BSI Standards Publication

Petroleum products — Determination of sulfur content of automotive fuels — Wavelength-dispersive X-ray fluorescence spectrometry

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National foreword

This British Standard is the UK implementation of EN ISO 20884:2019+A1:2021. It is identical to ISO 20884:2019, incorporating amendment 1:2021. It supersedes BS EN ISO 20884:2019, which is withdrawn.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 ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by 〉A1〈.

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 committee manager.

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Energy Institute, under the brand of IP, publishes and sells all Parts of BS 2000, and all BS EN and BS ISO petroleum test methods that would be part of BS 2000, both in its annual publication "IP Standard Test Methods for analysis and testing of petroleum and related products, and British Standard 2000 Parts" and individually.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2019.

Amendments/corrigenda issued since publication

Date	Text affected
31 January 2022	Implementation of amendment 1:2021 to ISO 20884:2019 (still dual numbered as BS 2000-497:2019 in the UK) with CEN endorsement A1:2021

EUROPEAN STANDARD EN ISO 20884:2019

NORME EUROPÉENNE

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ICS 75.080; 75.160.30 Supersedes EN ISO 20884:2011

English Version

Petroleum products - Determination of sulfur content of automotive fuels - Wavelength-dispersive X-ray fluorescence spectrometry (ISO 20884:2019)

Produits pétroliers - Détermination de la teneur en soufre des carburants pour automobiles - Spectrométrie de fluorescence de rayons X dispersive en longueur d'onde (ISO 20884:2019)

Mineralölerzeugnisse - Bestimmung des Schwefelgehaltes in Kraftstoffen - Wellenlängendispersive Röntgenfluoreszenz-Spektrometrie (ISO 20884:2019)

This European Standard was approved by CEN on 5 August 2019.

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

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European foreword

This document (EN ISO 20884:2019) 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 April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

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 ISO 20884:2011.

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

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, 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.

Endorsement notice

The text of ISO 20884:2019 has been approved by CEN as EN ISO 20884:2019 without any modification.

European foreword to amendment A1

This document (EN ISO 20884:2019/A1:2021) 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.

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Endorsement notice

The text of ISO 20884:2019/Amd 1:2021 has been approved by CEN as EN ISO 20884:2019/A1:2021 without any modification.

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing Documents 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).

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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 20884:2011), which has been technically revised. The main changes compared to the previous edition are as follows:

— extension of the scope to include hydrotreated vegetable oil (HVO) and the synthetic fuel “gas to liquid” (GTL);

— inclusion of specific procedural steps for instruments utilizing monochromatic excitation.

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.

Petroleum products — Determination of sulfur content of automotive fuels — Wavelength-dispersive X-ray fluorescence spectrometry

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 the document, and fulfil other applicable requirements for this purpose.

1 Scope

This document specifies a wavelength-dispersive X-ray fluorescence (WDXRF) test method for the determination of the sulfur content of liquid, homogeneous automotive fuels from 5 mg/kg to 500 mg/kg, which have a maximum oxygen content of 3,7 % (*m/m*). This product range covers:

— diesel fuels containing up to about 30 % (*V/V*) fatty acid methyl esters (FAME),

— motor gasolines containing up to about 10 % (*V/V*) ethanol,

— synthetic fuels such as hydrotreated vegetable oil (HVO) and gas to liquid (GTL) having sulfur contents in the range of 5 mg/kg to 45 mg/kg.

Products with higher oxygen content show significant matrix effects, e.g. pure FAME used as biodiesel, nevertheless, pure FAME can be analysed when the corresponding procedures are followed (see 5.3 and 8.1).

Other products can be analysed with this test method, though precision data for products other than those mentioned have not been established for this document.

NOTE 1 Sulfur contents higher than 500 mg/kg can be determined after sample dilution, however, the precision was not established for diluted samples.

NOTE 2 For the purposes of this document, "% (*m/m*)" and "% (*V/V*)" are used to represent the mass fraction, *w*, and the volume fraction, φ, of a material respectively.

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*

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 http://www.electropedia.org/