Irish Standard
I.S. EN ISO 16993:2016

Solid biofuels - Conversion of analytical results from one basis to another (ISO 16993:2016)

I.S. EN ISO 16993:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN ISO 16993:2016 is the adopted Irish version of the European Document EN ISO 16993:2016, Solid biofuels - Conversion of analytical results from one basis to another (ISO 16993:2016)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 16993

July 2016

ICS 75.160.10; 27.190

Supersedes EN ISO 16993:2015

English Version

Solid biofuels - Conversion of analytical results from one basis to another (ISO 16993:2016)

Biocombustibles solides - Conversion de résultats analytiques d'une base en une autre base (ISO 16993:2016)

Biogene Festbrennstoffe - Umwandlung von Analysenergebnissen einer Bezugsbasis in Ergebnisse mit anderer Bezugsbasis (ISO 16993:2016)

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European foreword

This document (EN ISO 16993:2016) has been prepared by Technical Committee ISO/TC 238 "Solid biofuels" in collaboration with Technical Committee CEN/TC 335 “Solid biofuels” the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2017, and conflicting national standards shall be withdrawn at the latest by January 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 16993:2016 has been approved by CEN as EN ISO 16993:2016 without any modification.

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I.S. EN ISO 16993:2016

INTERNATIONAL STANDARD

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Solid biofuels — Conversion of analytical results from one basis to another

Biocombustibles solides — Conversion de résultats analytiques d'une base en une autre base

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 238, *Solid biofuels*.

This second edition cancels and replaces the first edition (ISO 16993:2015), of which it constitutes a minor revision.

Introduction

In the International Standards covering the analysis of solid biofuels, it is generally specified that the determination is intended to be carried out on the air-dried or in air-equilibrated general analysis test sample prepared according to ISO 14780. However, in making use of these analyses, it is necessary to express the results on dry basis and sometimes, also on some other basis. The bases in common use for solid biofuels are “air-dried” (sometimes stated as “as determined”), “as received” (sometimes stated “as sampled” or “as delivered”), “dry”, and “dry, ash free”.

Solid biofuels — Conversion of analytical results from one basis to another

1 Scope

This International Standard gives formulae which allow analytical data relating to solid biofuels to be expressed on the different bases in common use. Consideration is given to corrections that can be applied to certain determined values for solid biofuels prior to their calculation to other bases.

In Annex A, tools for integrity checks of analytical results are given. In Annex B, conversion factors for calculation into other units are given. Annex C is a guideline for the use of validation parameters as can be found in ISO/TC 238 analytical standards.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 16948:2015, *Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen*

ISO 16994, *Solid biofuels — Determination of total content of sulphur and chlorine*

ISO 18122, *Solid biofuels — Determination of ash content*

ISO 18125[1)], *Solid biofuels — Determination of calorific value*

ISO 18134-1, *Solid biofuels — Determination of moisture content — Oven dry method — Part 1: Total moisture — Reference method*

ISO 18134-2, *Solid biofuels — Determination of moisture content — Oven dry method — Part 2: Total moisture — Simplified method*

ISO 18134-3, *Solid biofuels — Determination of moisture content — Oven dry method — Part 3: Moisture in general analysis sample*

3 Symbols and abbreviated terms

The symbols employed in the subsequent clauses are as follows, with the suffixes “ad” (air-dried), “ar” (as received), “d” (dry), and “daf” (dry, ash free), where appropriate.

A	ash (percentage by mass) according to ISO 18122
C	total carbon content (percentage by mass) according to ISO 16948
Cl	total chlorine content (percentage by mass) according to ISO 16994
$q_{p,net}$	net calorific value at constant pressure (J/g) according to ISO 18125
H	total hydrogen content (percentage by mass) according to ISO 16948

1) To be published.