other than asphalt and asphalt binders. For the determination of density of all other petroleum distillates and viscous oils, use Test Method [D4052](#) or [D5002](#), or ISO 12185.

1.4 The text of this standard references notes and footnotes which provide explanatory material. These 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 Recom-*

mendations 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](#)
- [D70/D70M Test Method for Specific Gravity and Density of Semi-Solid Asphalt Binder \(Pycnometer Method\)](#)
- [D140/D140M Practice for Sampling Asphalt Materials](#)
- [D287 Test Method for API Gravity of Crude Petroleum and Petroleum Products \(Hydrometer/Method\)](#)
- [D1250 Guide for the Use of the Joint API and ASTM Adjunct for Temperature and Pressure Volume Correction Factors for Generalized Crude Oils, Refined Products, and Lubricating Oils: API MPMS Chapter 11.1](#)
- [D1298 Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method](#)
- [D3142/D3142M Test Method for Specific Gravity, API Gravity, or Density of Cutback Asphalts by Hydrometer Method](#)
- [D3289 Test Method for Density of Semi-Solid and Solid Asphalt Materials \(Nickel Crucible Method\)](#)
- [D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials](#)
- [D4052 Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter](#)
- [D4311/D4311M Practice for Determining Asphalt Volume Correction to a Base Temperature](#)
- [D5002 Test Method for Density, Relative Density, and API Gravity of Crude Oils by Digital Density Analyzer](#)
- [D6792 Practice for Quality Management Systems in Petroleum Products, Liquid Fuels, and Lubricants Testing Laboratories](#)
- [D7578 Guide for Calibration Requirements for Elemental](#)

¹ This test method is under the jurisdiction of ASTM Committee [D04](#) on Road and Paving Materials and is the direct responsibility of Subcommittee [D04.47](#) on Miscellaneous Asphalt 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.