



Designation: D2797/D2797M – 21a

Standard Practice for Preparing Coal Samples for Microscopical Analysis by Reflected Light¹

This standard is issued under the fixed designation D2797/D2797M; 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 practice covers laboratory procedures for the preparation of granular samples of bituminous coal and anthracite samples for examination with a microscope using reflected light illumination. It does not apply to the preparation of oriented blocks of coal.

1.2 *Units*—The values stated in either SI units or non-SI units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

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

- D2013 Practice for Preparing Coal Samples for Analysis
- D2234/D2234M Practice for Collection of a Gross Sample of Coal
- D2798 Test Method for Microscopical Determination of the Vitrinite Reflectance of Coal
- D2799 Test Method for Microscopical Determination of the

Maceral Composition of Coal

D4596 Practice for Collection of Channel Samples of Coal in a Mine

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Summary of Practice

3.1 A representative sample is crushed to a specified particle size, air-dried, mixed with a binder, and formed into a briquet. The briquet is then polished to a flat, scratch-free surface for examination by vertical illumination.

4. Significance and Use

4.1 Briquets of granular bituminous coals and anthracite prepared in accordance with the laboratory procedures of this practice will have flat, scratch-free surfaces suitable for examination with a microscope using reflected light illumination. The polished surfaces of briquettes prepared by this practice will contain particles representative of the original gross sample.

4.2 Samples prepared by this practice are used for microscopical determination of the reflectance of the organic components in a polished specimen of coal (Test Method D2798) and for microscopical determination of the volume percent of physical components of coal (Test Method D2799).

5. Apparatus

5.1 *Grinder, Pulverizer, or Mill*, for final crushing of the sample to pass a 850 μm [No. 20] U.S. Standard Sieve. Mortar and pestle or other equipment suitable for reducing the particle size of a 250 g sample that already passes a 4.75 mm [No. 4] U.S. Standard Sieve until all of it passes a 850 μm [No. 20] U.S. Standard Sieve (see 6.5).

5.2 *Coarse Riffle Sampler*—A riffle with at least twelve divisions of not less than 12.7 mm [$\frac{1}{2}$ in.] and not greater than 19.1 mm [$\frac{3}{4}$ in.].

5.3 *Fine Riffle Sampler*—A riffle with at least twelve divisions of not less than 3.2 mm [$\frac{1}{8}$ in.] and not greater than 6.4 mm [$\frac{1}{4}$ in.].

5.4 *Sieves*—A 4.75 mm [No. 4] and a 850 μm [No. 20] U.S. Standard Sieve (Specification E11).

¹ This practice is under the jurisdiction of ASTM Committee D05 on Coal and Coke and is the direct responsibility of Subcommittee D05.28 on Petrographic Analysis 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.