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STN	**Automobilové palivá Motorové nafty s vysokým obsahom FAME (B20 a B30) Požiadavky a skúšobné metódy**	**STN EN 16709** 65 6521

Automotive fuels - High FAME diesel fuel (B20 and B30) - Requirements and test methods

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Automotive fuels - High FAME diesel fuel (B20 and B30) - Requirements and test methods

Carburants pour automobiles - Carburant diesel à haute teneur en EMAG (B20 et B30) - Exigences et méthodes d'essai

Kraftstoffe - Dieselkraftstoffmischungen mit hohem FAME-Anteil (B20 und B30) - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 21 July 2024.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 16709:2024) has been prepared by Technical Committee CEN/TC 19 “Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin”, 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of an identical text or by endorsement, at the latest by April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

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 16709:2015+A1:2018.

Significant technical changes between this document and EN 16709:2015+A1:2018 are:

— update to the normative references towards undated versions where they don't concern requirements originating from European Directives (in line with decisions by CEN/TC 19 in coordination with the European Commission), and updating the effective publication dates were required;

— inclusion of the amended EN 14214 FAME specification;

— deletion of the Fuel Ignition Tester (EN 16144) as an alternative test method for cetane number determination due to its absence of use in the market. Whereas the ICN technique (EN 17155) has now been included as alternative methods for cetane number determination;

— addition of micro-distillation (EN 17306) as an alternative test method to distillation by EN ISO 3405 and EN ISO 3924;

— addition of automated method (EN ISO 22995) as an alternative test method to cloud point by EN ISO 3015;

— addition of the Stabinger viscometer (EN ISO 23581) as an alternative test method to viscosity by EN ISO 3104;

— addition of oxidation stability by rapid small scale oxidation method (EN 16091) as an alternative test method to oxidation stability by EN 15751;

— updating of the clause on pump marking to harmonize it with other CEN/TC 19 specification standards;

— update to the “workmanship clause” in 7.5.2 to address the issue of abrasive wear of fuel injection equipment by hard particles in diesel fuel;

— clarification of the dispute requirement concerning sulfur content in 7.7.3;

— deletion of the allowance for cetane number alternative methods in 7.7.4;

— addition of 7.7.9 to address situations in which the test method includes a bias-correction to the dispute method;

— deletion of the A-deviation for Belgium and inclusion of an A-deviation for Germany, following changes of respective national legislations.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

This document specifies two fuel grades in the range of [14, 20] %(*V*/*V*) and [24, 30] %(*V*/*V*) of fatty acid methyl ester (FAME) in diesel fuel to be used in captive fleet application for designated vehicles[1], as it is not suitable for all vehicles.

Requirements following amendments 2003/17/EC [2], 2009/30/EC [3], 2011/63/EU [4], 2014/77/EU [12], directive (EU) 2015/1513 [17], regulation (EU) 2018/1999 [18] and directive (EU) 2023/2413 [19] to the European Fuels Quality Directive 98/70/EC [1], are taken into account. Dates are included for normative test method references in order to comply with the requirements of the European Commission; with the accompanying assurance by CEN/TC 19 that any referenced updated versions will always give at least the same accuracy and at least the same level of precision (see [4]).

The marking at the pump of this product is in line with the requirements of the Fuels Quality Directive and the Alternative Fuels Infrastructure Directive [11].

Information on the development of this fuel specification can be found in CEN/TR 16557 [5].

[1] In the sense that they are compatible with the product.

1 Scope

This document specifies requirements and test methods for marketed and delivered high FAME (B20 and B30) diesel fuel for use in diesel engine vehicles designed or subsequently adapted to run on such fuel. High FAME diesel fuel is a mixture of up to 20 % (*V*/*V*) in total and up to 30 % (*V*/*V*) in total respectively fatty acid methyl esters (commonly known as FAME) complying with EN 14214 and automotive diesel fuel complying with EN 590.

For maintenance and control reasons high FAME (B20 and B30) diesel fuel is to be used in captive fleets that are intended to have an appropriate fuel management (see Clause 4).

NOTE 1 These products are allowed in Europe [4], but national legislation can set additional requirements or rules concerning, or even prohibiting, marketing or delivering of the product.

NOTE 2 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.

NOTE 3 In this document, A-deviations apply (see Annex A).

