

Automotive fuels - Automotive B10 diesel fuel -  
Requirements and test methods

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 16734:2022 sisaldab Euroopa standardi EN 16734:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 16734:2022 consists of the English text of the European standard EN 16734:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.03.2022.	Date of Availability of the European standard is 16.03.2022.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 75.160.20

**Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele**

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autoriõiguse kaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

**The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation**

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about standards copyright protection, please contact the Estonian Centre for Standardisation and Accreditation: Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

## Automotive fuels - Automotive B10 diesel fuel - Requirements and test methods

Carburants pour automobiles - Carburant B10 pour  
moteur automobile diesel - Exigences et méthodes  
d'essai

Kraftstoffe für Kraftfahrzeuge - B10 Dieselmotorkraftstoff -  
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 6 January 2022.

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.

CEN members are the national standards bodies of 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, Turkey and United Kingdom.



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

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

**Contents**

Page

<b>European foreword .....</b>	<b>3</b>
<b>1 Scope.....</b>	<b>5</b>
<b>2 Normative references.....</b>	<b>5</b>
<b>3 Terms and definitions.....</b>	<b>7</b>
<b>4 Sampling.....</b>	<b>7</b>
<b>5 Pump marking .....</b>	<b>7</b>
<b>6 Requirements and test methods .....</b>	<b>8</b>
6.1 Dyes and markers.....	8
6.2 Additives .....	8
6.2.1 General.....	8
6.2.2 Methylcyclopentadienyl manganese tricarbonyl (MMT) .....	8
6.3 Fatty acid methyl ester (FAME).....	8
6.4 Other (bio-) components.....	9
6.5 Generally applicable requirements and related test methods .....	9
6.6 Climate dependent requirements and related test methods.....	11
6.7 Precision and dispute.....	13
<b>Annex A (informative) A-deviations.....</b>	<b>14</b>
<b>Bibliography .....</b>	<b>15</b>

## European foreword

This document (EN 16734:2022) 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 September 2022, and conflicting national standards shall be withdrawn at the latest by September 2022.

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 16734:2016+A1:2018.

This document has originally been prepared under a mandate [1] given to CEN by the European Commission and the European Free Trade Association. It has been developed in coordination with representatives of those institutions.

This document describes a specification for diesel fuel containing up to 10,0 % (V/V) Fatty Acid Methyl Ester. This product is not suitable for all vehicles, so consumers and providers should consult vehicle manufacturers or manuals before use.

Requirements following amendment 2003/17/EC [3], 2009/30/EC [4], 2011/63/EU [5] and 2014/77/EU [6] to the European Fuels Quality Directive 98/70/EC [2], are taken into account. Dates are included with all 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 [7].

Significant technical changes between this document and the previous edition are:

- Inclusion of the amended EN 14214 FAME specification.
- 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 where required.
- Introduction of the new section “Terms and Definitions”.
- 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 BASF engine (EN 16906) and the ICN technique (EN 17155) have 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 (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 for diesel fuel containing FAME above 2,0 % (V/V).
- Deletion of Annex A on precision data and introduction of a NOTE under 6.5.1 in relation to test method precision data for diesel fuel containing FAME.
- Update to the 'workmanship clause' in 6.5.3 to address the issue of abrasive wear of fuel injection equipment by hard particles in diesel fuel.
- Introduction of further clarification around the lubricity requirement in Table 1.
- Reduction of the minimum density limit for Grades D, E and F, moving the property from Table 1 to Table 2.
- Clarification of the dispute requirement concerning sulfur content in 6.7.3.
- Deletion of the allowance for cetane number alternative methods in 6.7.4.
- Addition of 6.7.11 to address situations in which the test method includes a bias-correction to the dispute method.
- Deletion of the A-deviation for Belgium following change of national legislation.

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, Turkey and the United Kingdom.

## 1 Scope

This document specifies requirements and test methods for marketed and delivered automotive B10 diesel fuel, i.e. diesel fuel containing up to 10,0 % (V/V) Fatty Acid Methyl Ester. It is applicable to fuel for use in diesel engine vehicles compatible with automotive B10 diesel fuel.

NOTE 1 This product is 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 In this document, A-deviations apply (see Annex A).

NOTE 3 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.

## 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, *Liquid petroleum products - Determination of total contamination in middle distillates, diesel fuels and fatty acid methyl esters*

EN 12916:2019, *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, *Liquid petroleum products - Fatty acid methyl esters (FAME) for use in diesel engines and heating applications - Requirements and test methods*

EN 15195:2014, *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 method*

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

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 16906:2017, *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 17306:2019, *Liquid petroleum products - Determination of distillation characteristics at atmospheric pressure - Micro-distillation*

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

EN ISO 2160, *Petroleum products - Corrosiveness to copper - Copper strip test (ISO 2160)*

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

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 4264, *Petroleum products - Calculation of cetane index of middle-distillate fuels by the four variable equation (ISO 4264)*

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 10370, *Petroleum products - Determination of carbon residue - Micro method (ISO 10370)*

EN ISO 12156-1, *Diesel fuel - Assessment of lubricity using the high-frequency reciprocating rig (HFRR) - Part 1: Test method (ISO 12156-1)*

EN ISO 12185:1996, *Crude petroleum and petroleum products - Determination of density - Oscillating U-tube method (ISO 12185:1996)*

EN ISO 12205, *Petroleum products - Determination of the oxidation stability of middle-distillate fuels (ISO 12205)*

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



EN ISO 13032:2012, *Petroleum products - Determination of low concentration of sulfur in automotive fuels - Energy-dispersive X-ray fluorescence spectrometric method (ISO 13032:2012)*

EN ISO 13759, *Petroleum products - Determination of alkyl nitrate in diesel fuels - Spectrometric method (ISO 13759)*

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

EN ISO 20884:2019, *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)*

ISO 23581, *Petroleum products and related products - Determination of kinematic viscosity - Method by Stabinger type viscometer*

### **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:

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

### **4 Sampling**

Samples shall be taken as described in EN ISO 3170 or EN ISO 3171 and/or in accordance with the requirements of national standards or regulations for the sampling of automotive diesel fuel. The national requirements shall be set out in detail or shall be referred to by reference in a National Annex to this document.

In view of the sensitivity of some of the test methods referred to in this document, particular attention shall be paid to compliance with any guidance on sampling containers which is included in the test method standard.

### **5 Pump marking**

Information to be marked on dispensing pumps and nozzles used for delivering automotive B10 diesel fuel, and the dimensions of the mark shall be in accordance with EN 16942.

Labelling shall be clearly visible, easily legible and displayed at any point where diesel with metallic additives is made available to consumers. The label shall contain: "Contains metallic additives" in the national language(s) and shall be laid down in the National Annex to this document.

Further indication on dispensing pumps in the national language of "Not suitable for all vehicles; consult vehicle manufacturer or manual before use" is also strongly recommended.