



Standard Test Method for Determining the Washability Characteristics of Coal¹

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INTRODUCTION

The American Society for Testing and Materials has recognized the need for a standard procedure to conduct washability analyses that will serve as an aid to technical communication among individuals and organizations that supply, purchase, and utilize coal. This test method standardizes procedures utilized for performing washability analyses, the data from which can be used for interpreting preparation plant efficiency, for determining preparation plant design, and for determining the potential recovery and quality of coal reserves.

1. Scope

1.1 This test method describes procedures for determining the washability characteristics of coarse-coal fractions and fine-coal fractions. Each sample being tested can have more than one coarse-coal size fraction and more than one fine-coal size fraction (see Annex A1). Each such size fraction has an upper size limit and a lower size limit, neither of which overlaps with the next larger nor smaller size fraction. (See Test Method D 4749.)

1.2 While, in general, this test method has useful application in determining the washability characteristics of low-rank coals, in the strictest sense, it is not necessarily the most technically correct test method to determine washability characteristics of low-rank coals because of problems relative to the loss of moisture through drying during sample preparation and analysis. Methods that are directly applicable to low-rank coals are to be developed.

1.3 The values stated in SI units are to be regarded as the standard. The values shown in parentheses are for information only.

1.4 *This standard does not purport to address 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.* For specific hazard statements, see Section 8 and Appendix X1.

2. Referenced Documents

2.1 ASTM Standards:

- D 2013 Method of Preparing Coal Samples for Analysis²
- D 2234 Practice for Collection of a Gross Sample of Coal²
- D 4749 Test Method for Performing Sieve Analysis of Coal and Designating Coal Size²
- D 4915 Guide for Manual Sampling of Coal from Tops of Railroad Cars²
- E 11 Specification for Wire-Cloth Sieves for Testing Purposes³
- E 100 Specification for ASTM Hydrometers⁴
- E 126 Test Method for Inspection and Verification of Hydrometers⁴
- E 323 Specification for Perforated-Plate Sieves for Testing Purposes³

3. Terminology

3.1 Definitions:

3.1.1 *coal washability*—the determination of the theoretical limits for the removal of mineral impurities from coal by beneficiation processes that rely on specific gravity separations.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *washability analysis of coal*—the analysis of the specific gravity distribution of chemical and physical characteristics of coal.

3.2.1.1 *Discussion*—In this test method, the specific gravity fractions are obtained by subjecting the material being studied to a series of solutions, each with a discrete specific gravity,

¹ This test method is under the jurisdiction of ASTM Committee D-5 on Coal and Coke and is the direct responsibility of Subcommittee D05.07 on Physical Characteristics of Coal.

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² *Annual Book of ASTM Standards*, Vol 05.05.

³ *Annual Book of ASTM Standards*, Vol 14.02.

⁴ *Annual Book of ASTM Standards*, Vol 14.03.