

Diesel and domestic heating fuels - Determination of cold filter plugging point - Stepwise cooling bath method

## EESTI STANDARDI EESSÕNA

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English Version

## Diesel and domestic heating fuels - Determination of cold filter plugging point - Stepwise cooling bath method

Combustibles pour moteurs diesel et pour installations de chauffage domestique - Détermination de la température limite de filtrabilité

Dieselmotoren und Haushaltsheizöle - Bestimmung des Temperaturgrenzwertes der Filtrierbarkeit durch stufenweise Abkühlung

This European Standard was approved by CEN on 15 February 2015.

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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 foreword

This document (EN 116:2015) 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of an identical text or by endorsement, at the latest by February 2016, and conflicting national standards shall be withdrawn at the latest by February 2016.

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 EN 116:1997.

Significant technical differences between this European Standard and the previous edition of EN 116 are:

- that an automated method is described in detail beside the former manual procedure;
- the scope and the precision statement have been changed based on a European Round Robin study including current available fuels for use in diesel engines. In addition, Fatty Acid Methyl Esters (FAME) and FAME blends in diesel have been checked.

An alternative technique, i.e. using a linear cooling bath, has been developed as in EN 16329 [1].

Round Robin studies conducted for this revision showed different precision values compared to the previous edition. The studies covered current situation of marketed fuels including non-fossil component or biofuels.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard specifies a method for the determination of the cold filter plugging point (CFPP) of diesel and domestic heating fuels (see 3.1) using automated test equipment. Manual test equipment may be used, but for referee purposes only automated test equipment is allowed.

This European Standard is applicable to fatty-acid methyl esters (FAME) and to distillate fuels as well as paraffinic diesel fuels, including those containing FAME, flow-improvers or other additives, intended for use in diesel engines and domestic heating installations.

The results obtained from the method specified in this European Standard are suitable for estimating the lowest temperature at which a fuel will give trouble-free flow in the fuel system.

**NOTE** In the case of diesel fuels the results are usually close to the temperature of failure in service except when the fuel system contains, for example, a paper filter installed in a location exposed to the weather or if the filter plugging temperature is more than 12 °C below the cloud point of the fuel. Domestic heating installations are usually less critical and often operate satisfactorily at temperatures somewhat lower than those indicated by the test results.

The difference in results obtained from the sample “as received” and after heat treatment at 45°C for 30 min before the filtration may be used to investigate complaints of unsatisfactory performance under low temperature conditions.

**WARNING —** The use of this Standard can involve hazardous materials, operations and equipment. This Standard does not purport to address all of the safety problems associated with its use. It is the responsibility of users of this standard to take appropriate measures to ensure the safety and health of personnel prior to application of the standard, and fulfil statutory and regulatory requirements for this purpose.

## 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.

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

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

ISO 261, *ISO general purpose metric screw threads — General plan*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **cold filter plugging point**

CFPP

highest temperature at which a given volume of fuel fails to pass through a standardized filtration device in a specified time, when cooled under standardized conditions