Designation: E791 – 08

StandardTest Method for
Calculating Refuse-Derived Fuel Analysis Data from As-Determined to Different Bases[1]

1. Scope

1.1 This test method gives equations to enable analytical data from the application of RDF analyses procedures to be expressed on various different bases in common use. Such bases are: as-received; dry; dry, ash-free; and others.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this 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.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]
D5681 Terminology for Waste and Waste Management

3. Terminology

3.1 For definitions of terms used in this test method, refer to Terminology D5681.

3.2 *Symbols:*
3.2.1 The symbols used in this test method are as follows:

M = moisture, weight %,
M_{ar} = moisture as-received (total moisture), weight %,
M_{ad} = moisture as-determined (residual moisture, weight %,
ADL = air-dry loss, weight %,
P = any analysis parameter listed in 5.1, weight % (except gross calorific value in Btu/lb),

H = hydroxygen, weight %,
O = oxygen, weight %, and
A = ash, weight %.

3.2.2 Subscripts used in this test method are as follows:

$_{ad}$ = as-determined,
$_{ar}$ = as-received,
$_{d}$ = dry, and
$_{daf}$ = dry, ash-free (equivalent to moisture and ash-free, maf).

4. Significance and Use

4.1 This test method is available to producers and users of RDF to use in converting laboratory data from one basis to another.

5. Applicable Parameters

5.1 The calculation procedures defined in 7.1.3, 7.2.2, and 7.3.2 are applicable to the following analysis parameters when expressed as a weight percent (except gross calorific value as Btu/lb).

5.1.1 Ash,
5.1.2 Carbon,
5.1.3 Chloride, water-soluble,
5.1.4 Chlorine, total,
5.1.5 Calorific value (gross),
5.1.6 Fixed carbon,
5.1.7 Nitrogen,
5.1.8 Sulfur, and
5.1.9 Volatile matter.

6. Sampling

6.1 Sampling techniques are not directly applicable to this test method. However, sampling procedures are identified in the respective methods of analyses.

7. Methods for Calculating Data

7.1 Converting from the as-determined analysis sample basis to the as-received basis:

7.1.1 *Moisture:*

$$M_{ar} = [M_{ad} \times (100 - ADL)/100] + ADL \qquad (1)$$