

Fat and oil derivatives — Fatty Acid Methyl Esters (FAME) — Determination of methanol content

The European Standard EN 14110:2003 has the status of a
British Standard

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National foreword

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méthanol

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

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EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (EN 14110:2003) 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of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.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, and supports essential requirements of EU Directive(s).

Annexes A and B are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method for the determination of methanol content in fatty acid methyl esters (FAME) for use as diesel fuel and domestic heating fuel. The method is applicable for a concentration range from 0,01 % (*m/m*) to 0,5 % (*m/m*) methanol. The method is not applicable to mixtures of FAME which contain other low boiling components.

2 Principle

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

The amount of methanol is calculated by reference to an external calibration. Methanol can also be determined after addition of an internal standard to the sample before heating, followed by calculation with the use of an internal calibration factor.

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

3 Reagents

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

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

3.2 2-propanol, of known purity, greater than 99,5 % (for procedure A, internal calibration).

3.3 Reference FAME, with a methanol content less than 0,001 % (*m/m*).

NOTE Reference FAME can either be obtained from commercial sources or by washing by three or five times with distilled water in a separator funnel. FAME should be then dried by heating at 90 °C under stirring and reduced pressure.

3.4 Carrier gas, nitrogen, helium or hydrogen, of known purity greater than 99 %.

4 Apparatus

4.1 Septum vials, 20 ml capacity.

4.2 Inert septa (e.g. TFE or Viton ¹⁾) **and metallic caps**.

4.3 Syringe, 10 µl, accurate to 0,1 µl.

4.4 Gas syringe 500 µl, fitted with a valve (for manual procedure).

4.5 Crimping pliers.

4.6 Pipettes, of 1 ml, 2 ml, 5 ml capacity.

4.7 Volumetric flask, capacity 10 ml and 25 ml.

1) This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN of these products. Equivalent products may be used if they can be shown to lead to the same results.