



Designation: D293 – 93 (Reapproved 2004)

Standard Test Method for the Sieve Analysis of Coke¹

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1. Scope

1.1 This test method describes the separation of a coke sample into defined size fractions and expressing said fractions as a weight percent of the gross sample.

1.2 The values stated in SI units are to 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

D4621 Guide for Quality Management in an Organization That Samples or Tests Coal and Coke

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E323 Specification for Perforated-Plate Sieves for Testing Purposes

3. Significance and Use

3.1 This test method determines the size distribution of coke for conformance to specifications of percentages retained on designated screen sizes.

4. Apparatus

4.1 *Sieves*—Use square-hole sieves conforming to Specification E11. Where sieves larger than 100 mm (4 in.) are required, the specifications for same shall be by mutual

agreement between interested parties. Permissible variations in sieve openings and spacings shall be in accordance with Specification E11.

4.1.1 For complete characterization of the size range of a coke sample, the number and size of the selected sieves should be such that no more than 25 % of the gross sample weight will be retained on any given sieve.

4.1.2 For coke 38.1 mm (1½ in.) and larger in size, sieves of heavy double-crimped wire and square or rectangular frames with 0.56 to 0.84 m² (6 to 9 ft²) of sieve area are satisfactory. For coke smaller than 38.1 mm (1½ in.) in size, sieves of double-crimped wire and square or circular frames with 0.19 to 0.37 m² (2 to 4 ft²) of sieve area are usually more convenient.

4.2 *Weighing Balance*, preferably of the platform type, having a sensitivity of 0.025 kg (0.05 lbs) or better, at rated capacity and with graduations such that 0.05 kg (0.1 lb) can be read without interpolation.

5. Test Sample

5.1 The test sample shall be taken in accordance with Practice D346.

6. Procedure

6.1 Starting with the sieve having the largest opening, sieve the sample of coke in quantities small enough to prevent plugging and clogging of the sieve.

6.1.1 Hand-fit each piece of coke retained on the 38.1-mm (1½-in.) or larger sieve. A piece is considered undersize, if in some position and without forcing, it passes the sieve opening.

6.1.2 Shake vigorously on each succeeding sieve coke pieces passing the 38.1-mm (1½-in.) sieve. This shaking may be performed manually or mechanically provided mechanical shaking yields results equivalent to manual shaking. Note that the objectives of shaking, either manual or mechanical, are to place all of the naturally occurring pieces of a given size range on the appropriate sieve and to avoid degradation of the naturally occurring sizes.

6.2 Record to the nearest 0.05 kg (0.1 lb) the weight of coke retained on each sieve and that which passes the smallest sieve used. For routine testing, the sum of all the size-fraction weights may be taken as the total weight of coke tested.

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.