

# **Lubricants, industrial oils and related products (class L) — Family H (Hydraulic systems) — Specifications for categories HETG, HEPG, HEES and HEPR**

ICS 75.100

# National foreword

This British Standard reproduces verbatim ISO 15380:2002 and implements it as the UK national standard.

The UK participation in its preparation was entrusted by Technical Committee MCE/18, Fluid power systems and components, to Subcommittee MCE/18/-/16, Hydraulic fluids, 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 subcommittee can be obtained on request to its secretary.

## Cross-references

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

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This British Standard, having been prepared under the direction of the Engineering Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 8 April 2002

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## **Lubricants, industrial oils and related products (class L) — Family H (Hydraulic systems) — Specifications for categories HETG, HEPG, HEES and HEPR**

*Lubrifiants, huiles industrielles et produits connexes (classe L) — Famille H (Systèmes hydrauliques) — Spécifications pour les catégories HETG, HEPG, HEES et HEPR*



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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15380 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*, Subcommittee SC 4, *Classifications and specifications*.

Annexes A, B and C of this International Standard are for information only.

## Introduction

The specifications for hydraulic fluids based on mineral oils (H) are described in ISO 11158 [1] and the specifications for fire-resistant hydraulic fluids (HF) are given in ISO 12922 [2]. Test methods and criteria for performance are relatively well defined for these two categories of hydraulic fluids compared to the relatively new class of environmentally acceptable hydraulic fluids (HE). This last type has come into existence mainly because of the need for non-toxic biodegradable fluids which are compatible with the environment.

Despite the great interest in HE, the lack of standards and technical language describing these fluids has impeded the growth of the market for these types of fluids. The emergence of the environmentally acceptable lubricants has been based on the premise that they are environmentally friendly and less toxic; however, a non-contentious and well-accepted description and definition of toxicity and biodegradability still eludes us. Part of the difficulty in gaining acceptance for environmentally acceptable hydraulic fluids is that the measurement of the environmental impact requires the close contact of two heterogeneous media ; viz., environmentally acceptable lubricants and the biological system.

This International Standard contains three informative annexes. Annex A contains guidelines for changing fluids from mineral-based oils to environmentally acceptable fluids. Annex B contains additional information on shear stability and the yellow metal test. Annex C covers the disposal of hydraulic fluids.



# Lubricants, industrial oils and related products (class L) — Family H (Hydraulic systems) — Specifications for categories HETG, HEPG, HEES and HEPR

**WARNING** — The handling and use of products 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 for environmentally acceptable hydraulic fluids and is intended for hydraulic systems, particularly hydraulic fluid power systems. The purpose of this International Standard is to provide guidance for suppliers and users of environmentally acceptable hydraulic fluids, and for the direction of original equipment manufacturers of hydraulic systems.

This International Standard stipulates the requirements for environmentally acceptable hydraulic fluids at the time of delivery.

Classification of fluids used in hydraulic application is defined in ISO 6743-4. Of the categories covered by ISO 6743-4, only four types of environmentally acceptable fluids are embraced in this International Standard. These categories are HETG, HEPG, HEES and HEPR.

## 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 2049:1996, *Petroleum products — Determination of colour (ASTM scale)*

ISO 2160:1998, *Petroleum products — Corrosiveness to copper — Copper strip test*

ISO 2592:2000, *Determination of flash and fire points — Cleveland open cup method*

ISO 3016:1994, *Petroleum products — Determination of pour point*

ISO 3104:1994, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity*

ISO 3170:1988, *Petroleum products — Manual sampling*

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

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