



## Standard Test Method for Ash in the Analysis Sample of Refuse-Derived Fuel<sup>1</sup>

This standard is issued under the fixed designation E 830; 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 test method covers determination of the ash content in the analysis sample of refuse-derived fuel (RDF). The results obtained can be applied as the weight percent ash in the proximate analysis and in the ultimate analysis.

1.2 The values stated in acceptable metric units are to be regarded as standard. The values given in parentheses are for information only.

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. For specific precautionary statements see Section 6.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

- E 180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial Chemicals
- E 790 Test Method for Residual Moisture in a Refuse-Derived Fuel Analysis Sample
- E 829 Practice for Preparing Refuse-Derived Fuel (RDF) Laboratory Samples for Analysis

### 3. Terminology

#### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *refuse-derived fuel*—Solid forms of refuse-derived fuels from which appropriate analytical samples may be prepared are defined as follows in ASTM STP 832:<sup>3</sup>

RDF-1—Wastes used as a fuel in as-discarded form with only bulky wastes removed.

RDF-2—Wastes processed to coarse particle size with or without ferrous metal separation.

RDF-3—Combustible waste fraction processed to particle sizes, 95 % passing 2-in. square screening.

RDF-4—Combustible waste fraction processed into powder form, 95 % passing 10-mesh screening.

RDF-5—Combustible waste fraction densified (compressed) into the form of pellets, slugs, cubettes, or briquettes.

### 4. Summary of Test Method

4.1 Ash is determined by weighing the residue remaining after burning the prepared analysis sample under rigidly controlled conditions of sample weight, temperature, and furnace atmosphere.

### 5. Significance and Use

5.1 This test method is available to producers and users of RDF as a method of determining the weight percent of ash in the analysis sample.

### 6. Apparatus

6.1 *Electric Furnace*—For determination of the ash content of RDF, the furnace shall have adequate air ventilation and shall be capable of temperature regulation up to at least  $750 \pm 25^\circ\text{C}$ . An air change rate of 1 to 4 furnace volumes of air per minute has been found adequate.

NOTE 1—It may be possible to reduce the rate of air flow below the suggested minimum without adversely affecting results of the ash determination.

6.2 *Porcelain Capsules*, about 22 mm (7/8 in.) in depth, and 44 mm (1 3/4 in.) in diameter, or similar containers.

NOTE 2—Weighing bottles of borosilicate glass may be safely used without deformation or softening at temperatures of  $600^\circ\text{C}$  or less.

### 7. Precautions

7.1 Due to the origins of RDF in municipal waste, common sense dictates that some precautions should be observed when conducting tests on the samples. Recommended hygienic practices include use of gloves when handling RDF; wearing dust masks (NIOSH-approved type), especially while milling RDF samples; conducting tests under a negative pressure hood when possible; and washing hands before eating or smoking.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> *Thesaurus on Resource Recovery Terminology*, ASTM STP 832, ASTM, 1983, p. 72.