
Naftni proizvodi - Določevanje žvepla v gorivih za motorna vozila - Metoda z energijsko-disperzivno rentgensko fluorescenčno spektrometrijo (ISO 20847:2004)

Petroleum products - Determination of sulfur content of automotive fuels - Energy-dispersive X-ray fluorescence spectrometry (ISO 20847:2004)

Mineralölerzeugnisse - Bestimmung des Schwefelgehaltes von Kraftstoffen für Kraftfahrzeuge - Energiedisperive Röntgenfluoreszenz-Spektrometrie (ISO 20847:2004)

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Produits pétroliers - Détermination de la teneur en soufre des carburants pour automobiles - Spectrométrie de fluorescence de rayons X dispersive en énergie (ISO 20847:2004)

Ta slovenski standard je istoveten z: EN ISO 20847:2004

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75.160.20 Tekoča goriva Liquid fuels

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 20847

March 2004

ICS 75.080; 75.160.30

English version

**Petroleum products - Determination of sulfur content of
automotive fuels - Energy-dispersive X-ray fluorescence
spectrometry (ISO 20847:2004)**

Produits pétroliers - Détermination de la teneur en soufre
des carburants pour automobiles - Spectrométrie de
fluorescence de rayons X dispersive en énergie (ISO
20847:2004)

Mineralölerzeugnisse - Bestimmung des Schwefelgehalts
von Automobilkraftstoffen - Energiedispersive
Röntgenfluoreszenz-Spektrometrie (ISO 20847:2004)

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

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

EN ISO 20847:2004 (E)**Foreword**

This document (EN ISO 20847:2004) 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of an identical text or by endorsement, at the latest by September 2004, and conflicting national standards shall be withdrawn at the latest by September 2004.

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INTERNATIONAL STANDARD

ISO 20847

First edition
2004-03-15

Petroleum products — Determination of sulfur content of automotive fuels — Energy-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 énergie*

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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ISO 20847:2004(E)**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.

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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 20847 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*.

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Introduction

This International Standard is directed specifically at the lower end of the concentration range covered in ISO 8754 ([3] in the Bibliography), which covers sulfur contents from 0,01 % (*m/m*) up to 5,00 % (*m/m*). By restriction of instrument type, a better signal to background ratio for sulfur K emission is assured and by the use of matrix matched calibration standards or other means of matrix corrections (as detailed below), the precision and accuracy of results for samples having varying C:H mass ratios and oxygen contents are improved. A knowledge of the general composition of the sample for analysis is advantageous in obtaining the best test result.

Where matrix matching is not used and where the C:H mass ratio of the test sample is known or can be determined, accuracy may be improved by the use of the equation given in A.2.2 to correct the result to the C:H mass ratio of the calibration standards, i.e. the reference diluent oil (4.1).

Some instruments include the capability for the separate measurement of scattered radiation from the X-ray tube, and notes for information are provided in A.2.3 on the use of this scattered radiation for compensation for matrix effects in the test sample.

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Petroleum products — Determination of sulfur content of automotive fuels — Energy-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 an energy dispersive X-ray fluorescence (EDXRF) test method for the determination of the sulfur content of motor gasolines, including those containing up to 2,7 % (*m/m*) oxygen, and of diesel fuels, including those containing up to 5 % (*V/V*) fatty acid methyl ester (FAME), having sulfur contents in the range 30 mg/kg to 500 mg/kg. Other products may be analysed and other sulfur contents may be determined according to this test method; however, no precision data for products other than automotive fuels and for results outside the specified range have been established for this International Standard. For reasons of spectral overlap, this International Standard is not applicable to leaded motor gasolines, lead-replacement gasolines containing 8 mg/kg potassium to 20 mg/kg potassium, or to products and feedstocks containing lead, silicon, phosphorus, calcium, potassium or halides at concentrations greater than one-tenth of the concentration of sulfur measured.

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 test portion, in a cup fitted with an X-ray transparent window, is placed in a beam of exciting radiation from an X-ray tube. The intensity of the sulfur K characteristic X-radiation is measured, and the number of accumulated counts is compared with a calibration curve constructed from sulfur standards covering the range of sulfur contents under examination.

NOTE The exciting radiation may be either direct, or indirect via a secondary target.