

Petroleum and related products — Determination of the extreme-pressure and anti-wear properties of fluids —Four ball method (European conditions)

The European Standard EN ISO 20623:2003 has the status of a British Standard

ICS 75.100

National foreword

This British Standard is the official English language version of EN ISO 20623:2003. It is identical with ISO 20623:2003.

The UK participation in its preparation was entrusted to Technical Committee PTI/13, Petroleum testing and terminology, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

At the request of Technical Committee PTI/13 and the Institute of Petroleum, BS EN ISO 20623:2003 is no longer dual numbered with BS 2000-239:2004.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii to iv, pages 1 to 17, the Annex ZA page, an inside back cover and a back cover.

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English version

Petroleum and related products - Determination of the extreme-pressure and anti-wear properties of fluids - Four ball method
(European conditions) (ISO 20623:2003)

Pétrole et produits connexes - Détermination des propriétés
extrême pression et anti-usure des fluides - Essai à quatre
billes (conditions européennes) (ISO 20623:2003)

Mineralölerzeugnisse und verwandte Produkte -
Bestimmung der EP-Eigenschaften und
Verschleißkennwerte von Flüssigkeiten - Verfahren mit
dem 4-Kugel-Apparat (Europäische Bedingungen) (ISO
20623:2003)

This European Standard was approved by CEN on 10 November 2003.

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Foreword

This document (EN ISO 20623:2003) 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 June 2004, and conflicting national standards shall be withdrawn at the latest by June 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 20623:2003 has been approved by CEN as EN ISO 20623:2003 without any modifications.

NOTE Normative references to International Standards are listed in Annex ZA (normative).

INTERNATIONAL STANDARD

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Petroleum and related products — Determination of the extreme-pressure and anti-wear properties of fluids — Four ball method (European conditions)

*Pétrole et produits connexes — Détermination des propriétés extrême
pression et anti-usure des fluides — Essai quatre billes (conditions
européennes)*



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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 20623 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*.

Petroleum and related products — Determination of the extreme-pressure and anti-wear properties of fluids — Four ball method (European conditions)

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 to determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies procedures for the measurement of the extreme-pressure (EP) and anti-wear properties of lubricating oils and fluids by means of the four ball machine. The conditions of test are those that apply in Europe and other areas that have similar electrical supply characteristics (200 V to 250 V, 50 Hz). In North America, the conditions of test are slightly different, but provide a similar ranking of the lubricating properties of fluids. The test conditions are not intended to simulate particular service conditions, but to provide information over a range of standard conditions for the purpose of research, development, quality control and fluid ranking. The output is used in lubricant specifications.

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 683-17:1999, *Heat-treated steels, alloy steels and free-cutting steels — Part 17: Ball and roller bearing steels*

ISO 3170:—¹⁾, *Petroleum liquids — Manual sampling*

3 Terms and definitions

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

3.1

wear

removal of metal from the test pieces

NOTE Under conditions of low load and low friction, wear causes only small circular scars on the three stationary balls and a ring on the rotating ball. The diameters of these scars are slightly larger than the diameter of the indentation due to the static load (Hertz diameter).

¹⁾ To be published. (Revision of ISO 3170:1988)