SLOVENSKI STANDARD
oSIST prEN ISO 22854:2026

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Tekoči naftni proizvodi - Določanje vrste ogljikovodikov in oksigenatov v motornem bencinu in bencinu na osnovi etanola (E85) - Metoda multidimenzionalne plinske kromatografije (ISO/DIS 22854:2026)

Liquid petroleum products - Determination of hydrocarbon types and oxygenates in automotive-motor gasoline - Multidimensional gas chromatography method (ISO/DIS 22854:2026)

Flüssige Mineralölerzeugnisse - Bestimmung von Kohlenwasserstoffgruppen und sauerstoffhaltigen Verbindungen in Ottokraftstoffen - Multidimensionales gaschromatographisches Verfahren (ISO/DIS 22854:2026)

Produits pétroliers liquides - Détermination des groupes d'hydrocarbures et de la teneur en composés oxygénés de l'essence pour moteurs automobiles et du carburant éthanol pour automobiles (E85) - Méthode par chromatographie multidimensionnelle en phase gazeuse (ISO/DIS 22854:2026)

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DRAFT International Standard

ISO/DIS 22854

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

ICS: 75.080

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This document was prepared by Technical Committee ISO/TC 28, *Petroleum and related products, fuels and lubricants from natural or synthetic sources*, in collaboration with 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 accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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This sixth edition cancels and replaces the fifth edition (ISO 22854:2021), which has been technically revised.

The main changes are as follows:

— the Scope (Clause 1) and precision (Clause 11) have been expanded, respectively revised, in terms of contents of ethanol, ETBE, MTBE, and total oxygenates and , as well as the use for determination of total thers and napthenes have been introduced;

— following the introduction of procedure C in the previous publication, the title has been generalized;

— following the outcome of the latest interlaboratory study, guidance regarding measuring so-called E20-type fuels (available beforehand) has been highlighted more.

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.

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Introduction

Originally, this document was used for the determination of saturated, olefinic, aromatic and oxygenated hydrocarbons in automotive motor gasoline according to European fuel specifications, such as EN 228 [1] or CEN/TS 18227:2025 [2]

An interlaboratory study has shown that the method described in this document can be used for gasolines with a higher concentration of oxygenated compounds, including methanol. The interlaboratory study also provided data to calculate precision for toluene in gasoline. A similar study in 2026 confirmed the use for gasolines with higher alcohol and ether oxygenate contents, extending the scope to so-called E20 petrol CEN/TS 18227:2025 [2].

A study in 2019-2020 focused on higher ether contents. Annex B includes example chromatograms of gasolines with a variety of oxygenates, which can be used to correctly identify these oxygenates.

Another interlaboratory study has shown that the method is applicable for gasolines with a very low content of aromatic compounds, such as those described in EN 17867 [3] The study delivered optimalization of a validation step (Procedure C).

This document lays down three procedures: A, B and C. The application ranges of each are given in Table 1. Procedure A is the normal procedure for motor gasoline, whereas Procedure B describes the procedure for the analysis of oxygenated groups (ethanol, methanol, ethers, C3 – C5 alcohols) in ethanol (E85) automotive fuel. Procedure C describes the analysis of small engine petrol fuel containing low contents of aromatics and olefins.

The test method described in this document is harmonized with ASTM D6839 [4] except for Procedure C which focuses on European products only.

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

1 Scope

This document specifies the gas chromatographic (GC) method for the determination of saturated, olefinic and aromatic hydrocarbons in automotive motor gasoline, small engine petrol and ethanol (E85) automotive fuel. Additionally, the benzene and toluene content, oxygenated compounds, the total oxygen and total ether content can be determined (see Table 1).

Although specifically developed for the analysis of automotive motor gasoline that contains oxygenates, this test method can also be applied to other hydrocarbon streams having similar boiling ranges, such as naphthas and reformates.

2 Normative references

There are no normative references in this document.

3 Terms, definitions, symbols and abbreviated terms

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3.1 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
hydrocarbon group, noun
HG, noun
family of hydrocarbons

EXAMPLE Saturated hydrocarbons (3.1.2) or olefinic hydrocarbons (3.1.3).

3.1.2
saturate, noun
saturated hydrocarbon, noun
type of hydrocarbon that contains no double bonds with a carbon number of 3 to 12

EXAMPLE *n*-paraffins, *iso*-paraffins, cyclo-alkanes and poly-cyclic alkanes.

3.1.3
olefin, noun
olefinic hydrocarbon, noun
type of hydrocarbon that contains double or triple bonds with a carbon number of 3 to 10

EXAMPLE *n*-Olefins, *iso*-olefins and cyclic olefins.

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