



Designation: D8044 – 23

Standard Test Method for Evaluation of Asphalt Mixture Cracking Resistance Using the Semi-Circular Bend Test (SCB) at Intermediate Temperatures¹

This standard is issued under the fixed designation D8044; 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 procedures for preparation, testing, and measurement of asphalt mixture cracking resistance at intermediate temperatures using semi-circular bend (SCB) geometry of laboratory-prepared or pavement core asphalt mixture samples tested monotonically. The SCB sample is a half-disk with a notch cut aligned vertically in parallel with the testing loading. The test method describes the determination of the critical strain energy release rate parameter, J_c , and other parameters determined from the load-displacement curve. These parameters can be used to rank the resistance of asphalt mixtures to cracking.

1.2 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.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 Since a complete Precision and Bias statement for this standard has not been developed, the test method is to be used for research and informational purposes only. Therefore, this standard should not be used for acceptance or rejection of a material for purchasing purposes.

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

- D979/D979M Practice for Sampling Asphalt Mixtures
- 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
- D3203/D3203M Test Method for Percent Air Voids in Compacted Asphalt Mixtures
- D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
- D5361/D5361M Practice for Sampling Compacted Asphalt Mixtures for Laboratory Testing
- D6373 Specification for Performance-Graded Asphalt Binder
- D6857/D6857M Test Method for Maximum Specific Gravity and Density of Asphalt Mixtures Using Automatic Vacuum Sealing Method
- D6925 Test Method for Preparation and Determination of the Relative Density of Asphalt Mix Specimens by Means of the Superpave Gyrotory Compactor
- E4 Practices for Force Calibration and Verification of Testing Machines
- E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
- E178 Practice for Dealing With Outlying Observations
- E399 Test Method for Linear-Elastic Plane-Strain Fracture Toughness of Metallic Materials
- E2309/E2309M Practices for Verification of Displacement Measuring Systems and Devices Used in Material Testing Machines
- E3029 Practice for Determining Relative Spectral Correction Factors for Emission Signal of Fluorescence Spectrometers

¹ This test method is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.26 on Fundamental/Mechanistic Tests.

Current edition approved May 15, 2023. Published May 2023. Originally approved in 2016. Last previous edition approved in 2016 as D8044 – 16. DOI: 10.1520/D8044-23.

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.