Irish Standard
I.S. EN ISO 16995:2015

Solid biofuels - Determination of the water soluble chloride, sodium and potassium content (ISO 16995:2015)

I.S. EN ISO 16995:2015

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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
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EUROPEAN STANDARD

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EN ISO 16995

February 2015

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English Version

Solid biofuels - Determination of the water soluble chloride, sodium and potassium content (ISO 16995:2015)

Biocombustibles solides - Détermination de la teneur en chlorure, sodium et potassium solubles dans l'eau (ISO 16995:2015)

Biogene Festbrennstoffe - Bestimmung des wasserlöslichen Gehaltes an Chlorid, Natrium und Kalium (ISO 16995:2015)

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

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Foreword

This document (EN ISO 16995:2015) 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of an identical text or by endorsement, at the latest by August 2015, and conflicting national standards shall be withdrawn at the latest by August 2015.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.

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I.S. EN ISO 16995:2015

INTERNATIONAL STANDARD

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Solid biofuels — Determination of the water soluble chloride, sodium and potassium content

Biocombustibles solides — Détermination de la teneur en chlorure, sodium et potassium solubles dans l'eau

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web 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 (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*.

Introduction

The elements chlorine, sodium and potassium are present in solid biofuels. They can contribute significantly to utilization problems such as corrosion, fouling and slagging in furnaces. Also, they affect the gaseous emissions from the thermal processes.

The chlorine content in solid biofuels is mainly present as water soluble inorganic salts such as sodium and potassium chlorides or other ion-exchangeable forms. Determination of the water soluble chloride content is thus an alternative and simple method to achieve information of the level of chlorine in solid biofuels. However, the content of water soluble chloride is not to be mistaken for the total content of chlorine in the fuels.

In solid biofuels sodium and potassium can be present as both minerals and salts. The salts of these elements are extractable with water and are readily volatile during thermal conversion. By determination of the water soluble content of sodium and potassium, an estimate of the aggressive content of the elements in relation to potential slagging and fouling problems can be achieved. For some biofuels, such as straw, experience has shown that the water soluble content of sodium and potassium corresponds to the total content of the elements. The content of water soluble sodium and potassium is not to be mistaken for the total content of the elements.

Solid biofuels — Determination of the water soluble chloride, sodium and potassium content

1 Scope

This International Standard describes a method for the determination of the water soluble chloride, sodium and potassium content in solid biofuels by extraction with water in a closed container and their subsequent quantification by different analytical techniques.

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 9964-1, *Water quality — Determination of sodium and potassium — Part 1: Determination of sodium by atomic absorption spectrometry*

ISO 9964-2, *Water quality — Determination of sodium and potassium — Part 2: Determination of potassium by atomic absorption spectrometry*

ISO 9964-3, *Water quality — Determination of sodium and potassium — Part 3: Determination of sodium and potassium by flame emission spectrometry*

ISO 10304-1, *Water quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*

ISO 11885, *Water quality — Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES)*

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

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

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

EN 14780, *Solid biofuels —Sample preparation*

Std. Meth. 4500-Cl- D Standard Methods For the Examination Of Water and Wastewater, 18th Edition 1992. 4500-Cl- D. Potentiometric Method

3 Terms and definitions

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

3.1
water soluble chloride, sodium and potassium content
amount of the element which can be extracted with water using the extraction procedure specified in this International Standard