
Utekočinjeni naftni plini - Določanje raztopljenega ostanka - Metoda plinske kromatografije z injiciranjem tekočine v kolono

Liquefied petroleum gases - Determination of dissolved residue - Gas chromatographic method using liquid, on-column injection

Flüssiggas - Bestimmung gelöster Rückstände - Gaschromatographisches Prüfverfahren durch Direkteinspritzung von Flüssigkeit auf die Säule

Gaz de pétrole liquéfié - Détermination des résidus dissous - Méthode par chromatographie en phase gazeuse avec injection liquide on-column

Ta slovenski standard je istoveten z: prEN 16423

ICS:

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 16423

September 2026

ICS

Will supersede EN 16423:2013

English Version

**Liquefied petroleum gases - Determination of dissolved
residue - Gas chromatographic method using liquid, on-
column injection**

Gaz de pétrole liquéfié - Détermination des résidus
dissous - Méthode par chromatographie en phase
gazeuse avec injection liquide on-column

Flüssiggas - Bestimmung gelöster Rückstände -
Gaschromatographisches Prüfverfahren durch
Direkteinspritzung von Flüssigkeit auf die Säule

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European foreword

This document (prEN 16423:2026) 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 16423:2013.

prEN 16423:2026 includes the following significant technical changes with respect to EN 16423:2013:

- Refreshed chromatograms
- Clarification of the use of blank subtraction
- Addition of the calculation factors for DME
- Addition of an informative Annex F that presents a faster and extended methodology

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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Introduction

Control over the residue content as specified in is of [EN 589 \[1\]](#) considerable importance in end-use applications of Liquefied Petroleum Gas (LPG). Dissolved residual matter, also known as evaporation residue, in LPG is contamination which can occur during production, transportation or storage.

This standard has been developed as a potential replacement of the commonly used methods, as this method of determination:

- is quicker and much more sensitive than manual methods, such as [ASTM D 2158 \[2\]](#) or [EN 15471 \[3\]](#), which are based on evaporation of (large) sample volumes followed by visual or gravimetric estimation of residue content;
- provides enhanced sensitivity in measurements of heavier (evaporation) residues compared to [EN 15470 \[4\]](#), with a quantification limit of 10 mg/kg total residue;
- gives both quantitative results and information about contaminant composition such as boiling point range and fingerprint, which can be very useful in tracing the source of a particular contaminant.

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1 Scope

This document specifies a method for the determination of the dissolved residual matter, also known as evaporation residue, in liquefied petroleum gases (LPG), by gas chromatography in the range of (10 to 600) mg/kg (ppm mass).

This test method quantifies soluble organic compounds (hydrocarbon materials), sometimes called 'evaporation residue', which can be present in liquefied petroleum gases and which are substantially less volatile than the LPG product, i.e. with a boiling point between 174 °C and 522 °C (C₁₀ to C₄₀). Higher boiling materials, or materials that adhere permanently to the chromatographic column, will not be detected.

WARNING This document does not purport to address all of the safety concerns, if any, 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.

ISO 1998-1, *Petroleum industry — Terminology — Part 1: Raw materials and products*

EN 589, *Automotive fuels - LPG - Requirements and test methods*

EN ISO 4257:2001/AC, *Liquefied petroleum gases - Method of sampling (ISO 4257:2001/Cor.1:2007)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply/ the terms and definitions given in EN 589, ISO 1998-1 and the following apply.

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

3.1

high pressure liquefied gas injector

sample introduction device which injects liquefied gas samples under pressure and at room temperature directly onto the chromatographic column thereby maintaining the sample in liquid phase during the injection process

3.2

pressure station

device that supplies high pressure inert gas to a suitable sample cylinder and therefore maintains sample in the liquid phase during the injection procedure

4 Principle

A small quantity of LPG is directly transferred in liquid phase from the sample cylinder on to a GC column using a high pressure liquefied gas injector. The mixture is then analysed by capillary gas chromatography and the dissolved residue content is quantified by the external standard method.