

Automotive fuels — Ethanol (E85) automotive fuel — Background to the parameters required and their respective limits and determination

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National foreword

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**Automotive fuels - Ethanol (E85) automotive fuel - Background
to the parameters required and their respective limits and
determination**

Carburants pour automobiles - Essence pour automobile
Ethanol (E85) - Informations sur les paramètres requis et
leurs limites et détermination respectives

Kraftstoffe für Kraftfahrzeuge - Ethanol-Kraftstoff (E85) -
Hintergrund für die geforderten Parameter und deren
jeweiligen Grenzwerte und Bestimmung

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Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Summary of the ethanol fuel (E85) taskforce work	4
4 Record of the work to date	5
4.1 Context.....	5
4.2 The Ethanol (E85) automotive fuel Task Force.....	5
4.3 Planning.....	7
5 The draft ethanol (E85) automotive fuel specification	7
5.1 Parameters included	7
5.2 Considerations on the parameters	8
5.2.1 Denaturants	8
5.2.2 RON MON.....	8
5.2.3 Ethanol content and higher alcohols.....	9
5.2.4 Vapour pressure	10
5.2.5 Density	11
5.2.6 Sulfur content.....	11
5.2.7 Oxidation stability	12
5.2.8 Existent gum content (solvent washed).....	12
5.2.9 Appearance	12
5.2.10 Higher alcohols (C3-C5) content	12
5.2.11 Methanol content	13
5.2.12 Ether (5 or more C atoms) content.....	14
5.2.13 Phosphorus	14
5.2.14 Water content.....	14
5.2.15 Chloride content	15
5.2.16 Copper strip corrosion	16
5.2.17 Total acidity	16
5.2.18 Copper content	16
5.2.19 Sulfate content	16
5.2.20 Conductivity	17
5.2.21 pHe	17
5.2.22 High boiling components.....	17
5.2.23 Additives	18
5.2.24 Biologically sourced ethanol.....	18
5.2.25 Guidelines.....	18
5.3 Parameters considered and not included in the draft specification	18
5.3.1 Chlorine as chlorides	18
5.3.2 Lead.....	18
6 Acknowledgement	18
Bibliography	19

Foreword

This document (CEN/TR 15993:2010) 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.

The intention of the document was to support in publication of EN 15293, however both that document's and the Technical Report enquiry ballot showed that many technical updates in both documents were needed. This document will thus be updated immediately after its publication.

1 Scope

This Technical Report explains the requirements and test methods for marketed and delivered ethanol (E85) automotive fuel according to EN 15293. It provides background information to judge the (approval of the) final text of the standard and gives guidance and explanations to the producers, blenders, marketers and users of ethanol (E85) automotive fuel.

NOTE 1 This document is directly related to prEN 15293:2009 and should be updated once further publications take place.

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.

2 Normative references

The following referenced documents are indispensable for the application 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 228, *Automotive fuels — Unleaded petrol — Requirements and test methods*

prEN 15293:2009, *Automotive fuels — Ethanol (E85) automotive fuel — Requirements and test methods*

EN 15376:2007¹⁾, *Automotive fuels — Ethanol as a blending component for petrol — Requirements and test methods*

CWA 15293, *Automotive fuels — Ethanol E85 — Requirements and test methods*

3 Summary of the ethanol fuel (E85) taskforce work

At the 2007 plenary meeting, CEN/TC 19 decided to register the following work item as described in its active programme of work: *Automotive fuels — Ethanol E85 — Requirements and test methods*, under responsibility of WG 21, with the scope to develop a CEN Standard on the basis of CWA 15293 and existing related national standards and to check for the most appropriate wording of the title of the standard.

The work on the specification was developed during a series of Ethanol (E85) automotive fuel Task Force (TF E85) meetings between October 2007 and May 2009, and is presented by means of this Technical Report. The draft standard, now referenced by the identification prEN 15293, comprises a set of properties and limit values to define an adequate quality of the ethanol (E85) automotive fuel and recommendations for precautions to be taken. (See Table 1 in prEN 15293:2009.)

The draft standard was presented to CEN/TC 19/WG 21 in November 2008, together with a request to allow the TF some additional time to finalize discussions and to study data that still needed to be generated from field experience, both of refinery and ethanol production. Following that November meeting a draft enquiry text has been developed and this was presented in January 2009 to WG 21 and thereafter to CEN/CMC.

It should be noted that the draft standard has been considered on the basis of the ethanol blend component specification EN 15376:2007 and the last version of the EN 228 (unleaded petrol) standard. Revision discussion on those documents has been included in the discussions in the last two years. However prEN 15293 still contains some pending issues, which are noted as such in the text.

1) Revision discussions regarding this version have been included in the TF discussions and in this Technical Report.

