

<b>STN</b>	<b>Kvapalné ropné výrobky</b> <b>Stanovenie organických kyslíkatých látok a celkového obsahu organicky viazaného kyslíka v bezolovnatom benzíne plynovou chromatografiou (O-FID)</b>	<b>STN</b> <b>EN 1601</b>  65 6508
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Liquid petroleum products - Determination of organic oxygenate compounds and total organically bound oxygen content in unleaded petrol - Method by gas chromatography (O-FID)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/18

Obsahuje: EN 1601:2017

Oznámením tejto normy sa ruší  
STN EN 1601 (65 6508) z decembra 2014

**126365**

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2018  
Podľa zákona č. 264/1999 Z. z. o technických požiadavkách na výrobky a o posudzovaní zhody a o zmene a doplnení niektorých zákonov v znení neskorších predpisov sa slovenská technická norma a časti slovenskej technickej normy môžu rozmnožovať alebo rozširovať len so súhlasom slovenského národného normalizačného orgánu.

EUROPEAN STANDARD

EN 1601

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2017

ICS 75.160.20

Supersedes EN 1601:2014

English Version

Liquid petroleum products - Determination of organic oxygenate compounds and total organically bound oxygen content in unleaded petrol - Method by gas chromatography (O-FID)

Produits pétroliers liquides - Détermination des composés oxygénés organiques et de la teneur totale en oxygène organiquement lié dans l'essence sans plomb - Méthode par chromatographie en phase gazeuse (O-FID)

Flüssige Mineralölerzeugnisse - Bestimmung sauerstoffhaltiger organischer Verbindungen und des Gesamtgehalts an organisch gebundenem Sauerstoff in unverbleitem Ottokraftstoff - Methode mittels Gaschromatographie (O-FID)

This European Standard was approved by CEN on 19 May 2017.

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: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 1601:2017) 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 February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

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 1601:2014.

Significant changes between this document and EN 1601:2014 include:

- Improved description of the carrier gases, equipment and procedure for cooling the samples;
- Expansion of Table 1 on the oxygenate compounds data, a.o. the addition of ETBE and TAEE;
- Editorial changes in order to clarify the test procedure.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

This European Standard is an update of the first edition (EN 1601:1997).

The scope of the test method has been updated to include petrol with higher total oxygen content and with higher oxygenate contents than mentioned in the former edition. The test method is now applicable for petrol (automotive motor gasoline) with a total oxygen content up to 3,9 % (*m/m*), and/or with an individual oxygenate compound content higher than 15 % (*m/m*). Such petrol is specified in EN 228 [1]. The previous precision data for an individual oxygenate compound content in the range of 0,17 % (*V/V*) to 15 % (*V/V*) has not been updated or extended above 15 % (*V/V*).

A dilution procedure to measure an oxygenate compound content higher than 15 % (*m/m*) is included in the standard. Precision data have not been evaluated for this procedure.

The previous precision data for oxygen content covered the range 1,5 % (*m/m*) to 3,0 % (*m/m*). The data precision for oxygen content has been updated for the range 2,1 % (*m/m*) to 3,9 % (*m/m*), based on Round Robins data from 2005 to 2011 available from DIN-FAM, Germany.

## 1 Scope

This European Standard specifies a gas chromatographic method for the quantitative determination, in unleaded petrol having a final boiling point not greater than 220 °C, of individual organic oxygenate compounds in the range 0,17 % (m/m) to 15 % (m/m) in a direct analysis (without dilution), and total organically bound oxygen up to 3,9 % (m/m).

For samples for which one of the oxygenate compounds content is higher than 15 % (m/m), a procedure with a dilution of the sample before the analysis is given.

NOTE 1 The conversion from percent mass to percent volume is done using the calculation mentioned in 8.3 and 9.5.3.

NOTE 2 Precision data are not available for an oxygenate compound content higher than 15 % (m/m); see Introduction.

NOTE 3 For the purposes of this European Standard, the terms “% (m/m)” and “% (V/V)” are used to represent respectively the mass fraction,  $\mu$ , respectively the volume fraction,  $\varphi$ .

WARNING —The use of this European Standard can involve hazardous materials, operations and equipment. This European Standard does not purport to address all of the safety problems associated with its use. It is the responsibility of users of this European 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 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)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**