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 116, *Diesel and domestic heating fuels — Determination of cold filter plugging point — Stepwise cooling bath method*

EN 12662-1, *Liquid petroleum products — Determination of total contamination — Part 1: Middle distillates and diesel fuels*

EN 12916:2024, *Petroleum products — Determination of aromatic hydrocarbon types in middle distillates — High performance liquid chromatography method with refractive index detection*

EN 14078:2014, *Liquid petroleum products — Determination of fatty acid methyl ester (FAME) content in middle distillates — Infrared spectrometry method*

EN 14214:2012+A2:2019[2], *Liquid petroleum products — Fatty acid methyl esters (FAME) for use in diesel engines and heating applications — Requirements and test methods*

EN 15195:2023, *Liquid petroleum products — Determination of ignition delay and derived cetane number (DCN) of middle distillate fuels by combustion in a constant volume chamber*

EN 15751, *Automotive fuels — Fatty acid methyl ester (FAME) fuel and blends with diesel fuel — Determination of oxidation stability by accelerated oxidation method*

EN 16091, *Liquid petroleum products — Middle distillates and fatty acid methyl ester (FAME) fuels and blends — Determination of oxidation stability by rapid small scale oxidation test (RSSOT)*

EN 16329, *Diesel and domestic heating fuels — Determination of cold filter plugging point — Linear cooling bath method*

[2] Currently under revision.

EN 16576:2014, *Automotive fuels — Determination of manganese and iron content in diesel — Inductively coupled plasma optical emission spectrometry (ICP OES) method*

EN 16715:2015, *Liquid petroleum products — Determination of ignition delay and derived cetane number (DCN) of middle distillate fuels — Ignition delay and combustion delay determination using a constant volume combustion chamber with direct fuel injection*

EN 16906:2023, *Liquid petroleum products — Determination of the ignition quality of diesel fuels — BASF engine method*

EN 16942, *Fuels — Identification of vehicle compatibility — Graphical expression for consumer information*

EN 17155:2018, *Liquid petroleum products — Determination of indicated cetane number (ICN) of middle distillate fuels — Primary reference fuels calibration method using a constant volume combustion chamber*

EN 17306:2023, *Liquid petroleum products — Determination of distillation characteristics at atmospheric pressure — Micro-distillation*

EN ISO 2719, *Determination of flash point — Pensky-Martens closed cup method (ISO 2719)*

EN ISO 3015, *Petroleum and related products from natural or synthetic sources — Determination of cloud point (ISO 3015)*

EN ISO 3104, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity (ISO 3104)*

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

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

EN ISO 3405:2019, *Petroleum and related products from natural or synthetic sources — Determination of distillation characteristics at atmospheric pressure (ISO 3405:2019)*

EN ISO 3675:1998, *Crude petroleum and liquid petroleum products — Laboratory determination of density — Hydrometer method (ISO 3675:1998)*

EN ISO 3924:2019, *Petroleum products — Determination of boiling range distribution — Gas chromatography method (ISO 3924:2019)*

EN ISO 4259-2, *Petroleum and related products — Precision of measurement methods and results — Part 2: Interpretation and application of precision data in relation to methods of test (ISO 4259-2)*

EN ISO 5165:2020, *Petroleum products — Determination of the ignition quality of diesel fuels — Cetane engine method (ISO 5165:2020)*

EN ISO 6245, *Petroleum products — Determination of ash (ISO 6245)*

EN ISO 12185:2024, *Crude petroleum, petroleum products and related products — Determination of density — Laboratory density meter with an oscillating U-tube sensor (ISO 12185:2024)*

EN ISO 12937, *Petroleum products — Determination of water — Coulometric Karl Fischer titration method (ISO 12937)*

EN ISO 13032:2024, *Petroleum and related products — Determination of low concentration of sulfur in automotive fuels — Energy-dispersive X-ray fluorescence spectrometric method (ISO 13032:2024)*

EN ISO 20846:2019[3], *Petroleum products — Determination of sulfur content of automotive fuels — Ultraviolet fluorescence method (ISO 20846:2019)*

EN ISO 20884:2019[4], *Petroleum products — Determination of sulfur content of automotive fuels — Wavelength-dispersive X-ray fluorescence spectrometry (ISO 20884:2019)*

EN ISO 22995, *Petroleum products — Determination of cloud point — Automated step-wise cooling method (ISO 22995)*

EN ISO 23581, *Petroleum products and related products — Determination of kinematic viscosity — Method by Stabinger type viscometer (ISO 23581)*

[3] Currently under revision.

[4] As impacted by EN ISO 20884:2019/A1:2021. Currently under revision.