



Designation: D7173 – 11

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 *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 and health practices and to determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D36 Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)

D7175 Test Method for Determining the Rheological Properties 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**) and DSR (Test Method **D7175**) are the most common tests used for this purpose.

4. Significance and Use

4.1 Purchasers of polymer modified asphalt need to be given 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.

5. Apparatus

5.1 *Aluminum Tubes*—25-mm diameter by 125-mm to 140-mm length aluminum separation tubes, used to hold the test sample during conditioning.³

5.2 *Balance*—Capable of being read to the nearest 0.1 g.

5.3 *Oven*—Capable of maintaining a temperature of $163 \pm 5^\circ\text{C}$.

5.4 *Freezer*—Capable of maintaining a temperature of $-10 \pm 10^\circ\text{C}$.

5.5 *Rack*—Capable of supporting the aluminum tubes in a vertical position in the oven and freezer.

5.6 *Containers*—Metal or glass, 100 ± 20 -mL capacity.

5.7 *Hammer and Cutting Tool*—The cutting tool must be rigid and sharp to allow cutting of the tube containing the sample when at a low temperature.

NOTE 1—A tool known as a 6-in-1 painter's tool has been found ideal for this purpose.

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.

Current edition approved June 1, 2011. Published July 2011. Originally published 2005. Last previous version approved 2005 as D7173-05. DOI: 10.1520/D7173-11.

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 Aluminum tubes suitable for this purpose may be obtained from R/H Specialty & Machine, Inc., P.O. Box 10187, Terre Haute, IN 47801, (812) 232-0781, as Part No. 100-550; from HMA Lab Supply, 3407 W. Leigh St., Richmond VA 23230, (888) 569-0499, as Part No. SC-4000; or from Freund Container, 11535 S. Central Ave., Alsip, IL, (800) 363-9822 as Part No. AC15. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.