



Designation: D8189 – 19

# Standard Test Method for Tackiness of Asphalt Binders and Emulsified Asphalt Residue Using the Dynamic Shear Rheometer (DSR)<sup>1</sup>

This standard is issued under the fixed designation D8189; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method covers the determination of pull-off force and pull-off work of asphalt binders and emulsified asphalt residue by means of pull-off testing. The tackiness test is conducted using the dynamic shear rheometer (DSR) at one or more temperatures.

NOTE 1—This standard may be used for unconditioned material or material conditioned in accordance with Test Method D2872. The majority of development work on this test method was performed on unconditioned material. The emulsified asphalt residue should never be conditioned.

1.2 A precision and bias statement for this standard has not been developed at this time. Therefore, this standard should not be used for acceptance or rejection of a material for purchasing purposes.

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 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.*

<sup>1</sup> 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. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

- D8 Terminology Relating to Materials for Roads and Pavements
- D2872 Test Method for Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test)
- D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
- D7175 Test Method for Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer

## 3. Terminology

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

### 3.2 Definitions:

3.2.1 *pull-off force, n*—the maximum normal force, in Newtons, required to separate the upper plate of the DSR instrument from the asphalt sample surface.

3.2.2 *pull-off work, n*—the area under the force-versus-gap separation curve, measured in Joules.

3.2.3 *tackiness, n*—the measure of how sticky the asphalt binder or emulsified asphalt residue is at a set temperature is shown in this test method by the combination of the pull-off force and pull-off work.

## 4. Summary of Test Method

4.1 This test method is used to determine the tackiness of asphalt binders and emulsified asphalt residue materials at a given temperature, by means of pull-off testing. The sample is tested in strain-control mode under tension. Testing a sample at different temperatures (normal testing ranges can be 10 to 70 °C, correlating to pavement surface temperatures during application) will allow for the determination of various degrees of tackiness due to field conditions. The sample preparation and apparatus are in accordance with Test Method D7175,

<sup>2</sup> 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.