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BSI Standards Publication

Fat and oil derivatives - Fatty Acid Methyl Esters - Determination of methanol content

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National foreword

This British Standard is the UK implementation of EN 14110:2019. It supersedes BS EN 14110:2003, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AW/307, Oilseeds, animal and vegetable fats and oils and their by-products.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments/corrigenda issued since publication

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EUROPÄISCHE NORM

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English Version

Fat and oil derivatives - Fatty Acid Methyl Esters - Determination of methanol content

Produits dérivés des corps gras - Esters
méthyliques d'acides gras - Détermination
de la teneur en méthanol

Erzeugnisse aus pflanzlichen und tierischen
Fetten und Ölen - Fettsäure-Methylester
(FAME) - Bestimmung des Methanolgehaltes

This European Standard was approved by CEN on 22 July 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 14110:2019) has been prepared by Technical Committee CEN/TC 307 "Oilseeds, vegetable and animal fats and oils and their by-products - Methods of sampling and analysis", the secretariat of which is held by AFNOR.

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 October 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

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

This document supersedes EN 14110:2003.

This document has been prepared under mandate M/245 on Fatty Acid Methyl Ester (FAME) given to CEN by the European Commission and the European Free Trade Association.

Significant changes between this document and EN 14110:2003 are:

- Addition of [Formula \(1\)](#) — resolution between methanol and 2-propanol
- Correction of the Formula to calculate the methanol content based on external calibration
- Addition of [Clause 2](#) — Normative References
- Addition of [Clause 7](#) — Sampling

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This document specifies a method for the determination of the methanol content of fatty acid methyl esters (FAME) for use as diesel fuel and domestic heating fuel. The method is applicable to methanol contents between 0,01 % (m/m) and 0,5 % (m/m). The method is not applicable to mixtures of FAME containing other low boiling components.

NOTE For the purposes of this document, the terms "% (m/m)" and "% (V/V)" are used to represent respectively the mass fraction and the volume fraction.

WARNING — The use of this document can involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of users of this document to take appropriate measures to ensure the safety and health of personnel prior to application of the standard, and fulfil statutory and regulatory requirements for this purpose.

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.

EN ISO 3170, *Petroleum liquids — Manual sampling (ISO 3170)*

EN ISO 3171, *Petroleum liquids — Automatic pipeline sampling (ISO 3171)*

3 Terms and definitions

No terms and definitions are listed in this document.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Principle

The sample is heated at 80 °C in a hermetically sealed vial to allow desorption of contained methanol into the gas phase. When the equilibrium is reached a defined part of the gas phase is injected into a gas chromatograph, where methanol is detected with a flame ionization detector.

The amount of methanol can be determined either by internal calibration (procedure A) or by external calibration (procedure B).

If only manual equipment is available then only internal standard calibration should be used.

5 Reagents

Use only reagents of recognized analytical grade, unless otherwise specified.

5.1 Methanol, of known purity greater than 99,5 %.

5.2 2-propanol, of known purity, greater than 99,5 % (for procedure A, internal calibration).