



**NSAI**  
Standards

Irish Standard  
I.S. EN 16761-1:2015

# Automotive fuels - Determination of methanol in automotive ethanol (E85) fuel by gas chromatography - Part 1: Method using single column technique

**I.S. EN 16761-1:2015**

*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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## National Foreword

I.S. EN 16761-1:2015 is the adopted Irish version of the European Document EN 16761-1:2015, Automotive fuels - Determination of methanol in automotive ethanol (E85) fuel by gas chromatography - Part 1: Method using single column technique

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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EUROPEAN STANDARD

EN 16761-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2015

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English Version

**Automotive fuels - Determination of methanol in  
automotive ethanol (E85) fuel by gas chromatography -  
Part 1: Method using single column technique**

Carburants pour automobiles - Détermination de la  
teneur en méthanol dans le carburant éthanol (E85)  
pour automobiles par chromatographie en phase  
gazeuse - Partie 1: Méthode par colonne simple

Kraftstoffe für Kraftfahrzeuge - Bestimmung des  
Methanolgehalts in Ethanolkraftstoff (E85) mittels  
Gaschromatographie - Teil 1: Einsäulenverfahren

This European Standard was approved by CEN on 10 October 2015.

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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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**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 16761-1:2015) 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 June 2016, and conflicting national standards shall be withdrawn at the latest by June 2016.

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 determination of a significant amount of methanol in ethanol (E85) automotive fuels was deemed to be necessary to check the product for compliance against EU emission regulations. The CEN/TC 19 Ethanol Fuels Task Force requested the development of such a determination technique.

In EN 16761, *Automotive fuels — Determination of methanol in automotive ethanol (E85) fuel by gas chromatography*, two test methods were developed that comply with this scope:

- *Part 1: Method using single column technique* [the present document];
- *Part 2: Method using heart cut technique.*

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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.

**EN 16761-1:2015 (E)****1 Scope**

This European Standard specifies a method for the determination of methanol in automotive ethanol (E85) fuel (also designated as ethanol (E85) automotive fuel or shortly "E85") by capillary gas chromatography using flame ionization detection. Fuel quality specifications for this product exist, see Bibliography Entry [1].

The measurement range for the methanol is from about 0,5 % (V/V) to about 1,5 % (V/V). Other methanol contents can also be determined, however no precision data for results outside the specified range is available.

**NOTE** For the purposes of this European Standard, the terms "% (m/m)" and "% (V/V)" are used to represent respectively the mass fraction,  $\mu$ , and the volume fraction,  $\varphi$ .

**WARNING** — The use of this standard can involve hazardous materials, operations and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of users of this standard to take appropriate measures to ensure the safety and health of personnel prior to application of the standard, and fulfil statutory and regulatory requirements for this purpose.

**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 ISO 3170, *Petroleum liquids — Manual sampling (ISO 3170)*

EN ISO 3171, *Petroleum liquids — Automatic pipeline sampling (ISO 3171)*

EN ISO 3675, *Crude petroleum and liquid petroleum products — Laboratory determination of density — Hydrometer method (ISO 3675)*

EN ISO 3838, *Crude petroleum and liquid or solid petroleum products — Determination of density or relative density — Capillary-stoppered pycnometer and graduated bicapillary pycnometer methods (ISO 3838)*

EN ISO 12185, *Crude petroleum and petroleum products — Determination of density — Oscillating U-tube method (ISO 12185)*

**3 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

**3.1****methanol calibration area**

area of the methanol peak in the calibration chromatogram

Note 1 to entry: Figure 1 shows an example of a calibration chromatogram.



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