



Designation: D7553 – 15 (Reapproved 2021)

Standard Test Method for Solubility of Asphalt Materials in N-Propyl Bromide¹

This standard is issued under the fixed designation D7553; 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 degree of solubility in n-propyl bromide of asphalt materials. It is intended to be a replacement for Test Method D2042 specifying a solvent that, like trichloroethylene, is safe in that it has no flash point, and has similar solubilizing characteristics to trichloroethylene, but it is not considered to be an ozone depleter banned by the Kyoto Protocol.

NOTE 1—This method is not applicable to tars and their distillation residues or highly cracked petroleum products. For methods covering tars, pitches, and other highly cracked petroleum products, and the use of other solvents, see Test Methods D4, D2318, and D2764.

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 *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.* Specific precaution statements are given in Section 7.

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.*

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. Referenced Documents

2.1 *ASTM Standards:*²

D4 Test Method for Bitumen Content

D2042 Test Method for Solubility of Asphalt Materials in Trichloroethylene

D2318 Test Method for Quinoline-Insoluble (QI) Content of Tar and Pitch

D2764 Test Method for Dimethylformamide-Insoluble (DMF-I) Content of Tar and Pitch

D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

D6368 Specification for Vapor-Degreasing Solvents Based on normal-Propyl Bromide and Technical Grade normal-Propyl Bromide

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

3. Summary of Test Method

3.1 The sample is dissolved in n-propyl bromide and filtered through a glass fiber pad. The insoluble material is washed, dried, and weighed.

4. Significance and Use

4.1 This test method is a measure of the solubility of asphalt in n-propyl bromide. The portion that is soluble in n-propyl bromide represents the active cementing constituents.

NOTE 2—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.

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.