



# SLOVENSKI STANDARD SIST EN ISO 12922:2002

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Lubricants, industrial oils and related products (class L) - Family H (Hydraulic systems) - Specifications for categories HFAE, HFAS, HFB, HFC, HFDR and HFDU (ISO 12922:1999, including Technical Corrigendum 1:2001)

**iTeh STANDARD PREVIEW**

Schiermstoffe, Industrieöle und verwandte Produkte (Klasse L) - Familie H (Hydraulische Systeme) - Anforderungen für die Kategorien HFAE, HFAS, HFB, HFC, HFDR und HFDU (ISO 12922:1999 einschließlich Technisches Corrigendum 1:2001)

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Lubrifiants, huiles industrielles et produits connexes (classe L) - Famille H (Systemes hydrauliques) - Spécifications applicables aux catégories HFAE, HFAS, HFB, HFC, HFDR et HFDU (ISO 12922:1999, Corrigendum Technique 1:2001 inclus)

**Ta slovenski standard je istoveten z: EN ISO 12922:2002**

**ICS:**

75.120

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Hydraulic fluids

**SIST EN ISO 12922:2002**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 12922**

March 2002

ICS 75.120

English version

**Lubricants, industrial oils and related products (class L) - Family H (Hydraulic systems) - Specifications for categories HFAE, HFAS, HFB, HFC, HFDR and HFDU (ISO 12922:1999, including Technical Corrigendum 1:2001)**

Lubrifiants, huiles industrielles et produits connexes (classe L) - Famille H (Systèmes hydrauliques) - Spécifications applicables aux catégories HFAE, HFAS, HFB, HFC, HFDR et HFDU (ISO 12922:1999, Corrigendum Technique 1:2001 inclus)

Schiermstoffe, Industrieöle und verwandte Produkte (Klasse L) - Familie H (Hydraulische Systeme) - Anforderungen für die Kategorien HFAE, HFAS, HFB, HFC, HFDR und HFDU (ISO 12922:1999 einschließlich Technisches Corrigendum 1:2001)

This European Standard was approved by CEN on 3 January 2002.

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 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 Management Centre has the same status as the official versions.

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CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

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

**EN ISO 12922:2002 (E)****Foreword**

The text of the International Standard from Technical Committee ISO/TC 28 "Petroleum products and lubricants" of the International Organization for Standardization (ISO) has been taken over as a European Standard by 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 2002, and conflicting national standards shall be withdrawn at the latest by September 2002.

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

**Endorsement notice**

The text of the International Standard ISO 12922:1999, including Technical Corrigendum 1:2001 has been approved by CEN as a European Standard without any modifications.

SIST EN ISO 12922:2002

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# INTERNATIONAL STANDARD

# ISO 12922

First edition  
1999-10-15

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## Lubricants, industrial oils and related products (class L) — Family H (Hydraulic systems) — Specifications for categories HFAE, HFAS, HFB, HFC, HFDR and HFDU

*Lubrifiants, huiles industrielles et produits connexes (classe L) — Famille H (Systèmes hydrauliques) — Spécifications applicables aux catégories HFAE, HFAS, HFB, HFC, HFDR et HFDU*

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Reference number  
ISO 12922:1999(E)

**ISO 12922:1999(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

International Standard ISO 12922 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*, Subcommittee SC 4, *Classifications and specifications*, Working Group WG 3, *Classification and specifications of hydraulic fluids*, which is a joint working group with TC 131, *Fluid power systems*.

Annex A forms a normative part of this International Standard. Annex B is for information only.

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# Lubricants, industrial oils and related products (class L) — Family H (Hydraulic systems) — Specifications for categories HFAE, HFAS, HFB, HFC, HFDR and HFDU

**WARNING** — The handling and use of products as specified in this International Standard may be hazardous if suitable precautions are not observed. 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 the requirements of fire-resistant hydraulic fluids for hydrostatic and hydrodynamic hydraulic systems in general industrial applications. It is not intended for use in aerospace or power generation applications, where different requirements apply. It provides guidance for suppliers and end users of fire-resistant hydraulic fluids and also direction for equipment manufacturers of hydraulic systems.

This International Standard is written in a general form so that its application can accommodate various climatic conditions throughout the world. It also stipulates the requirements of fire-resistant hydraulic fluids at the time of delivery.

ISO 6743-4 establishes the classification of fluids used in hydraulic applications. Of the categories covered by ISO 6743-4, only the following are detailed in this specification: HFAE, HFAS, HFB, HFC, HFDR and HFDU.

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

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 760:1978, *Determination of water — Karl Fischer method (General method)*.

ISO 3170:1988, *Petroleum liquids — Manual sampling*.

ISO 3448:1992, *Industrial liquid lubricants — ISO viscosity classification*.

ISO 3675:1998, *Crude petroleum and liquid petroleum products — Laboratory determination of density — Hydrometer method*.

ISO 3733:1999, *Petroleum products and bituminous materials — Determination of water — Distillation method*.

