

Automotive fuels — Fatty acid methyl esters (FAME) for diesel engines — Requirements and test methods

The European Standard EN 14214:2003 has the status of a
British Standard

ICS 75.160.20

National foreword

This British Standard is the official English language version of EN 14214:2003, including Corrigendum December 2003 and amendment A1:2004.

Corrigendum December 2003 made changes to the EN foreword, Clause 2, Table 1, Table A.1, B.3 and the Bibliography.

The UK participation in its preparation was entrusted by Technical Committee PTI/2, Liquid fuels, to Subcommittee PTI/2/1, Road fuels, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

The UK National Annex NA gives the sampling requirements to comply with Clause 3. The UK National Annex NB gives the pump marking requirements to comply with Clause 4, and the UK National Annex NC gives the climate-dependent requirements to comply with 5.4.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Carburants pour automobiles - Esters méthyliques d'acide gras (EMAG) pour moteurs diesel - Exigences et méthodes d'essais

Kraftstoffe für Kraftfahrzeuge - Fettsäure-Methylester (FAME) für Dieselmotoren - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 14 February 2003.

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Foreword

This document EN 14214:2003 has been prepared by Technical Committee CEN/TC 19 "Petroleum products, lubricants and related products", the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by January 2004, and conflicting national standards shall be withdrawn at the latest by January 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This European standard exists in parallel with: EN 590 "Automotive fuels - Diesel - Requirements and test methods".

This standard gives all relevant characteristics, requirements and test methods for FAME, which are known at this time to be necessary to define the product to be used as automotive diesel fuel, including iodine value. The stability characteristics of FAME are under investigation in an EU-funded research programme 'BIOSTAB', and suitable limits and test methods may be incorporated into an amended version of this standard upon successful conclusion of this programme, including a possible replacement for iodine value.

Many of the test methods included in this standard were the subject of interlaboratory testing to determine the applicability of the method and its precision in relation to different sources of fatty acid methyl esters. These fatty acid methyl esters were produced from rapeseed and sunflower oil.

Annex A is normative and contains the precision data generated on the test methods which are the result of the interlaboratory testing as mentioned above, carried out by working groups of CEN/TC 19. Annex B and C, also normative, contain details on calculations.

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 requirements and test methods for marketed and delivered fatty acid methyl esters (FAME) to be used either as automotive fuel for diesel engines at 100% concentration, or as an extender for automotive fuel for diesel engines in accordance with the requirements of EN 590. At 100% concentration it is applicable to fuel for use in diesel engine vehicles designed or subsequently adapted to run on 100% FAME.

NOTE For the purposes of this European Standard, the term “% (m/m)” is used to represent the mass fraction.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 116:1997, *Diesel and domestic heating fuels – Determination of cold filter plugging point*

EN 590:1999, *Automotive fuels - Diesel - Requirements and test methods*

EN 12662:1998, *Liquid petroleum products - Determination of contamination in middle distillates*

EN 14103:2003, *Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) – Determination of ester and linolenic acid methyl ester contents*

EN 14104:2003, *Fat and oil derivatives – Fatty Acid Methyl Esters (FAME) - Determination of acid value*

EN 14105:2003, *Fat and oil derivatives – Fatty Acid Methyl Esters (FAME) – Determination of free and total glycerol and mono-, di- and triglyceride content –(Reference method)*

EN 14106:2003, *Fat and oil derivatives – Fatty Acid Methyl Esters (FAME)– Determination of free glycerol content*

EN 14107:2003, *Fat and oil derivatives – Fatty Acid Methyl Esters (FAME) – Determination of phosphorus content by inductively coupled plasma (ICP) emission spectrometry*

EN 14108:2003, *Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) – Determination of sodium content by atomic absorption spectrometry*

EN 14109:2003, *Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) – Determination of potassium content by atomic absorption spectrometry*

EN 14110:2003, *Fat and oil derivatives – Fatty Acid Methyl Esters (FAME) - Determination of methanol content*

EN 14111:2003, *Fat and oil derivatives – Fatty Acid Methyl Esters (FAME) – Determination of iodine value*

EN 14112:2003, *Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of oxidation stability (accelerated oxidation test).*

prEN 14538:2002 *Fat and oil derivatives – Fatty acid methyl esters (FAME) – Determination of Ca and Mg content by optical emission spectral analysis with inductively coupled plasma (ICP OES).*