Irish Standard
I.S. EN ISO 16948:2015

Solid biofuels - Determination of total content of carbon, hydrogen and nitrogen (ISO 16948:2015)

I.S. EN ISO 16948:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
Dublin 9	W NSAI.ie	W standards.ie

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 16948

May 2015

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Supersedes EN 15104:2011

English Version

Solid biofuels - Determination of total content of carbon, hydrogen and nitrogen (ISO 16948:2015)

Biocombustibles solides - Détermination de la teneur totale en carbone, hydrogène et azote (ISO 16948:2015)

Biogene Festbrennstoffe - Bestimmung des Gesamtgehaltes an Kohlenstoff, Wasserstoff und Stickstoff - Instrumentelle Verfahren (ISO 16948:2015)

This European Standard was approved by CEN on 31 January 2015.

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN ISO 16948:2015) 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of an identical text or by endorsement, at the latest by November 2015, and conflicting national standards shall be withdrawn at the latest by November 2015.

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.

This document supersedes EN 15104:2011.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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Endorsement notice

The text of ISO 16948:2015 has been approved by CEN as EN ISO 16948:2015 without any modification.

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I.S. EN ISO 16948:2015

INTERNATIONAL STANDARD

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Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen

Biocombustibles solides — Détermination de la teneur totale en carbone, hydrogène et azote

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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. www.iso.org/directives

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

For the purposes of research on instrumental methods for the determination of total carbon, hydrogen and nitrogen contents in solid biofuels standards, users are encouraged to share their views on ISO 16948:2015 and their priorities for changes to future editions of the document. Click on the link below to take part in the online survey:

ISO 16948 online survey

Introduction

Instrumental methods for the analysis of carbon, hydrogen and nitrogen are now in widespread and in regular use, often in preference to formerly developed chemical methods for which International Standards exist.

The reliable determination of carbon, hydrogen and nitrogen is important for quality control and the results can be used as input parameters for calculations applied to the combustion of solid biofuels. The environmental importance of the nitrogen content is linked to emissions of NO_x (formation of fuel NO_x). Hydrogen content is important for calculation of the net calorific value. Carbon content is required for the determination of CO_2-emissions.

It is recognized that the Kjeldahl method is most reliable for determining nitrogen contents with a concentration lower than 0,1 %. Possible suitable methods are summarized in the bibliography.

Solid biofuels — Determination of total content of carbon, hydrogen and nitrogen

1 Scope

This International Standard describes a method for the determination of total carbon, hydrogen and nitrogen contents in solid biofuels.

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 16559, *Solid biofuels — Terminology, definitions and descriptions*

ISO 14780[1)], *Solid Biofuels — Sample preparation*

ISO 16993, *Solid biofuels — Conversion of analytical results from one basis to another*

3 Terms and definitions

For the purposes of this document the terms and definitions given in ISO 16559 and the following apply.

3.1
reference material
RM
material or substance one or more of whose property values are sufficiently homogeneous and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials

3.2
certified reference material
CRM
reference material, accompanied by a certificate, one or more of whose property values are certified by a procedure which establishes traceability to an accurate realisation of the unit in which the property values are expressed, and for which each certified value is accompanied by an uncertainty at a stated level of confidence

3.3
NIST standard reference material
SRM
CRM issued by NIST that also meets additional NIST-specific certification criteria and is issued with a certificate or certificate of analysis that reports the results of its characterisations and provides information regarding the appropriate use(s) of the material

Note 1 to entry: The National Institute of Standards and Technology (NIST), known between 1901 and 1988 as the National Bureau of Standards (NBS), is a measurement standards laboratory, also known as a National Metrological Institute (NMI), which is a non-regulatory agency of the United States Department of Commerce

1) To be prepared.