



Designation: D167 – 93 (Reapproved 2004)^{e1}

Standard Test Method for Apparent and True Specific Gravity and Porosity of Lump Coke¹

This standard is issued under the fixed designation D167; 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.

^{e1} NOTE—Section 13.1 was editorially corrected in January 2005.

1. Scope

1.1 This test method covers the determination of apparent specific gravity (Sections 2 to 9) and true specific gravity (Sections 10 to 13) of lump coke larger than 25-mm (1-in.) size and calculating porosity (Section 14) from the specific gravity data.

1.2 The values given in SI units shall be regarded as the standard. Inch-pound units shall be accepted on an equivalent basis.

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

D346 Practice for Collection and Preparation of Coke Samples for Laboratory Analysis

¹ This test method is under the jurisdiction of ASTM Committee D05 on Coal and Coke and is the direct responsibility of Subcommittee D05.15 on Metallurgical Properties of Coal and Coke.

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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.

3. Significance and Use

3.1 Apparent and true specific gravity, as determined by this test method, are influenced by the type of coals carbonized and the operating and preparational conditions of that carbonization, that is, charge bulk density, heating rate, and pulverization level. In turn, these properties directly influence the performance in processes using coke.

APPARENT SPECIFIC GRAVITY

4. Apparatus

4.1 The apparatus for the determination of the apparent specific gravity of coke shall consist of the following:

4.1.1 *An Elliptical or Rectangular Cross-Sectioned Container*, approximately 560 mm (22 in.) in length, 280 mm (11 in.) in width, and a minimum of 330 mm (13 in.) in height, provided with a spout consisting of a short 13-mm ($\frac{1}{2}$ -in.) nipple extending horizontally from the container about 270 mm (10 $\frac{1}{2}$ in.) above the bottom.

4.1.2 *Wire Cage or Basket*, of about 13-mm ($\frac{1}{2}$ -in.) square-mesh screen wire cloth provided with a cover and two long handles, suitable for holding the entire sample of coke and so made as to fit inside the container below the spout.

4.1.3 *Bucket or Other Vessel*, 11-L (3-gal), suitable for receiving the displaced water.

4.1.4 *Pan*, about 380 mm (15 in.) square and 76 mm (3 in.) in height or the equivalent for containing the coke during the determination of its weight.

4.1.5 *Balance*, sensitive to 0.05 kg (0.1 lb).