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Liquid petroleum products — Determination of hydrocarbon types and oxygenates in automotive-motor gasoline — Multidimensional gas chromatography method

*Produits pétroliers liquides — Détermination des groupes
d'hydrocarbures et de la teneur en composés oxygénés de l'essence
automobile pour moteurs — Méthode par chromatographie
multidimensionnelle en phase gazeuse*



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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 22854 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 19, *Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin*, in collaboration with Technical Committee ISO/TC 28, *Petroleum products and lubricants*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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Introduction

This first edition of ISO 22854 is an update of the first edition of EN 14517:2004 [10]. Recent round-robin work has been incorporated to check whether the precision data for additional oxygenates fall within the ones given in Table 5. The scope has been updated. An instrument configuration has been added to the informative Annex A, describing an optimal set-up for the apparatus. In addition, Tables 1 and 2, with response factors, have been updated based on recent experimental data.

Originally the document was used for determination of saturated, olefinic and aromatic hydrocarbons in automotive motor gasoline according to European fuel specifications. The method is applicable for finished automotive motor gasoline with a total aromatic content up to 50 % (VII) and a total olefin content from about 1,5 % (VII) up to 30 % (VII).

The inter-laboratory study within CEN had been performed on automotive motor gasoline samples with a maximum of 30 % (VII) olefin content. Within some countries, the need for higher olefin percentages was expressed and an inter-laboratory study had been set up to determine precision data for automotive motor gasoline samples with higher olefin contents of up to 50 % (VII). In the first round robin, no samples with a high-olefin content in this range were delivered and hence they could not be taken into account (see test after Note 3 in the Scope). Once further results are known, this International Standard will be updated.

Applicability of this test method has also been verified for the determination of *n*-propanol, acetone, and diisopropyl ether (DIPE). However, no precision data have been determined for these compounds. The derived precision data for methanol do not comply with the precision calculation as presented in this International Standard. No precision calculation for methanol has been established as the need for such data has not been expressed. If any of these oxygenated compounds are present in the automotive motor gasoline sample, it is appropriate that their contents best be verified by use of other appropriate test methods, for instance as given in EN 228 [1].

The test method as described in this International Standard is harmonized with ASTM D 6839 [2].