ISO 4259:1992, *Petroleum products — Determination and application of precision data in relation to methods of test*.

ISO 4404:1998, *Petroleum and related products — Determination of the corrosion resistance of water-containing fire-resistant fluids for hydraulic systems.*

ISO 4406:1987, *Hydraulic fluid power — Fluids — Method for coding level of contamination by solid particles.*

ISO 5884:1987, *Aerospace — Fluid systems and components — Methods for system sampling and measuring the solid particle contamination of hydraulic fluids.*

ISO 6072:1986, *Hydraulic fluid power — Compatibility between elastomeric materials and fluids.*

ISO 6247:1998, *Petroleum products — Determination of foaming characteristics of lubricating oils.*

ISO 6618:1997, *Petroleum products and lubricants — Determination of acid or base number — Colour-indicator titration method.*

ISO 6619:1988 <sup>1)</sup>, *Petroleum products and lubricants — Neutralization number — Potentiometric titration method.*

ISO 6743-4:1999, *Lubricants, industrial oils and related products (class L) — Classification — Part 4: Family H (Hydraulic systems).*

ISO 7745:1989, *Hydraulic fluid power — Fire-resistant (FR) fluids — Guidelines for use.*

ISO 9120:1997, *Petroleum and related products — Determination of air-release properties of steam turbine and other oils — Impinger method.*

ISO 12185:1996, *Crude petroleum and petroleum products — Determination of density — Oscillating U-Tube method.*

ISO 14935:1998, *Petroleum and related products — Determination of wick flame persistence of fire-resistant fluids.*

ISO 15029-1:—<sup>2)</sup>, *Petroleum and related products — Determination of spray ignition characteristics of fire - resistant fluids — Part 1: Spray flame persistence — Hollow cone nozzle method.*

DIN 51348:1990 <sup>3)</sup>, *Testing of fire resistant governor fluids; Determination of hydrolytic stability.*

DIN 51354-2:1990, *Testing of lubricants; FZG gear testing; Method A/8,3/90 for lubricant oils.*

DIN 51373:1984 <sup>3)</sup>, *Testing of fire resistant governor fluids; Determination of oxidation stability including evaluation of the catalyst plates.*

DIN 51777-2:1974, *Testing of mineral oil hydrocarbons and solvents; Determination of water content according to Karl Fischer; Indirect method.*

NT FIRE 031, *Fluid spray: combustion efficiency; ISSN 0283-7188.*

7th edition of Luxembourg report: Doc N° 4746/10/91 EN, April 1994 <sup>4)</sup> <sup>5)</sup>.

CETOP RP 65H:1993 <sup>6)</sup>, *Manifold ignition test.*

<sup>1)</sup> To be revised. The title will be changed to: *Petroleum products and lubricants — Determination of acid number — Potentiometric titration method*)

<sup>2)</sup> To be published (see B.1 in annex B)

<sup>3)</sup> See B.3 in annex B

<sup>4)</sup> Available from: C.C.E - Direction Générale emplois, relations industrielles et affaires sociales. Organe permanent pour la sécurité et la salubrité dans les mines et les autres industries extractives, BP 1907, L-29920, Luxembourg

<sup>5)</sup> Abbreviated, in Tables 1 and 2 ; as "VII LUX" folowed by the number of the relevant subclause (see annex A)



CETOP RP 67H:1974 <sup>6)</sup>, *Anti-wear vane pump test for hydraulic fluids.*

### 3 Sampling

Sampling of hydraulic fluids for the purpose of this International Standard shall be carried out in accordance with the appropriate procedure described in ISO 3170. A representative sample shall be evaluated.

NOTE Any drum, barrel, tanker, compartment or any type of container delivered to the end user may be sampled and analysed at the request of the purchaser.

### 4 Requirements for fire-resistant hydraulic fluids

For the purposes of this International Standard, fluids shall be classified according to ISO 6743-4 and the guidelines for use shall be referred to ISO 7745.

Fluids, when tested according to the specified methods, shall be in agreement with the limiting values indicated in Tables 1 and 2, where applicable.

The majority of test methods specified in Tables 1 and 2 contain a statement of precision (repeatability and reproducibility). Attention is drawn to ISO 4259 which covers the use of precision data in the interpretation of test results. This procedure shall be used in cases of dispute.

Detailed requirements for each category mentioned in this International Standard are provided in Table 1 for HFAE and HFAS categories and in Table 2 for HFB, HFC and HFD types.

The composition of each category is indicated at the top of each table in accordance with ISO 6743-4.

This International Standard does not purport to address all of the safety problems associated with the use of fire-resistant fluids. It is the responsibility of users to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. The fluid shall not present any significant hazard to health when correctly used in hydraulic equipment, observing the handling recommendations of the supplier.

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<sup>6)</sup> Available from: Central secretariat of CETOP, BFP, Cheriton house, Cromwell Business Park, Banbury Road, Chipping Norton, OXON OX7 5SR, UK. Tel: (0) 1608 647900 - Fax: (0) 1608 647919.