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Solid biofuels — Determination of major elements — Al, Ca, Fe, Mg, P, K, Si, Na and Ti

Biocombustibles solides — Détermination des éléments majeurs — Al, Ca, Fe, Mg, P, K, Si, Na et Ti

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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*.

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Introduction

The elements described as major elements of solid biofuels are in fact major elements of the fuel ashes more than of the fuels. The determination of these elements can be used to assess ash behaviour in a thermal conversion process or to assess utilization of ashes. Moreover, fuel contamination or process additives are indicated by high values of certain elements. Contamination of fuel with sand or soil is indicated by high values of several elements.

In this International Standard, wet chemical methods are described.

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Solid biofuels — Determination of major elements — Al, Ca, Fe, Mg, P, K, Si, Na and Ti

1 Scope

This International Standard describes methods for the determination of major elements of solid biofuels respectively of their ashes, which are Al, Ca, Fe, Mg, P, K, Si, Na, Ti. The determination of other elements such as barium (Ba) and manganese (Mn) is also possible with the methods described in this International Standard.

This International Standard includes two parts: Part A describes the direct determination on the fuel, this method is also applicable for sulfur and minor elements, Part B gives a method of determination on a prepared 550 °C ash.

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 7980, *Water quality — Determination of calcium and magnesium — Atomic absorption spectrometric method*

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

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

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

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

ISO 17294-2, *Water quality — Application of inductively coupled plasma mass spectrometry (ICP-MS) — Part 2: Determination of 62 elements*

ISO 18122[2)], *Solid biofuels — Determination of ash content*

ISO 18134-3[2)], *Solid biofuels — Determination of moisture content — Oven dry method — Part 3: Moisture in general analysis sample*

3 Terms and definitions

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

1) To be replaced by ISO 14780.

2) To be published.

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