



Designation: D3235 – 23

Standard Test Method for Solvent Extractables in Petroleum Waxes¹

This standard is issued under the fixed designation D3235; 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 solvent extractables in petroleum waxes.

1.2 The values stated in SI units are to be regarded as standard.

1.2.1 *Exception*—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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *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

D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants

E1 Specification for ASTM Liquid-in-Glass Thermometers

E128 Test Method for Maximum Pore Diameter and Permeability of Rigid Porous Filters for Laboratory Use

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminology **D4175**.

¹ This test method is under the jurisdiction of ASTM Committee **D02** on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee **D02.10** on Properties of Petroleum Waxes and Alternative Wax-like Materials.

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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.

4. Summary of Test Method

4.1 The sample is dissolved in a mixture consisting of 50 % by volume methyl ethyl ketone and 50 % by volume toluene. The solution is cooled to -32°C (-25°F) to precipitate the wax, then filtered. The solvent extractables content is determined by evaporating the solvent from the filtrate and determining the mass of the residue.

5. Significance and Use

5.1 The solvent extractables in a wax may have significant effects on several of its properties such as strength, hardness, flexibility, scuff resistance, coefficient of friction, coefficient of expansion, melting point, and staining characteristics. Whether these effects are desirable or undesirable depends on the intended use of the wax.

6. Apparatus

6.1 *Filter Stick and Assembly*, consisting of a 10 mm diameter sintered glass filter stick of 10 μm to 15 μm maximum pore diameter as determined by the method in **Appendix X1**, provided with an air pressure inlet tube and delivery nozzle. It is provided with a ground-glass joint to fit a 25 mm by 170 mm test tube. The dimensions for a suitable filtration assembly are shown in **Fig. 1**.

NOTE 1—A metallic filter stick may be employed if desired. A filter stick³ made of stainless steel and having a 12.7 mm (0.50 in.) disk of 10 nm to 15 nm maximum pore diameter, as determined by Test Method **E128**, has been found to be satisfactory. The metallic apparatus is inserted into a 25 mm by 150 mm test tube and held in place by means of a cork.

6.2 *Cooling Bath*, consisting of an insulated box with 30 mm $\pm$ 5 mm (1.2 in. $\pm$ 0.2 in.) holes in the center to accommodate any desired number of test tubes. The bath may be filled with a suitable medium such as kerosine, and may be cooled by circulating a refrigerant through coils, or by using solid carbon dioxide. A suitable cooling bath to accommodate three test tubes is shown in **Fig. 2**.

³ The sole source of supply of a suitable metal filter stick with designated porosity G known to the committee at this time is the Pall Trinity Micro Corp., Route 281, Cortland, NY 13045. A list of United Kingdom suppliers can be obtained from Energy Institute, 61 New Cavendish St., London, W1G 7AR, United Kingdom. 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.

*A Summary of Changes section appears at the end of this standard