BS EN ISO 3015:2019



BSI Standards Publication

# Petroleum and related products from natural or synthetic sources - Determination of cloud point

# National foreword

This British Standard is the UK implementation of EN ISO 3015:2019. It is identical to ISO 3015:2019. It supersedes BS EN 23015:1994, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/13, Petroleum Testing and Terminology.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

ISBN 978 0 580 98027 5

ICS 75.080

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2019.

**Amendments/corrigenda issued since publication**

| Date | Text affected |
|---|---|

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 3015

May 2019

ICS 75.080

Supersedes EN 23015:1994

English Version

# Petroleum and related products from natural or synthetic sources - Determination of cloud point (ISO 3015:2019)

Produits pétroliers et connexes d'origine naturelle ou synthétique - Détermination du point de trouble (ISO 3015:2019)

Mineralölerzeugnisse und verwandte Produkte mit natürlichem oder synthetischem Ursprung - Bestimmung des Cloudpoints (ISO 3015:2019)

This European Standard was approved by CEN on 23 March 2019.

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: Avenue Marnix 17, B-1000 Brussels**

© 2019 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members

# European foreword

This document (EN ISO 3015:2019) has been prepared by Technical Committee ISO/TC 28 "Petroleum and related products, fuels and lubricants from natural or synthetic sources" in collaboration with 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 2019, and conflicting national standards shall be withdrawn at the latest by November 2019.

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 23015:1994.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

**Endorsement notice**

The text of ISO 3015:2019 has been approved by CEN as EN ISO 3015:2019 without any modification.

# Contents

Page

**Foreword** ..... **iv**
**1 Scope** ..... **1**
**2 Normative references** ..... **1**
**3 Terms and definitions** ..... **1**
**4 Principle** ..... **2**
**5 Apparatus** ..... **2**
**6 Sampling** ..... **2**
**7 Procedure** ..... **3**
**8 Expression of results** ..... **5**
**9 Precision** ..... **5**
9.1 General ..... 5
9.2 Repeatability ..... 5
9.3 Reproducibility ..... 5
**10 Test report** ..... **5**
**Annex A** (normative) **Specifications of temperature measuring devices** ..... **6**
**Annex B** (informative) **Commonly used chemicals and freezing mixtures** ..... **8**
**Bibliography** ..... **9**

© ISO 2019 – All rights reserved

# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 28, *Petroleum and related products, fuels and lubricants from natural or synthetic sources*.

This third edition cancels and replaces the second edition (ISO 3015:1992), which has been technically revised. The main changes compared to the previous edition are as follows:

— extension of the scope to diesel fuels with up to 30 % (*V/V*) FAME and inclusion of paraffinic diesel fuels;

— inclusion of digital contact thermometer;

— normative references in Clause 2 have been updated;

— bath and sample temperature ranges have been aligned with ASTM D2500[1], changes in bath temperature and the temperatures at which the test jars are moved to the batch with the next lower temperature have over the years (1992 up to the time of publication of this document) not led to observation of a bias versus test results obtained with the former edition;

— the precision for 'other products' has been removed as data to support it could not be obtained for comparison;

— a bibliography has been added.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.


© ISO 2019 – All rights reserved

**INTERNATIONAL STANDARD** **ISO 3015:2019**

# Petroleum and related products from natural or synthetic sources - Determination of cloud point

**WARNING — The use of this document can involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of users of this document to take appropriate measures to ensure the safety and health of personnel prior to application of this document, and to determine the applicability of any other restrictions.**

## 1 Scope

This document specifies a method for the determination of the cloud point of petroleum products which are transparent in layers 40 mm in thickness and have a cloud point below 49 °C, amongst which are diesel fuels with up to 30 % (*V/V*) of fatty acid methyl ester (FAME)[2], paraffinic diesel fuels with up to 7 % (*V/V*) FAME[3], 100 % FAME[5] and lubricants.

NOTE For the purposes of this document, the term "% (*V/V*)" is used to represent the volume fraction ($\varphi$) of a material.

## 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.

ISO 3170, *Petroleum liquids — Manual sampling*

ISO 3171, *Petroleum liquids — Automatic pipeline sampling*

ASTM D7962, *Standard Practice for Determination of minimum Immersion Depth and Assessment of Temperature Sensor Measurement Drift*

ASTM E644-11, *Standard Test Methods for Testing Industrial Resistance Thermometers*

ASTM E2877, *Standard Guide for Digital Contact Thermometers*

## 3 Terms and definitions

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

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 http://www.electropedia.org/

**3.1**
**cloud point**
temperature at which a cloud of wax crystals first appears in a liquid when it is cooled under specified conditions

© ISO 2019 – All rights reserved