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**Naftni proizvodi - Določevanje žvepla v gorivih za motorna vozila - Metoda z valovno disperzivno rentgensko fluorescenčno spektrometrijo (ISO 20884:2004)**

Petroleum products - Determination of sulfur content of automotive fuels - Wavelength-dispersive X-ray fluorescence spectrometry (ISO 20884:2004)

Mineralölerzeugnisse - Bestimmung des Schwefelgehaltes in Kraftstoffen für Kraftfahrzeuge - Wellenlängendispersive Röntgenfluoreszenz Spektrometrie (ISO 20884:2004)

Produits pétroliers - Détermination de la teneur en soufre des carburants pour automobiles - Spectrométrie de fluorescence de rayons X dispersive en longueur d'onde (ISO 20884:2004)

**Ta slovenski standard je istoveten z: EN ISO 20884:2004**

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**ICS:**

75.160.20	Tekoča goriva	Liquid fuels
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**SIST EN ISO 20884:2004**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 20884**

March 2004

ICS 75.080; 75.160.30

English version

**Petroleum products - Determination of sulfur content of  
automotive fuels - Wavelength-dispersive X-ray fluorescence  
spectrometry (ISO 20884:2004)**

Produits pétroliers - Détermination de la teneur en soufre  
des carburants pour automobiles - Spectrométrie de  
fluorescence de rayons X dispersive en longueur d'onde  
(ISO 20884:2004)

Mineralölerzeugnisse - Bestimmung niedriger  
Schwefelgehalte in Automobilkraftstoffen -  
Wellenlängendispersive Röntgenfluoreszenz-Spektrometrie  
(ISO 20884:2004)

This European Standard was approved by CEN on 1 March 2004.

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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 Central Secretariat has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

**EN ISO 20884:2004 (E)****Foreword**

This document (EN ISO 20884:2004) has been prepared by Technical Committee ISO/TC 28 "Petroleum products and lubricants" in collaboration with Technical Committee CEN/TC 19 "Petroleum products, lubricants and related products", 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 2004, and conflicting national standards shall be withdrawn at the latest by September 2004.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

**Endorsement notice**

The text of ISO 20884:2004 has been approved by CEN as EN ISO 20884:2004 without any modifications.

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# INTERNATIONAL STANDARD

**ISO  
20884**

First edition  
2004-03-15

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

*Produits pétroliers — Détermination de la teneur en soufre des  
carburants pour automobiles — Spectrométrie de fluorescence de  
rayons X dispersive en longueur d'onde*

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## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 20884 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*.

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

**WARNING** — The use of this International Standard may involve hazardous materials, operations and equipment. This International Standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this International Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

## 1 Scope

This International Standard 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 2,7 % (m/m). This product range covers diesel fuels containing up to 5 % (V/V) fatty acid methyl ester (FAME) and motor gasolines.

Products with higher oxygen content show significant matrix effects, e.g. FAME used as biodiesel. Nevertheless, FAME may be analysed when the corresponding procedures are followed (see 4.3 and 7.1). For further details due to matrix effects and interferences, see Annex A.

Other products may be analysed with this test method. However, precision data for products other than those mentioned have not been established for this International Standard.

**NOTE** For the purposes of this International Standard, the terms “% (m/m)” and “% (V/V)” are used to represent the mass fraction and the volume fraction of a material respectively.

## 2 Normative references

The following referenced documents are indispensable for the application 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 3170:2004, *Petroleum liquids — Manual sampling*

ISO 3171:1988, *Petroleum liquids — Automatic pipeline sampling*

## 3 Principle

The sample under analysis is exposed in a sample cell to the primary radiation of an X-ray tube. The count rates of the S-K $\alpha$  X-ray fluorescence and the count rate of the background radiation are measured. The sulfur content of the sample is determined from a calibration curve defined for the relevant measuring range.

**NOTE** Whilst the Siegbahn X-ray line notation (S-K $\alpha$ ) is used in this International Standard, the corresponding IUPAC X-ray line notation is S K-L<sub>2,3</sub>.