



SLOVENSKI STANDARD
oSIST prEN 14078:2013
01-marec-2013

Tekoči naftni proizvodi - Določevanje metilnih estrov maščobnih kislin (FAME) v srednjih destilatih - Metoda infrardeče spektroskopije

Liquid petroleum products - Determination of fatty methyl ester (FAME) content in middle distillates - Infrared spectrometry method

Flüssige Mineralölprodukte - Bestimmung von Fettsäure Methylester (FAME) in Mitteldestillaten - Infrarotspektrometrisches Verfahren

Produits pétroliers liquides - Détermination de la teneur en esters méthyliques d'acides gras (EMAG) des distillats moyens - Méthode spectrochimique infrarouge

Ta slovenski standard je istoveten z: prEN 14078

SIST EN 14078:2014

<https://standards.iteh.ai/catalog/standards/sist/448a561b-761e-435a-b04b-fd3deea98958/sist-en-14078-2014>

ICS:

75.160.20 Tekoča goriva Liquid fuels

oSIST prEN 14078:2013

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 14078

January 2013

ICS 75.160.20

Will supersede EN 14078:2009

English Version

Liquid petroleum products - Determination of fatty methyl ester (FAME) content in middle distillates - Infrared spectrometry method

Produits pétroliers liquides - Détermination de la teneur en esters méthyliques d'acides gras (EMAG) des distillats moyens - Méthode spectrochimique infrarouge

Flüssige Mineralölprodukte - Bestimmung von Fettsäure Methylester (FAME) in Mitteldestillaten - Infrarotspektrometrisches Verfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 19.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

CEN members are the national standards bodies of 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 United Kingdom.

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Principle.....	4
4 Reagents and materials	5
5 Apparatus	5
6 Sampling and sample handling.....	5
7 Procedure	5
7.1 Selection and treatment of the cell	5
7.2 Cleaning of the cells	6
7.3 Selection of the path length.....	6
7.4 Calibration	7
7.5 Recording of infrared spectra	8
8 Calculation.....	9
8.1 Calculation of FAME content in grams per litre (g/l).....	9
8.2 Unit conversion from FAME content from g/l to % (V/V)	10
9 Expression of results	10
10 Precision.....	10
10.1 General.....	10
10.2 Repeatability, r	10
10.3 Reproducibility, R	10
11 Test report	11
Annex A (informative) Specific adjustments for calibration.....	12
Bibliography.....	15

Foreword

This document (prEN 14078:2013) 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.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14078:2009.

prEN 14078:2013 includes the following significant technical changes with respect to EN 14078:2009:

- the test procedure has been updated with an additional range C;
- next data from a newly executed Round Robin test have been integrated in order to expand the scope to automotive diesel blends containing up to 50 % (V/V) of FAME.

iTeh Standards (<https://standards.iteh.ai>) Document Preview

[SIST EN 14078:2014](https://standards.iteh.ai/catalog/standards/sist/448a561b-761e-435a-b04b-fd3deca98958/sist-en-14078-2014)

<https://standards.iteh.ai/catalog/standards/sist/448a561b-761e-435a-b04b-fd3deca98958/sist-en-14078-2014>

1 Scope

This European Standard specifies a test method for the determination of Fatty Acid Methyl Ester (FAME) content in diesel fuel or domestic heating fuel by mid infrared spectrometry, which applies to FAME contents of the two measurement ranges as follows:

- range A: for FAME contents ranging from approx. 0,05 % (V/V) to approx. 3 % (V/V);
- range B: for FAME contents ranging from approx. 3 % (V/V) to approx. 20 % (V/V);
- range C: for FAME contents ranging from approx. 20 % (V/V) to approx. 50 % (V/V).

Principally, higher FAME contents can also be analyzed if diluted; however, no precision data for results outside the specified range is available at present.

This test method was verified to be applicable to samples which contain FAME conforming to EN 14214 or EN 14213 [1]. Reliable quantitative results are obtained only if the samples do not contain any significant amounts of other interfering components, especially esters and other carbonyl compounds which possess absorption bands in the spectral region used for quantification of FAME. If such interfering components are present, this test method is expected to produce higher values.

NOTE 1 For the purposes of this European Standard, the term "% (V/V)" is used to represent the volume fraction (φ) of a material.

NOTE 2 For conversion of grams FAME per litre (g FAME/l) to volume fraction, a fixed density for FAME of 883,0 kg/m³ is adopted.

WARNING — The use of this European Standard may 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 the user of this European Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

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

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

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

3 Principle

The mid infrared absorption spectrum of a test portion of a sample which has been diluted as appropriate with FAME-free solvent is recorded. The absorbance at the peak maximum of the typical absorption band for esters at about $(1\,745 \pm 5) \text{ cm}^{-1}$ is measured. Initially, calibration as well as evaluation of the data will be carried out as grams FAME per litre. For conversion of grams FAME per litre (g/l) to the reporting unit "% (V/V)", a fixed density of FAME of 883,0 kg/m³ (15 °C) is adopted.