SLOVENSKI STANDARD
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Etanol kot komponentna meġanica za motorni bencin - Doloļ evanje celotnega suhega ostanka (nehlapna snov) - Gravimetriļ na metoda

Ethanol as a blending component for gasoline - Determination of total dry residue (involatile material) - Gravimetric method

Ethanol zur Verwendung als Blendkomponente in Ottokraftstoff - Bestimmung des gesamten Trockenrückstandes (nichtflüchtige Bestandteile) - Gravimetrisches Verfahren

Ethanol comme constituant d'essence - Détermination de la residue totale (matérial involatil) - Méthode gravimetrique

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English Version

Ethanol as a blending component for petrol - Determination of total dry residue (involatile material) - Gravimetric method

Ethanol comme constituant d'essence - Détermination de la residue totale (matérial involatil) - Méthode gravimetrique

Ethanol zur Verwendung als Blendkomponente in Ottokraftstoff - Bestimmung des gesamten Trockenrückstandes (nichtflüchtige Bestandteile) - Gravimetrisches Verfahren

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Foreword

This document (prEN 15691:2007) 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 document is currently submitted to the CEN Enquiry.

This document was prepared by CEN/TC 19’s Ethanol Task Force under its Working Group 21 and is based on a test method mentioned in a European Wine Regulation [1].

1 Scope

This European Standard specifies a procedure for the determination of dry residue in ethanol by desiccation method in the range (10 to 25) mg/100 ml.

NOTE 1 In an interlaboratory study [2] the method has been tested at levels down to 3,5 mg/100 ml, but the precision appeared to be insufficient at such low levels.

The total dry residue or total dry matter includes all matter that is non-volatile under specified physical conditions.

NOTE 2 For the purposes of this European Standard, the terms "% (*m/m*)"is used to represent the mass fraction.

WARNING — Use of this method may involve hazardous equipment, materials and operations. This method does not purport to address to all of the safety problems associated with its use, but it is the responsibility of the user to search and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

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 ISO 3170, *Petroleum liquids — Manual sampling (ISO 3170:2004)*

3 Principle

Total dry residue is determined by the weighing of the residue left by evaporation of alcohol on a boiling water bath and drying in a drying oven.

4 Apparatus

4.1 Evaporating dish of suitable capacity.

4.2 Boiling water bath

4.3 Pipette, 100 ml, class A.

4.4 Oven, capable of being held at a temperature of 103 °C ± 2 °C.

4.5 Desiccator, containing freshly activated silica gel (or equivalent desiccant) with moisture content indicator.

4.6 Analytical balance, capable of weighing with an accuracy of 0,1 mg.

5 Sampling

5.1 Preparation of samples

Samples shall be taken as described in EN ISO 3170. Collect the sample in glass bottles. Samples may be stored at room temperature prior to analysis.

5.2 Quality control

For quality control a solution may be prepared with sodium chloride at 10 g/L in water (5 ml/l in neutral ethanol without total dry residue). This solution with a content of 0,005 % (*m/m*) of total dry residue has a typical uncertainty of 10 % amount of the reference value.

6 Procedure

Place clean dry evaporating dishes (4.1) into the oven for 30 minutes then place it into the desiccator for 30 minutes.

Accurately weigh, to the nearest 0,1 mg, the clean dry evaporating dishes (M_0).

Pipette (4.3) 100 ml of sample or quality control and introduce respectively into the dishes. Place the dishes with sample on the boiling water bath (4.2) and allow to dry. Place those in the oven (4.4) at (103 ± 2) °C for 30 minutes and then transfer the dishes with the residue into a desiccator (4.5). Allow the dish to cool for 30 minutes and then weigh, to the nearest 0,1 mg, the dishes with residue (M_1).

7 Calculation

The content of dry residue, *D,* expressed in mg/100 ml is given by:

$$D = (M_1 - M_0) \quad (1)$$

where

M_1 is the mass, in g, of the dish and residue after drying,

M_0 is the mass, in g, of the clean dry dish.

8 Expression of results

Report the content of dry residue rounded to the nearest 0,01 mg/100 ml (0,001 %(*m/V*)).

The term “single test result” means the value obtained when the standardised test method is applied fully once to a single sample. Unless otherwise stated, the probability shall be 95 %.

9 Precision

9.1 General

The precision given was derived from statistical analysis by EN ISO 4259 [3] of the results of interlaboratory testing of a matrix of ethanol samples produced in Europe from biomaterials such as raw wine, molasses, pulp and corn.

NOTE The interlaboratory testing and the statistical evaluation are detailed in an UNGDA Report [2].

Typical values for repeatability and reproducibility are given in Table 1.