



Designation: E 949 – 88 (Reapproved 1996)

Standard Test Method for Total Moisture in a Refuse-Derived Fuel Laboratory Sample¹

This standard is issued under the fixed designation E 949; 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 the measurement of the total moisture in RDF as it exists at the time it is sampled. Because of its empirical nature, strict adherence to test procedures are required for valid results. The standard is available to producers, vendors, and consumers as a total, two-stage moisture method.

1.2 Since RDF can vary from extremely wet (water saturated) to relatively dry, special emphasis must be placed on sampling, sample preparation, and the method of determination.

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 hazard statement, see Section 7.

2. Referenced Documents

2.1 ASTM Standards:

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

E 790 Test Method for Residual Moisture in Refuse-Derived Fuel Analysis Sample³

E 829 Practice for Preparing Refuse-Derived Fuel (RDF) Laboratory Samples for Analysis³

3. Terminology Definitions

3.1 *air drying*—a process of partial drying of RDF to bring its moisture content near to equilibrium with the atmosphere in which further reduction, division, and characterization of the sample are to take place. In order to bring about the equilibrium, the RDF is usually subjected to drying under controlled temperature conditions ranging from 30 to 40°C.

3.2 *analysis sample*—the final subsample prepared from the air-dried laboratory sample but reduced by passing through a mill with a 0.5 mm (0.02 in.) size or smaller final screen.

3.3 *bias*—a systematic error that is consistently negative or consistently positive. The mean of errors resulting from a series of observations that does not tend towards zero.

3.4 *gross sample*—a sample representing one lot and composed of a number of increments on which neither reduction nor division has been performed.

3.5 *laboratory sample*—a representative portion of the gross sample received by the laboratory for analysis.

3.6 *lot*—a large designated quantity (greater than the quantity of the final sample) of RDF which can be represented by a properly selected gross sample.

3.7 *precision*—a term used to indicate the capability of a person, an instrument, or a method to obtain reproducible results; specifically, a measure of the random error as expressed by the variance, the standard error, or a multiple of the standard error.

3.8 *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.

3.9 *representative sample*—a sample collected in such a manner that it has characteristics equivalent to the lot sampled.

3.10 *sample division*—the process of extracting a smaller sample from a sample so that the representative properties of the larger sample are retained. During this process it is assumed that no change in particle size or other characteristics occurs.

3.11 *sample preparation*—the process that includes drying, size reduction, division, and mixing of a laboratory sample for the purpose of obtaining an unbiased analysis sample.

3.12 *sample reduction*—the process whereby sample particle size is reduced without change in sample weight.

3.13 *significant loss*—any loss that introduces a bias in final results that is of appreciable importance to concerned parties.

¹ 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. Current edition approved March 25, 1988. Published May 1988. Originally published as E 949 – 83. Last previous edition E 949 – 83.

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

³ *Annual Book of ASTM Standards*, Vol 11.04.