
**Petroleum and related products —
Determination of shear stability of
lubricating oils containing polymers —
Method using a tapered roller bearing**

*Pétrole et produits connexes — Détermination de la stabilité au
cisaillement des huiles lubrifiantes contenant des polymères —
Méthode avec roulement à rouleaux coniques*

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 28, *Petroleum products and lubricants*.

This second edition cancels and replaces the first edition (ISO 26422:2011), which has been technically revised. The objective of the revision is to harmonize the test methodology of ISO 26422 with that of CEC L-45-99 regarding reference fluids, referencing procedure, and the precision statement, thereby avoiding differences between two test methods which are technically equivalent.

ISO 26422 is based upon DIN 51350-6,^[1] which has also been adopted by the Co-ordinating European Council (CEC) as CEC-L-45-99. ISO/TC 28 acknowledges permission granted by Coordinating European Council to reproduce selected parts of CEC Test Method L-45-99^[2] to assist with the preparation of this International Standard.

Petroleum and related products — Determination of shear stability of lubricating oils containing polymers — Method using a tapered roller bearing

WARNING — The use of this International Standard can 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 a method of determining the shear stability of polymer-containing lubricating oils by the four-ball machine as specified in ISO 20623, but using a tapered roller bearing. The test results allow prediction of the in-service permanent viscosity loss.

NOTE Other International Standards exist which evaluate viscosity loss of polymer-containing oils. The method specified within this International Standard subjects fluids to a higher shear rate than, for example, the diesel injector nozzle shear test described within ISO 20844.^[3] It is particularly appropriate for lubricants being used in high shear applications, such as components with gears and roller bearings. In such applications, the shear rate in the ISO 20844 test method can be too low to generate a realistic permanent loss in viscosity of the fluid.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 3105, *Glass capillary kinematic viscometers — Specifications and operating instructions*

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

3 Terms and definitions

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

3.1

percentage viscosity loss

R_V

measure of shear stability calculated in accordance with the following equation:

$$R_V = \frac{v_0 - v_1}{v_0} \times 100$$

where