Designation: D2320 – 98 (Reapproved 2017)

Standard Test Method for Density (Relative Density) of Solid Pitch (Pycnometer Method)[1]

This standard is issued under the fixed designation D2320; 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 density and relative density by pycnometer, and can be used for pitch that can be handled in fragments.

1.2 The values stated in SI units are to be regarded as 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, 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]

D4296 Practice for Sampling Pitch

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Terminology

3.1 *Definitions:*

3.1.1 *density*—the mass per unit of volume at a standard test temperature.

3.1.2 *relative density*—the ratio of the mass of a given volume of the material at a standard test temperature to that of an equal volume of water at the same temperature.

4. Summary of Test Method

4.1 The sample is weighed and its volume determined by the mass of water displaced.

5. Significance and Use

5.1 Values of density and relative density are used for converting volumes to units of mass as required in other ASTM standards and in sales transactions.

6. Apparatus

6.1 *Glass Pycnometer,* capacity about 25 mL, with accurately fitting glass stopper with a capillary tube 1.0 mm to 2.0 mm in diameter.

6.2 *Water Bath,* maintained at 25.0 °C ± 0.1 °C and provided with mechanical stirring.

6.3 *Vacuum Pump or Aspirator,* capable of producing a vacuum of 2.7 kPa (20 torr).

NOTE 1—20 torr = 20 mm Hg = 2.66 kPa.

6.4 *Manometer,* suitable for measuring the specified vacuum.

6.5 *Vacuum Desiccator with Guard.*

6.6 *Sieves,* U.S. Standard 2.36 mm (No. 8) and 600 µm (No. 30) conforming to Specification E11.

7. Reagents and Materials

7.1 *Wetting Agent*, 0.1 g/mL Aerosol OT.

7.2 *Wetting Agent*, 0.1 g/mL BRU 35 (Alyoxyethylene dodecyl ether, detergent.

8. Bulk Sampling

8.1 Samples from shipments shall be taken in accordance with Practice D4296 and shall be free of foreign substances. Thoroughly mix the sample immediately before removing a representative portion for the determination or for dehydration.

9. Dehydration

9.1 All bulk samples suspected of having free moisture shall be air-dried or oven-dried at 50 °C in a forced-air oven before analyzing.

[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 D02.05 on Properties of Fuels, Petroleum Coke and Carbon Material.

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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.