CSA ISO 18122:24
(ISO 18122:2022, IDT)
National Standard of Canada

CSA ISO 18122:24
Solid biofuels — Determination of ash content
(ISO 18122:2022, IDT)

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CSA Preface

This is the second edition of CSA ISO 18122, *Solid biofuels — Determination of ash content*, which is an adoption without modification of the identically titled ISO (International Organization for Standardization) Standard 18122 (second edition, 2022-11). It supersedes the previous edition published in 2016 as CSA ISO 18122 (adopted ISO 18122:2015).

For brevity, this Standard will be referred to as "CSA ISO 18122" throughout.

The main changes since the previous edition are as follows:
- descriptions of the ashing furnace and ashing procedure are more detailed;
- repeatability and reproducibility performance data have been updated;
- several references have been updated; and
- minor editorial corrections have been made.

This Standard was reviewed for Canadian adoption by the CSA Technical Committee on Solid Biofuels, under the jurisdiction of the CSA Strategic Steering Committee on Fuel Burning Equipment, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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INTERNATIONAL STANDARD

ISO 18122

Second edition
2022-11

Solid biofuels — Determination of ash content

Biocombustibles solides — Détermination de la teneur en cendres

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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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This document was prepared by Technical Committee ISO/TC 238, *Solid biofuels*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 335, *Solid biofuels,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 18122:2015), which has been technically revised.

The main changes are as follows:

— more detailed descriptions of the ashing furnace and ashing procedure;

— repeatability and reproducibility performance data updated;

— several references updated;

— minor editorial corrections.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Ash content is an important parameter for fuel deliveries since ash is a by-product of combustion and ends up as bottom ash or fly-ash and needs to be removed. Depending on the jurisdiction, ash may be deposited or used for production of other products or as fertilizer. Knowing how much ash comes with a fuel can have economic consequences. Since the chemical composition of ash contributes to slagging and corrosion in the combustion equipment, it is therefore important to know the amount of ash contained in a fuel. Other testing standards are used for determining the chemical composition of ash.

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Solid biofuels — Determination of ash content

1 Scope

This document specifies a method for the determination of ash content of all solid biofuels.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14780, *Solid biofuels — Sample preparation*

ISO 16559, *Solid biofuels — Vocabulary*

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

ISO 18135, *Solid Biofuels — Sampling*

ISO 21945, *Solid biofuels — Simplified sampling method for small scale applications*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Principle

The ash content is determined by calculating the mass of the residue remaining after the sample is heated in air under rigidly controlled conditions of time, sample weight and equipment specifications to a controlled final temperature. The final temperature of 550 ± 10 °C is considered standard; however, other final temperatures may be used provided all other furnace conditions (e.g. air flows, temperature ramp rates, hold times) remain the same and the alternative final temperature is clearly referenced on the test report. Alternative final temperatures referenced in other test methods include 710 °C and 815 °C. The repeatability and reproducibility limits provided in Clause 9 are not applicable to alternative final temperatures.

Automatic equipment (such as gravimetric analysers) may be used when the method is validated with biomass reference samples of an adequate biomass type. The automatic equipment shall fulfil all the requirements given in Clause 7 regarding sample size, heating procedure, atmosphere, temperature and weighing accuracy.

NOTE The difference in the ash content if determined at a higher temperature, 815 °C, according to Reference [1], rather than 550 °C, is explained by the decomposition of carbonates forming CO_2, by losses of volatile inorganic compounds and further oxidation of inorganic compounds (to higher oxidation states).

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