Many of the test methods proposed by the test methods experts are being examined to determine their applicability to ethanol (E85) fuel and to determine if their precision is sufficient to support the limit values proposed. This activity is being undertaken in several other CEN working groups where the specialists in methods are present.

An automatic link has been established between the gasoline and ethanol (EN 228, respectively EN 15376) standards and the ethanol (E85) automotive fuel (prEN 15293) standard so that modifications to one will be coherent with the other.

4 Record of the work to date

4.1 Context

The European Commission is following a policy of promoting renewable energy use in Europe, and to this end is encouraging the extension of automotive gasoline fuel with a proportion of renewably-sourced ethyl alcohol (referred to in this document as ethanol).

In order to facilitate a transparent and stable market in ethanol, it is necessary to establish an ethanol (E85) automotive fuel standard for Europe that will ensure a uniform high quality fuel for problem-free ethanol use as a gasoline fuel.

To this end, the Comité Européen de Normalisation (CEN) Technical Committee 19, responsible for Automotive Fuels Standards, has accepted the CWA revision as a work item on its programme to be developed in Working Group 21, responsible for Automotive Gasoline management.

The intention of CEN/TC 19 was to redraft the CWA into a CEN standard based on the publication of EN 15376 and EN 228, also taking into account the developments in Sweden, France and Germany. Discussion in WG 21 had given indications that there were still test method questions to solve and thus national initiatives were not halted.

CEN/TC 19, having considered the proposal for a new work item, as documented in N 1318 and supported by WG 21, noting the request from UPEI in document N 1326R, decides to register the following work item as described in N 1318 in its active programme of work: *Automotive fuels — Ethanol E85 — Requirements and test methods*, under responsibility of WG 21, with the scope to develop a CEN standard on the basis of CWA 15293 and existing related national standards and to check for the most appropriate wording of the title of the standard. The Task Force E85 was created.

The aim of the CWA was to keep the specification simple and straightforward, allowing cars to be introduced in the market. The original idea was to ensure basic car functionality, for which the existing CWA succeeded. However, as flexi-fuel vehicles would fall under the Emission Legislation soon, more stringent fuel requirements were needed. The existing CWA was not able to support EURO V vehicles.

This European Standard specifies requirements and test methods for marketed and delivered Ethanol (E85) automotive fuel. It is applicable to Ethanol (E85) for use in spark ignition engine vehicles designed to run on Ethanol (E85).

Ethanol (E85) is a mixture of nominally 85 % ethanol and 15 % petrol, but also including the possibility of having different "seasonal grades" containing more than 50 % ethanol.

This document is the report on the work to date carried out by this TF E85 towards establishing a European Standard for ethanol (E85) automotive fuel.

4.2 The Ethanol (E85) automotive fuel Task Force

CEN, in anticipation of a mandate from the Commission, requested TC 19/WG 21 to convene a task force and begin work on a draft ethanol (E85) automotive fuel standard. A call was made to the industries concerned by

the mandate for experts to participate in the TF E85, and the experts that have contributed to the work are listed in Table 1.

Table 1 — Membership of the taskforce

Name	Organisation	Country
Auger Celine (since meeting 2)	Renault	France
Baldini Luca	ENI	Italy
Bennett John	Afton Chemical	UK
Bernard Joerg	Suedzucker	Germany
Betlejewski Marek (since 2)	PKN Orlen	Poland
Colbert Dane	Ethanol Union	France
Costenoble Ortwin (TF Secretary)	NEN	Netherlands
Crepeau Gerald (Convenor)	PSA Peugeot Citroën	France
Elliott Nigel	Exxon Mobil	UK
Engelen Benoit	Total	Belgium
Feuerhelm Tom	DIN/FAM	Germany
Gameson Thomas	Abengoa Bioenergia	Spain
Gizynski Piotr	PKN Orlen S.A.	Poland
Grand Jean-Gabriel (until 2)	Renault	France
Hermans Pierre	Exxonmobil	Belgium
Jeuland Nicolas (since 5)	IFP	France
King Stan	Afton Chemical	CEFIC-ATC
Kronström Börje	Svenska Shell	Sweden
Lloyd Robin (until 4)	Argent Energy	UK
Leber Edwin	Opel	Germany
Manuelli Pascal	Total	France
Mirabella Walter	Lyondell	Italy
Nilsson Magnus	General Motors Powertrain	Sweden
Olofsson Mathias	SEKAB	Sweden
Pollak Vanda (since 6)	Hungrana	Hungary
Rantanen – Kolehmainen Leena (since 6)	Nesteoil	Finland
Rappange Aly	Royal Nedalco	Netherlands
Schuermans Kurt (since 7)	Chevron	
Sijben Jo (since 4)	Proces Design Center	Netherlands
Skret Iwona (until 6)	Instytut Technologii Nafty	Poland
Spaans Han	AC Analytical Controls	Netherlands
Tittarelli Paolo	SSC	Italy