



**SLOVENSKI STANDARD**  
**oSIST prEN 12177:2022**  
**01-januar-2022**

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**Tekoči naftni proizvodi - Neosvinčeni motorni bencini - Določevanje benzena s plinsko kromatografijo**

Liquid petroleum products - Unleaded petrol - Determination of benzene content by gas chromatography

Flüssige Mineralölerzeugnisse - Unverbleite Ottokraftstoffe - Bestimmung des Benzolgehaltes mittels Gaschromatographie

Produits pétroliers liquides - Essence sans plomb - Détermination de la teneur en benzène par chromatographie en phase gazeuse

**Ta slovenski standard je istoveten z: prEN 12177**

[SIST EN 12177:2023](#)

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**DRAFT**  
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Will supersede EN 12177:1998

English Version

## Liquid petroleum products - Unleaded petrol - Determination of benzene content by gas chromatography

Produits pétroliers liquides - Essence sans plomb -  
Détermination de la teneur en benzène par  
chromatographie en phase gazeuse

Flüssige Mineralölerzeugnisse - Unverbleite  
Ottokraftstoffe - Bestimmung des Benzolgehaltes  
mittels Gaschromatographie

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 19.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (prEN 12177:2022) has been prepared by Technical Committee CEN/TC 19 “Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12177:1998.

At the time of the development of the test method the ethanol content of gasoline was limited to 5 % (V/V) which was reflected in the scope of the test method. Since several years, fuels containing up to 10 % of ethanol (3,7 % (m/m)) are common in the European market. This revision is meant to extend the scope of the test methods to those fuels, thus reflecting market needs.

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**prEN 12177:2022 (E)****1 Scope**

This document specifies a column switching gas chromatographic method for the quantitative determination of benzene content in the range 0,05 % (V/V) to 6 % (V/V) in unleaded petrol having a final boiling point not greater than 220 °C.

The method described in this document is suitable for determining benzene in petrol, including petrol containing oxygenates up to E10 (up to 3,7 % (m/m) oxygen content), in line with the relevant EC Directives [3].

**NOTE** For the purposes of this document, the terms “% (V/V)” and “% (m/m)” are used to represent respectively the volume fraction and the mass fraction.

**WARNING** — Use of this document might involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3170, *Petroleum liquids - Manual sampling (ISO 3170)*

EN ISO 3171, *Petroleum liquids - Automatic pipeline sampling (ISO 3171)*

EN ISO 3675, *Crude petroleum and liquid petroleum products - Laboratory determination of density - Hydrometer method (ISO 3675)*

EN ISO 3838, *Crude petroleum and liquid or solid petroleum products - Determination of density or relative density - Capillary-stoppered pycnometer and graduated bicapillary pycnometer methods (ISO 3838)*

EN ISO 12185, *Crude petroleum and petroleum products - Determination of density - Oscillating U-tube method (ISO 12185)*

**3 Terms and definitions**

No terms and definitions are listed in this document.

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

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

**4 Principle**

The benzene-containing fraction is isolated from the sample using a capillary column and, in a second capillary column, the benzene is separated and detected using a flame ionization detector.

**NOTE 1** Some oxygenates are known to interfere with the determination of benzene using a single column gas chromatographic method.

**NOTE 2** Guidance on the column switching technique is given in Annex A.