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Petroleum products and lubricants — Determination of cone penetration of lubricating greases and petrolatum



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Foreword

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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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 28, *Petroleum and related products, fuels and lubricants from natural or synthetic sources*.

This fourth edition cancels and replaces the third edition (ISO 2137:2007), which has been technically revised. The main changes compared to the previous edition are as follows:

- cleaning of cone and shaft assembly with solvent has been introduced to eliminate any drag forces;
- the precision table for repeatability and reproducibility for one-half-scale and one-quarter-scale has been revised to keep only an unconverted value.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

ISO 2137 was first published in 1972. A second edition was issued in 1985. The third revision was mainly on the dimensional tolerances of the various cones, to better fit with what is available from laboratory equipment suppliers. This revision was necessary because of all the quality plans and data integrity programmes established by numerous laboratories to conform with the various ISO quality standards. In the third edition of ISO 2137, the dimensional tolerances were enlarged to allow most of the cones to fulfil the requirements.

Before adopting changes in the third revision, an interlaboratory study was performed with cones conforming to new requirements and demonstrated that the precision of the method was not altered by changing the tolerances. Tolerances were retained only on the characteristics where it was established that they have a direct impact on the penetration determination, i.e. tip angle, tip height, tip top thickness, tip base diameter, cone angle, total mass of cone plus movable attachments.