



Designation: D 3174 – 002

Standard Test Method for Ash in the Analysis Sample of Coal and Coke from Coal¹

This standard is issued under the fixed designation D 3174; 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 This test method is under the jurisdiction of ASTM Committee D-5 D05 on Coal and Coke and is the direct responsibility of Subcommittee D05.21 on Methods of Analysis.

Current edition approved April–September 10, 20002. Published July 2000. October 2002. Originally published as D 3174 – 73. Last previous edition D 3174 – 97^{ε1}. D 3174 – 00.

1. Scope

1.1 This test method covers the determination of the inorganic residue as ash in the analysis sample of coal or coke as prepared in accordance with Method D 2013 or Practice D 346. The results obtained can be applied as the ash in the proximate analysis, Practice D 3172, and in the ultimate analysis, Practice D 3176. For the determination of the constituents in ash, reference is made to Test Methods D 2795 and D 3682. See Terminology D 121 for definition of ash.

1.2 The values stated in SI units are to be regarded as the standard.

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.*

~~1.3 The values stated in SI units are to be regarded as the standard.~~

2. Referenced Documents

2.1 *ASTM Standards:*

D 121 Terminology of Coal and Coke²

D 346 Practice for Collection and Preparation of Coke Samples for Laboratory Analysis²

D 388 Classification of Coals by Rank²

D 1756 Test Method for Determination as Carbon Dioxide of Carbonate Carbon in Coal²

D 1757 Test Method for Sulfate Sulfur in Ash from Coal and Coke²

D 2013 Method of Preparing Coal Samples for Analysis²

D 2795 Test Methods for Analysis of Coal and Coke Ash²

D 3172 Practice for Proximate Analysis of Coal and Coke²

D 3173 Test Method for Moisture in the Analysis Sample of Coal and Coke²

D 3176 Practice for Ultimate Analysis of Coal and Coke²

D 3180 Practice for Calculating Coal and Coke Analyses from As-Determined to Different Bases²

D 3682 Test Method for Major and Minor Elements in Coal and Coke Ash by the Atomic Absorption Method²

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method³

3. Summary of Test Method

3.1 Ash is determined by weighing the residue remaining after burning the coal or coke under rigidly controlled conditions of sample weight, temperature, time, atmosphere, and equipment specifications.

4. Significance and Use

4.1 Ash, as determined by this test method, is the residue remaining after burning the coal and coke. Ash obtained differs in composition from the inorganic constituents present in the original coal. Incineration causes an expulsion of all water, the loss of carbon dioxide from carbonates, the conversion of iron pyrites into ferric oxide, and other chemical reactions. Ash, as determined by this test method, will differ in amount from ash produced in furnace operations and other firing systems because incineration conditions influence the chemistry and amount of the ash. References for correcting ash results determined by this test method to

² Annual Book of ASTM Standards, Vol 05.06.

³ Annual Book of ASTM Standards, Vol 14.02.