



Designation: D7173 – 20 (Reapproved 2024)

Standard Practice for Determining the Separation Tendency of Polymer from Polymer-Modified Asphalt¹

This standard is issued under the fixed designation D7173; 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 describes a laboratory procedure for determining the tendency of polymer to separate from polymer-modified asphalt under static heated storage conditions. The results of testing on material prepared according to this practice may be used as a guideline when formulating products or to establish field handling procedures. Large differences in test results between top and bottom specimens indicate that there is a degree of incompatibility between the polymer and the base asphalt.

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

1.3 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.

1.4 *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.*

1.5 *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

¹ This practice 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 www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[D36/D36M Test Method for Softening Point of Bitumen \(Ring-and-Ball Apparatus\)](#)

[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](#)

[D7405 Test Method for Multiple Stress Creep and Recovery \(MSCR\) of Asphalt Binder Using a Dynamic Shear Rheometer](#)

3. Summary of Practice

3.1 A measured quantity of polymer-modified asphalt in a sealed aluminum tube is conditioned in a vertical position for 48 h at a temperature of $163 \pm 5^\circ\text{C}$. At the end of the conditioning period, top and bottom portions are separated and subjected to further testing to determine the degree of separation. Tests chosen for this purpose depend on the polymer modification system being evaluated and the type of information desired by the user. Softening point (Test Method [D36/D36M](#)) and DSR (Test Method [D7175](#)) are the most common tests used for this purpose. MSCR (Test Method [D7405](#)) is an alternate test.

4. Significance and Use

4.1 Purchasers of polymer-modified asphalt need guidelines on proper storage and handling procedures to maintain the integrity of material they have purchased. This practice provides a significant tool for understanding the characteristics of these materials as well as comparing various sources of supply.

NOTE 1—The quality of the results produced by this standard are dependent on the competence of the personnel performing the procedure and the capability, calibration, and maintenance of the equipment used. Agencies that meet the criteria of Specification [D3666](#) are generally considered capable of competent and objective testing, sampling, inspection, etc. Users of this standard are cautioned that compliance with Specification [D3666](#) alone does not completely ensure reliable results. Reliable results depend on many factors; following the suggestions of Specification [D3666](#) or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.