



Designation: D 721 – 02a

An American National Standard



Designation: 158/69(85)

Standard Test Method for Oil Content of Petroleum Waxes¹

This standard is issued under the fixed designation D 721; 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.

1. Scope*

1.1 This test method covers the determination of oil in petroleum waxes having a congealing point of 30°C (86°F) or higher as determined in accordance with Test Method D 938, and containing not more than 15 % of oil.²

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

NOTE 1—With some types of waxes, of oil contents greater than 5%, there may be an incompatibility with MEK resulting in the formation of two liquid phases. If this occurs, the method is not applicable to the material under test.

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.*

2. Referenced Documents

2.1 ASTM Standards:

D 938 Test Method for Congealing Point of Petroleum Waxes, Including Petrolatum³

E 1 Specification for ASTM Thermometers⁴

E 128 Test Method for Maximum Pore Diameter and Permeability of Rigid Porous Filters for Laboratory Use⁵

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.10 on Properties of Petroleum Wax.

Current edition approved Nov. 10, 2002. Published February 2003. Originally approved in 1943. Last previous edition approved in 2002 as D 721-02.

In the IP, this method is under the jurisdiction of the Standardization Committee. This test method was issued as a joint ASTM-IP tentative in 1964.

This test method was prepared jointly by the Technical Association of Pulp and Paper Industry and ASTM International.

This test method has been adopted for use by government agencies to replace Method 5431 of Federal Test Method Standard No. 791b.

² This test method is being used by some laboratories for products of higher oil content.

³ *Annual Book of ASTM Standards*, Vol 05.01.

⁴ *Annual Book of ASTM Standards*, Vol 14.03.

⁵ *Annual Book of ASTM Standards*, Vol 14.02.

3. Summary of Test Method

3.1 The sample is dissolved in methyl ethyl ketone, the solution cooled to –32°C (–25°F) to precipitate the wax, and filtered. The oil content of the filtrate is determined by evaporating the methyl ethyl ketone and weighing the residue.

4. Significance and Use

4.1 The oil content of 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 oil straining. The importance of these effects may be dependent upon the ultimate use of the wax.

5. Apparatus

5.1 *Filter Stick and Assembly*, consisting of a 10-mm diameter sintered glass filter stick of 10 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 by 170-mm test tube. The dimensions for a suitable filtration assembly are shown in Fig. 1.

NOTE 2—A metallic filter stick may be employed if desired. A filter stick made of stainless steel and having a 12.7-mm (½-in.) disk of 10 to 15-μm maximum pore diameter, as determined by Test Method E 128, has been found to be satisfactory.⁶ The metallic apparatus is inserted into a 25 by 150-mm test tube and held in place by means of a cork.

5.2 *Cooling Bath*, consisting of an insulated box with 25.4 mm (1-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

⁶ 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 the Institute of Petroleum, 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 committee¹, which you may attend.

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

