



BSI Standards Publication

Liquid petroleum products — Determination of total contamination

Part 2: Fatty acid methyl esters

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National foreword

This British Standard is the UK implementation of EN 12662-2:2024. Together with BS EN 12662-1:2024, it supersedes BS EN 12662:2014, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/13, Petroleum Testing and Terminology.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2024

ISBN 978 0 539 24154 9

ICS 75.160.20; 75.160.40

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2024.

Amendments/corrigenda issued since publication

Date	Text affected
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EUROPÄISCHE NORM

June 2024

ICS 75.160.20; 75.160.40

Supersedes EN 12662:2014

English Version

Liquid petroleum products - Determination of total contamination - Part 2: Fatty acid methyl esters

Produits pétroliers liquides - Détermination de la contamination totale - Partie 2 : Esters méthyliques d'acides gras

Flüssige Mineralölerzeugnisse - Bestimmung der Gesamtverschmutzung - Teil 2: Fettsäure-Methylester

This European Standard was approved by CEN on 8 April 2024.

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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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European foreword

This document (EN 12662-2:2024) 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of an identical text or by endorsement, at the latest by December 2024, and conflicting national standards shall be withdrawn at the latest by December 2024.

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 12662:2014.

In comparison with the previous edition, the following technical modifications have been made:

- split of the scope of the previous edition in two parts, with Part 2 covering the neat FAME in this document and with Part 1 covering the middle distillates and the diesel fuels containing up to 30 % (V/V) of fatty acid methyl ester (FAME) in a separate document.
- update of the precision data following the statistical analysis [4] of the interlaboratory tests data according to EN ISO 4259-1:2017 [1].

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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Introduction

Excessive contamination in a fuel system can give rise to premature blocking of filters and/or hardware failure, and is therefore undesirable. The determination of the content of undissolved substances, referred to as total contamination, is a way to control this issue.

In the previous version of this method, the scope was covering middle distillates, diesel fuels containing up to 30 % (V/V) of FAME and neat FAME. It was found that the improvement sought in 2014, gave problems in the lab in testing FAME and correlate the results to those obtained with the previous version of the method. A solution has been found, which resulted in splitting the methodology in two parts: to include the previous version as Part 1 and to develop a separate standard for neat FAME as Part 2.

An interlaboratory study was conducted to determine the valid precision of the method for determining total contamination in neat FAME according to this document.

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1 Scope

This document specifies a method for the determination of the content of undissolved substances, referred to as total contamination, in neat fatty acid methyl esters (FAME). The working range is from 5 mg/kg to 27 mg/kg and it was established in an interlaboratory study by applying EN ISO 4259-1 [1].

This document in general is applicable to FAME having a kinematic viscosity not exceeding 8 mm²/s at 20 °C, or 5 mm²/s at 40 °C, e.g. as specified in EN 14214 [2].

This test method can be used for FAME having a kinematic viscosity exceeding 8 mm²/s at 20 °C, or 5 mm²/s at 40 °C, however in such cases the precision of the test method has not been determined.

NOTE For the purposes of this document, the term “% (V/V)” is used to represent the volume fraction, φ , of a material.

WARNING — The use of this document can involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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)*

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

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org>

3.1

total contamination

undissolved substances retained on a filter after filtration under test conditions

3.2

absolute pressure

pressure measured relative to zero pressure or a total vacuum

4 Principle

A sample portion is weighed and filtered under vacuum through a pre-weighed filter. The filter with the residue is washed, dried and weighed. Contamination is calculated from the difference in mass of the filter and expressed relative to the sample mass as mg/kg.