



NSAI
Standards

Standard Recommendation
S.R. CEN/TR 16514:2013

Automotive fuels - Unleaded petrol
containing more than 3,7 % (m/m) oxygen
- Roadmap, test methods, and
requirements for E10+ petrol

S.R. CEN/TR 16514:2013

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English Version

**Automotive fuels - Unleaded petrol containing more than 3,7 %
(m/m) oxygen - Roadmap, test methods, and requirements for
E10+ petrol**

Carburants pour automobiles - Essence sans plomb
contenant plus de 3,7 % (m/m) d'oxygène - Feuille de
route, méthodes d'essai et exigences pour les essences
E10+

Kraftstoffe für Kraftfahrzeuge - Unverbleiter Ottokraftstoff
mit höheren Gehalten an Oxygenaten als 3,7 % (m/m) -
Roadmap, Prüfverfahren und Anforderungen für E10+
Ottokraftstoff

This Technical Report was approved by CEN on 16 March 2013. It has been drawn up by the Technical Committee CEN/TC 19.

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Contents

Page

Foreword.....	4
1 Scope.....	5
2 Normative references.....	5
3 Summary	5
4 Context	7
5 CEN/TC 19/WG 38.....	7
6 External drivers.....	7
6.1 Introduction.....	7
6.2 Renewable Energy Directive (RED, 2009/28/EC).....	8
6.3 Fuel Quality Directive (FQD, 2009/30/EC).....	8
6.4 Vehicle CO ₂ (Regulations 443/2009 and 510/2011).....	8
6.5 Today's situation.....	8
6.6 Factors to be considered.....	10
6.7 Final remarks on external drivers.....	11
7 Engine and vehicle concepts and techniques	12
7.1 Summary points.....	12
7.2 Current and future constraints for an E10+ petrol.....	13
7.2.1 Existing Euro 6 and CO ₂ legislative roadmap.....	13
7.2.2 Recommendations for new vehicle concepts.....	13
7.2.3 Engine calibration potential.....	14
7.2.4 Potential for new pollutants in legislation.....	14
7.2.5 Impact on vehicle and fuel system components	14
7.2.6 Higher consumption	15
7.3 Opportunities for an E10+ petrol	15
7.3.1 Helping reduce pollutant emissions and CO ₂	15
7.3.2 Current cars.....	16
7.4 High oxygenate fuel combustibility determination (RON/MON) for an E10+ petrol	16
7.4.1 RON-MON relationship.....	16
7.4.2 RON-MON impact with higher oxygenates.....	19
7.4.3 RON-MON needs for higher oxygenate-containing fuels	20
7.5 Driveability (volatility descriptors) for an E10+ petrol	20
7.5.1 General	20
7.5.2 Vapour pressure.....	20
7.5.3 Distillation	21
7.5.4 Other parameters/tests	21
7.6 Oxygenate compounds for an E10+ petrol	23
7.7 Other factors	23
7.8 Possible studies.....	23
8 Refinery, blender and logistics.....	24
8.1 Scope of current and future constraints and opportunities.....	24
8.2 Refining related matters	24
8.2.1 Ethanol	24
8.2.2 Ethers (ETBE and MTBE).....	27
8.3 Blending ethanol and ethers.....	28
8.3.1 General	28
8.3.2 Refinery blending of ethanol	29

8.3.3	Terminal blending of ethanol	29
8.4	Distribution and service station issues	29
8.4.1	Climatic conditions, seasonal grade management/changeover processes	29
8.4.2	Water handling	29
8.4.3	Housekeeping - Water management, tank draining, disposal of water drains and microbiological growth	31
8.4.4	Materials compatibility	31
8.4.5	Vapour recovery systems	38
8.5	Logistics	38
8.5.1	Transport of ethanol and oxygenate blends	38
8.5.2	Co-mingling of different grades in terminals, service stations and vehicles	39
8.5.3	Management of off-grade product	39
8.5.4	Number of Mogas grades	39
8.6	Safety and fire fighting measures	39
8.6.1	Safe handling	39
8.6.2	Surface spills and leaks	39
8.6.3	Fire protection and fire-fighting agents for fires involving ethanol/petrol blends	39
8.6.4	Storage	40
8.6.5	Sources of ignition	40
8.7	Regulatory requirements	40
9	Test methods	41
9.1	Introduction	41
9.2	Current petrol fuel requirements	41
9.2.1	General	41
9.2.2	Sulfur	41
9.2.3	Manganese	42
9.2.4	Lead	42
9.2.5	RON/MON	43
9.2.6	Density	43
9.2.7	Oxidation stability	43
9.2.8	Gum	43
9.2.9	Copper strip corrosion	44
9.2.10	Hydrocarbons (olefins and aromatics)	44
9.2.11	Oxygen and oxygenates	44
9.2.12	Benzene	45
9.2.13	Vapour pressure	45
9.2.14	Distillation	46
9.2.15	Sampling	46
9.3	Potential new petrol fuel requirements	46
9.3.1	Sulfate	46
9.3.2	Chlorides	46
9.3.3	Iron	46
9.3.4	Ash forming components	47
9.3.5	Silver strip corrosion	47
9.3.6	High boiling components	47
9.4	Summary	47
10	Conclusions	49
11	Acknowledgement	50
	Annex A (informative) Abbreviations	51
	Bibliography	54

Foreword

This document (CEN/TR 16514:2013) 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.

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.

1 Scope

This Technical Report presents an overview and time plan for test methods and requirements that could be expected for future unleaded petrol and petrol blends in Europe. This means unleaded petrol with an ethanol/oxygenates level higher than allowed in the Fuels Quality Directive, Annex I [4], which is petrol containing up to 3,7 % (*m/m*) of oxygen, more familiarly known as E10.

Specific issues that may apply for certain levels or types of oxygenates are highlighted where appropriate in the appropriate sections of this report. This report does not take into account all issues related to vehicles that are specially designed to run on a much wider range of oxygenate contents above E10+, for example up to E85.

The report covers fuels and vehicle concepts for both E10+-capable (without engine efficiency gains) and E10+-optimised (with engine efficiency gains).

NOTE 1 Following the large possible combinations and levels of oxygenates, the work focuses on unleaded petrol with a nominal ethanol content between 10 % (*V/V*) and 25 % (*V/V*). Once the ethanol is higher than approximately 20 % to 25 % (depending on the vehicle) more engine and vehicle measures would likely be needed.

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

NOTE 3 Although EN 228 speaks about and defines “unleaded petrol”, the wording “petrol” is used throughout this document for the sake of readability.

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 228, *Automotive fuels — Unleaded petrol — Requirements and test methods*

EN 14214, *Liquid petroleum products — Fatty acid methyl esters (FAME) for use in diesel engines and heating applications — Requirements and test methods*

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

3 Summary

This report provides an overview and time plan for test methods and requirements to be expected for future unleaded petrol containing oxygenate levels higher than currently allowed in the Fuels Quality Directive (FQD).[2],[3],[4] Before an E10+ petrol specification is developed in response to a legislative initiative, the following factors should be considered:

- a) need for more research to define preferred and achievable specifications for an E10+ petrol blend;
- b) need for adequate time to implement vehicle and fuel options, after an E10+ standard has been defined;
- c) market introduction scenarios of the fuel supply and automotive industry, which general follow the steps:
 - 1) introduction of capable cars,
 - 2) build infrastructure for the availability of the fuels, and

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