Designation: D 2172 – 01$^{\epsilon 1}$

Standard Test Methods for Quantitative Extraction of Bitumen From Bituminous Paving Mixtures[1]

This standard is issued under the fixed designation D 2172; 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.

This standard has been approved for use by agencies of the Department of Defense.

ϵ[1] NOTE—The word ′1, 1, 1–trichloroethane' was editorially changed to ′normal Propyl Bromide' throughout. The address in paragraph 7.1 was editorially corrected. All corrections applied March 2002.

1. Scope

1.1 These test methods cover the quantitative determination of bitumen in hot-mixed paving mixtures and pavement samples. Aggregate obtained by these test methods may be used for sieve analysis using Test Method C 117 and Test Method C 136.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

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 determine the applicability of regulatory limitations prior to use.* Specific hazards are given in Section 7.

NOTE 1—The results obtained by these test methods may be affected by the age of the material tested, with older samples tending to yield slightly lower bitumen content. Best quantitative results are obtained when the test is made on mixtures and pavements shortly after their preparation. It is difficult to remove all the asphalt when some aggregates are used and some chlorides may remain within the mineral matter affecting the measured asphalt content.

2. Referenced Documents

2.1 *ASTM Standards:*

C 117 Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing[2]

C 128 Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate[2]

C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates[2]

C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials[2]

D 70 Test Method for Specific Gravity and Density of Semi-Solid Bituminous Materials (Pycnometer Method)[3]

D 604 Specification for Diatomaceous Silica Pigment[4]

D 979 Practice for Sampling Bituminous Paving Mixtures[3]

D 1461 Test Method for Moisture or Volatile Distillates in Bituminous Paving Mixtures[3]

D 1856 Test Method for Recovery of Asphalt from Solution by Abson Method[3]

D 2111 Test Methods for Specific Gravity of Halogenated Organic Solvents and Their Admixtures[5]

D 6368 Specification for Vapor-Degreasing Grade and General Grade *normal*–Propyl Bromide[5]

2.2 *Federal Specifications:*

O-T-634 (latest) normal Propyl Bromide, Technical[6]

3. Summary of Test Methods

3.1 The paving mixture is extracted with trichloroethylene, normal Propyl Bromide, or methylene chloride using the extraction equipment applicable to the particular method. The bitumen content is calculated by difference from the mass of the extracted aggregate, moisture content, and mineral matter in the extract. The bitumen content is expressed as mass percent of moisture-free mixtures.

4. Significance and Use

4.1 All of these test methods can be used for quantitative determinations of bitumen in hot-mixed paving mixtures and pavement samples for specification acceptance, service evaluation, control, and research. Each method prescribes the solvent or solvents and any other reagents that can be used in the test method. Test Method D 1856 requires that Method A be used when asphalt is recovered from solution.

[1] These test methods are under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and are the direct responsibilities of Subcommittee D04.25 on Analysis of Bituminous Mixtures.

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[2] *Annual Book of ASTM Standards*, Vol 04.02.

[3] *Annual Book of ASTM Standards*, Vol 04.03.

[4] *Annual Book of ASTM Standards*, Vol 06.03.

[5] *Annual Book of ASTM Standards*, Vol 15.05.

[6] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

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