



# Standard Test Method for Thermal Characteristics of Refuse-Derived Fuel Macrosamples<sup>1</sup>

This standard is issued under the fixed designation E955; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

<sup>ε1</sup> NOTE—Editorial changes were made in November 2009.

## 1. Scope

1.1 This test method covers the determination of moisture, noncombustibles and combustibles, and the calculation of higher heating value content of a large mass of refuse-derived fuel-three (RDF).

1.2 This test method may be applicable to any waste material, including residues from combustion, from which a representative sample can be prepared.

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

1.4 *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.* See Section 7 for additional hazard information.

## 2. Referenced Documents

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

[E711 Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter](#) (Withdrawn 2011)<sup>3</sup>

[E791 Test Method for Calculating Refuse-Derived Fuel Analysis Data from As-Determined to Different Bases](#)

## 3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.03 on Treatment, Recovery and Reuse.

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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> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

3.1.1 *combustibles*—that fraction of the RDF sample which is consumed upon ignition exclusive of the moisture present in the sample.

3.1.2 *macrosample*—a representative sample in the order of 1 kg mass is used to determine moisture, combustible, and noncombustible content without further processing or size reduction.

3.1.3 *noncombustibles*—that fraction of a macrosample remaining after moisture and combustibles are driven off by heat and combustion. It is composed of metallic and glass particles in addition to the residue from combustion of organic substances.

3.1.4 *forms of refuse-derived fuel (RDF)*:—

RDF-1—Wastes used as a fuel in as-discarded form.

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

RDF-3—shredded fuel derived from municipal solid waste (MSW) that has been processed to remove metal, glass, and other inorganics. This material has a particle size such that 95 weight % passes through a 2-in. (50 mm) square mesh screen.

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

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

RDF-6—Combustible waste processed into liquid fuel.

RDF-7—Combustible waste processed into gaseous fuel.

## 4. Summary of Test Method

4.1 A macrosample of RDF is dried and ashed successively. The moisture, combustibles, and noncombustibles content are determined gravimetrically.

4.2 Heating value of a macrosample of RDF is calculated using an established moisture and noncombustible free heating value.

4.2.1 Normal practice is for contracting practices to rate RDF on a higher heating value basis.

4.2.2 If contracting parties choose to rate RDF on a lower heating value basis, provision is made using an established moisture and non-combustible free lower heating value.