

BS EN 590:2013+A1:2017

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BSI Standards Publication

## Automotive fuels - Diesel - Requirements and test methods

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## National foreword

This British Standard is the UK implementation of EN 590:2013+A1:2017, incorporating corrigendum March 2014. It supersedes BS EN 590:2013, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee PTI/2, Liquid Fuels.

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

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### Amendments/corrigenda issued since publication

Date	Text affected
30 November 2013	Implementation of corrigendum November 2013: National Annex NA added
31 July 2014	Implementation of CEN corrigendum March 2014: Footnote "j" in Table 1 updated
31 August 2015	Implementation of corrigendum August 2015: Sub-clause NC.3 Filter blocking tendency (FBT) added to National Annex NC

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Date	Text affected
31 October 2016	Dates in Subclause NC.3, NOTE 2 updated
30 September 2017	Implementation of CEN amendment A1:2017. National Annex NC also updated.
31 May 2018	Implementation of CEN correction notice 2 August 2017: Footnote "j" in Table 1 corrected
31 October 2018	National Annex NC, Subclause NC.3 updated
31 October 2018	Further corrections to Subclause NC.3
31 October 2019	Corrections to National Annex NB and National Annex NC, Subclause NC.1 and NC.3
31 March 2020	Corrections to National Annex NC, Subclause NC.3, and National Annex ND added
30 September 2020	National Foreword updated. National Annex NC, Subclause NC.3 updated.
31 March 2021	National Annex ND updated
31 October 2021	National Foreword updated. National Annex NC, cloud point requirements added in NC.2 and subclause NC.3 updated

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## EUROPÄISCHE NORM

May 2017

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Supersedes EN 590:2013

English Version

**Automotive fuels - Diesel - Requirements and test methods**

Carburants pour automobiles - Carburants pour  
moteur diesel (gazole) - Exigences et méthodes d'essai

Kraftstoffe für Kraftfahrzeuge - Dieseldieselmotoren -  
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 26 July 2013 and includes Amendment 1 approved by CEN on 17 March 2017.

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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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**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 590:2013+A1:2017) 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 November 2017, and conflicting national standards shall be withdrawn at the latest by November 2017.

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

This document supersedes A1 EN 590:2013 A1.

This document includes Amendment 1 approved by CEN on 17 March 2017.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association [5].

A1 Requirements following amendment 2003/17/EC [2], 2009/30/EC [3], 2011/63/EU [4] and 2014/77/EU [12] to the European Fuels Quality Directive 98/70/EC [1], are taken into account. A1 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 similar accuracy and the same or better precision (see [4]). A1 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]. A1

Significant technical changes between this European Standard and the previous edition are:

- Inclusion of the revised EN 14214 FAME specification.
- Specific requirements concerning the limitation of use of methylcyclopentadienyl manganese tricarbonyl (MMT) as required by the EC have been incorporated.
- Addition of the Fuel Ignition Tester (EN 16144) as an alternate test method to the CFR engine test.
- Addition of Simulated Distillation by gas chromatography (GC), EN ISO 3924, as an alternate test method to distillation by EN ISO 3405.
- Introduction of the improved EDXRF determination technique for low sulfur contents, EN ISO 13032, in replacement of EN ISO 20847.

Annex A is normative and contains the precision data generated on the test methods, which are the result of inter-laboratory testing, carried out by working groups of CEN/TC 19. Many of the test methods included in this standard were the subject of inter-laboratory testing to determine the applicability of the method and its precision in relation to blends of automotive diesel fuel containing 10 % (V/V) or higher of different sources of fatty acid methyl esters (FAME).

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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 European Standard specifies requirements and test methods for marketed and delivered automotive diesel fuel. It is applicable to automotive diesel fuel for use in diesel engine vehicles designed to run on automotive diesel fuel containing up to 7,0 % (V/V) Fatty Acid Methyl Ester.

NOTE For the purposes of this European Standard, 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, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

**A1** EN 116:2015, *Diesel and domestic heating fuels - Determination of cold filter plugging point - Stepwise cooling bath method* **A1**

**A1** EN 12662:2014, *Liquid petroleum products - Determination of total contamination in middle distillates, diesel fuels and fatty acid methyl esters* **A1**

**A1** EN 12916:2016, *Petroleum products - Determination of aromatic hydrocarbon types in middle distillates - High performance liquid chromatography method with refractive index detection* **A1**

**A1** EN 14078:2014, *Liquid petroleum products - Determination of fatty acid methyl ester (FAME) content in middle distillates - Infrared spectrometry method* **A1**

**A1** EN 14214:2012+A1:2014, *Liquid petroleum products - Fatty acid methyl esters (FAME) for use in diesel engines and heating applications - Requirements and test methods* **A1**

**A1** 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* **A1**

**A1** EN 15751:2014, *Automotive fuels - Fatty acid methyl ester (FAME) fuel and blends with diesel fuel - Determination of oxidation stability by accelerated oxidation method* **A1**

EN 16144:2012, *Liquid petroleum products - Determination of ignition delay and derived cetane number (DCN) of middle distillate fuels - Fixed range injection period, constant volume combustion chamber method*

EN 16329:2013, *Diesel and domestic heating fuels - Determination of cold filter plugging point - Linear cooling bath method*

**A1** EN 16576:2014, *Automotive fuels - Determination of manganese and iron content in diesel - Inductively coupled plasma optical emission spectrometry (ICP OES) method* **A1**

**A1** 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* **A1**

**A1** EN 16942:2016, *Fuels - Identification of vehicle compatibility - Graphical expression for consumer information* **A1**

EN 23015:1994, *Petroleum products - Determination of cloud point (ISO 3015:1992)*