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BSI Standards Publication

Automotive fuels — LPG — Requirements and test methods

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National foreword

This British Standard is the UK implementation of EN 589:2024. It supersedes BS EN 589:2018+A1:2022, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/15, Natural Gas and Gas Analysis.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

Automotive fuels - LPG - Requirements and test methods

Carburants pour automobiles - GPL - Exigences et
méthodes d'essaiKraftstoffe - Flüssiggas - Anforderungen und
Prüfverfahren

This European Standard was approved by CEN on 12 February 2024.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 589:2024) 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 European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2024, and conflicting national standards shall be withdrawn at the latest by September 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 589:2018+A1:2022.

This is the 7th edition of EN 589. The main technical changes compared to the 2nd version EN 589:2018+A1:2022 of the 6th edition EN 589:2018 include:

- a) change of vapour pressure requirement, increase of minimum vapour pressure;
- b) change of limit value for 1,3 butadiene to $< 0,10 \% m/m$ [4].

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.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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1 Scope

This document specifies requirements and test methods for marketed and delivered automotive LPG (commonly known as low pressure gas or liquefied petroleum gas).

This document is applicable to automotive LPG for use in LPG engine vehicles designed to run on automotive LPG.

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

WARNING — Attention is drawn to the risk of fire and explosion when handling LPG and to the hazard to health arising through inhalation of excessive amounts of LPG.

LPG is a highly volatile hydrocarbon liquid which is normally stored under pressure. If the pressure is released large volumes of gas will be produced which form flammable mixtures with air over the range of approximately 2 % (V/V) to 10 % (V/V). This document involves the sampling, handling and testing of LPG. Naked flames, unprotected electrical equipment electrostatic hazards etc. are sources of ignition for LPG.

LPG in liquid form can cause cold burns to the skin. National health and safety regulations can apply.

LPG is heavier than air and accumulates in cavities. There is a danger of suffocation when inhaling high concentrations of LPG.

CAUTION — One of the tests described in this document involves the operator inhaling a mixture of air and LPG vapour. Particular attention is drawn to the cautionary statement provided in A.1, where this method is referred to.

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 15469, *Petroleum products — Test method for free water in liquefied petroleum gas by visual inspection*

EN 15470, *Liquefied petroleum gases — Determination of dissolved residues — High temperature Gas chromatographic method*

EN 15471, *Liquefied petroleum gases — Determination of dissolved residues — High-temperature gravimetric method*

EN 16423, *Liquefied petroleum gases — Determination of dissolved residue — Gas chromatographic method using liquid, on-column injection*

EN 16942+A1, *Fuels — Identification of vehicle compatibility — Graphical expression for consumer information*

EN 17178:2019, *Liquid petroleum products — Determination of the total volatile sulfur content in liquefied petroleum gases by ultraviolet fluorescence spectroscopy*

EN 27941, *Commercial propane and butane — Analysis by gas chromatography (ISO 7941)*

EN ISO 4256, *Liquefied petroleum gases — Determination of gauge pressure — LPG method (ISO 4256)*