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An American National Standard

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

This standard is issued under the fixed designation D 2320; 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 the 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

D 4296 Practice for Sampling Pitch

E 11 Specification for Wire Cloth and Sieves for Testing Purposes

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 to 2.0 mm in diameter.

6.2 *Water Bath*, maintained at 25.0 ± 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 E 11.

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 D 4296 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.

10. Preparation of Test Sample

10.1 Crush a 50 to 100-g representative portion of the dry pitch until all of it passes through the 2.36-mm (No. 8) sieve. Avoid grinding the pitch. Remove the fines by screening through the 600-µm (No. 30) sieve and use the pitch retained on this sieve as the test sample. If desired, small lumps of pitch may be used without crushing, provided the lumps pass the 2.36-mm sieve and are retained on the 600-µm sieve. In either case, follow the evacuation steps described in 12.2. In case of dispute use the crushing method.

[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.05 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.