



NSAI
Standards

Irish Standard
I.S. EN 228:2012

Automotive fuels - Unleaded petrol - Requirements and test methods

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I.S. EN 228:2012

Incorporating amendments/corrigenda/National Annexes issued since publication:

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

This Irish Standard is the national version of the European Standard EN 228:2012 Automotive fuels – Unleaded petrol – Requirements and test methods.

EN 228:2012 requires that each country implementing this standard establishes national annexes detailing requirements for "sampling", "pump marking", "unleaded regular grade petrol" and "volatility classes".

EN 228:2012 specifies new requirements for pump marking to address metallic additives and unleaded petrol containing high and low oxygenates. Additionally, the standard now allows Member States to continue to place on the market unleaded regular grade petrol but requirements must be specified in a National Annex.

To address all of the new and existing requirements introduced by EN 228:2012, revised National Annexes will need to be drafted. These revised National Annexes will need to go for public consultation and approval prior to their publication.

The National Annex for the previous version is available on request.

Once approved for publication, the revised National Annexes will become available for use with EN 228:2012.

Compliance with an Irish Standard does not of itself confer immunity from legal obligations.

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English Version

Automotive fuels - Unleaded petrol - Requirements and test methods

Carburants pour automobiles - Essence sans plomb -
Exigences et méthodes d'essai

Kraftstoffe für Kraftfahrzeuge - Unverbleite Ottokraftstoffe -
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 1 September 2012.

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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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Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
1 Scope	5
2 Normative references	5
3 Sampling.....	6
4 Pump marking.....	7
5 Requirements and test methods	7
5.1 Ethanol.....	7
5.2 Dyes and markers	8
5.3 Additives	8
5.4 Generally applicable requirements and test methods	8
5.5 Climatically dependent requirements and test methods.....	11
5.6 Octane reporting.....	14
5.7 Precision and dispute	14
Annex A (normative) Vapour pressure waiver	15
Bibliography	16

Foreword

This document (EN 228:2012) 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 April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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

This document supersedes EN 228:2008.

This document was originally prepared under a mandate given to CEN by the European Commission and the European Free Trade Association. In addition to other standards, it is intended to be complementary to the regulatory measures contained in various EU Directives.

The following is a list of significant technical changes between this European Standard and the previous edition:

- New requirements following amendment 2009/30/EC [3] and 2011/63/EU [4] to the European Fuels Directive 98/70/EC [1], are taken into account. Tables 1, 2, 3, 4 and A.1 explicitly differentiate between requirements included in the European Fuels Directive 98/70/EC [1], including subsequent Amendments [2], [3] and [4], and other requirements.
- Specific requirements concerning the limitation of use of methylcyclopentadienyl manganese tricarbonyl (MMT) as required by the EC have been incorporated.
- As the introduction of 10 % (V/V) of ethanol in unleaded petrol has an impact on refinery and blending processes, an update of the distillation characteristics has been considered and a new Table 3 with slightly adapted volatility classes (E70, E100 and VLI) has been introduced. Work is still ongoing to generate data that would support the idea that these changes do not affect cold starting and hot weather driveability aspects of the vehicles. These updates have been agreed upon with precaution and might be revised depending on fuel-related issues in the market.
- Further specification is given, by including separate tables on unleaded petrol grade for older vehicles that are not warranted to use unleaded petrol with a high biofuel content. A CEN/TR aiming at giving guidance on oxygenate blending has been prepared in parallel [5].
- Further clarification on how to determine the vapour pressure waiver for unleaded petrol containing ethanol, allowed on the market under exemption circumstances, is given in Annex A. The exact number of decimal points for the waiver has been clarified [4].
- Several new or revised test methods have been introduced. The European Fuels Directive 98/70/EC [1], including its Amendments [2] [3] [4], refers to test methods in EN 228:2004, with the requirement that updated analytical methods shall be shown to give at least the same accuracy and at least the same precision as the methods they replace.
- Removal of the allowance for 50 mg/kg sulfur content.
- Reference to the revised ethanol specification EN 15376.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies requirements and test methods for marketed and delivered unleaded petrol. It is applicable to unleaded petrol for use in petrol engine vehicles designed to run on unleaded petrol.

This European Standard specifies two types of unleaded petrol: one type with a maximum oxygen content of 3,7 % (*m/m*) and a maximum ethanol content of 10,0 % (*V/V*) in Table 1, and one type intended for older vehicles that are not warranted to use unleaded petrol with a high biofuel content, with a maximum oxygen content of 2,7 % (*m/m*) and a maximum ethanol content of 5,0 % (*V/V*) in Table 2.

NOTE 1 The two types are based on European Directive requirements [3], [4].

NOTE 2 For the purposes of this European Standard, the terms “% (*m/m*)” and “% (*V/V*)” are used to represent respectively the mass fraction, μ , and the volume fraction, φ .

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 237:2004, *Liquid petroleum products — Petrol — Determination of low lead concentrations by atomic absorption spectrometry*

EN 238:1996/A1:2003, *Liquid petroleum products — Petrol — Determination of the benzene content by infrared spectrometry*

EN 1601:1997¹⁾, *Liquid petroleum products — Unleaded petrol — Determination of organic oxygenate compounds and total organically bound oxygen content by gas chromatography (O-FID)*

EN 12177:1998, *Liquid petroleum products — Unleaded Petrol — Determination of benzene content by gas chromatography*

EN 13016-1:2007, *Liquid petroleum products — Vapour pressure — Part 1: Determination of air saturated vapour pressure (ASVP) and calculated dry vapour pressure equivalent (DVPE)*

EN 13132:2000, *Liquid petroleum products — Unleaded petrol — Determination of organic oxygenate compounds and total organically bound oxygen content by gas chromatography using column switching*

EN 14275:2003¹⁾, *Automotive fuels — Assessment of petrol and diesel fuel quality — Sampling from retail site pumps and commercial site fuel dispensers*

EN 15376:2011, *Automotive fuels — Ethanol as a blending component for petrol — Requirements and test methods*

EN 15553:2007, *Petroleum products and related materials — Determination of hydrocarbon types — Fluorescent indicator adsorption method*

EN 16135:2011, *Automotive fuels — Determination of manganese content in unleaded petrol — Flame atomic absorption spectrometric method (FAAS)*

1) Under revision.

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