



Standard Test Method for Sampling and Fineness Test of Pulverized Coal¹

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1. Scope

1.1 This test method covers the determination of the fineness by sieve analysis of coal sampled from a dry pulverizing operation. It is not applicable to products of wet milling or to fines that have clustered into an agglomerated mass.

1.2 The values stated in inch-pound units shall be regarded as the standard. Sample weights of 1000 g or less shall be expressed in metric units.

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

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Significance and Use

3.1 This test method provides a means for assisting in the evaluation of pulverizers and pulverizer systems in terms of fineness specifications. It may also be used to confirm the influence of coal fineness on combustion performance and to evaluate carbon loss. By consent among interested parties, it may be used for evaluation of coal fineness in preparation, pneumatic transfer systems, etc.

4. Apparatus

4.1 *Sample Containers*—Heavy vapor impervious bags, properly sealed, or noncorroding cans such as those with an airtight, friction top or screw top sealed with a rubber gasket and pressure sensitive tape for use in storage and transport of

the laboratory sample. Glass containers sealed with rubber gaskets may be used, but care must be taken to avoid breakage in transport.

4.2 *Drying Oven*—A device for passing slightly heated air over the sample. The oven should be capable of maintaining a temperature of 18 to 27°F (10 to 15°C) above room temperature with a maximum oven temperature of 104°F (40°C). Air changes should be at the rate of 1 to 4/min.

4.3 *Sieves*, square-hole, woven-wire cloth conforming to Specification E11:

No. 8 USA Standard (2.36 mm)
No. 16 USA Standard (1.18 mm)
No. 30 USA Standard (600 μm)
No. 50 USA Standard (300 μm)
No. 100 USA Standard (150 μm)
No. 200 USA Standard (75 μm)
No. 325 USA Standard (45 μm)

The sieve frames shall be 8 in. (203 mm) in diameter, and the height of the sieve from the top of the frame to the cloth shall be either 2 in. (50.8 mm) or 1 in. (25.4 mm). Selection of specific sizes is optional, depending on the objective of the test.

4.3.1 Since the finer mesh sieves in particular are susceptible to damage by distortion resulting from undue pressure, accidental scraping with hard brushes, etc., each sieve should be closely inspected and discarded if it shows evidence of damage.

4.4 *Mechanical Sieving Machine*—The mechanical sieving machine shall be designed to provide both a circular motion and a tapping action. It shall be designed to accept an assembly of vertically nested circular sieves as described in 4.3. The machine action shall be such that results as described in Section 7 are obtained within the allotted time frame. Action shall not be sufficiently severe to generate new fines by particle degradation. To facilitate the sieving operation, a control switch device with timer is recommended. Other equipment designs may be used provided the results are comparable.

4.5 *Balance, Laboratory*—Approximately 1000-g capacity, sensitivity 0.1 g.

4.6 *Sampling Device (Storage System)*—An instrument (scoop, dipper, or other suitable device) for collecting increments that will constitute the total sample.

4.7 *Sampling Device (Direct-Fired System)*—Apparatus as described in 6.2.1 and 6.2.2.

¹ This test method is under the jurisdiction of ASTM Committee D05 on Coal and Coke and is the direct responsibility of Subcommittee D05.07 on Physical Characteristics of Coal.

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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.