Petroleum products - Determination of boiling range distribution by gas chromatography method - Part 4: Light fractions of crude oil

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15199-4:2015 sisaldab Euroopa standardi EN 15199-4:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 15199-4:2015 consists of the English text of the European standard EN 15199-4:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.09.2015.	Date of Availability of the European standard is 16.09.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 75.080

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15199-4

September 2015

ICS 75.080

English Version

Petroleum products - Determination of boiling range distribution by gas chromatography method - Part 4: Light fractions of crude oil

Produits pétroliers - Détermination de la répartition dans l'intervalle de distillation par méthode de chromatographie en phase gazeuse - Partie 4 : Lumière fractions du pétrole brut

Mineralölerzeugnisse - Gaschromatographische Bestimmung des Siedeverlaufes - Teil 4: Leichte Fraktionen des Rohöls

This European Standard was approved by CEN on 1 August 2015.

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

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

Ref. No. EN 15199-4:2015 E

Contents

page

European foreword

This document (EN 15199-4:2015) 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of an identical text or by endorsement, at the latest by March 2016, and conflicting national standards shall be withdrawn at the latest by March 2016.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.

EN 15199 consists of the following parts, under the general title *Petroleum products — Determination of boiling range distribution by gas chromatography method*:

— *Part 1: Middle distillates and lubricating base oils*

— *Part 2: Heavy distillates and residual fuels*

— *Part 3: Crude oil*

— *Part 4: Light fractions of crude oil*

This part of the standard is based on IP 601 [1] and describes the determination of boiling range distribution of hydrocarbons up to n-nonane in crude oil. The results of this test method can be combined with those from EN 15199-3, to give a full boiling point distribution of crude oil.

Part 4 is harmonized with ASTM D7900 [2].

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.

1 Scope

This European Standard describes a method for the determination of the boiling range distribution of petroleum products by capillary gas chromatography using flame ionization detection. This European Standard is applicable to stabilized crude oils and for the boiling range distribution and the recovery up to and including n-nonane. A stabilized crude oil is defined as having a Reid Vapour Pressure equivalent to or less than 82,7 kPa as determined by IP 481 [3].

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

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 the user of this standard to take appropriate measures to ensure 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)*

3 Terms and definitions

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

3.1
recovery
combined mass percentages of all light hydrocarbon peaks (except the internal standard peak) in the sample up to and including *n*-nonane

4 Principle

An amount of internal standard is quantitatively added to an aliquot of the stabilized crude oil. A portion of this mixture is injected into a pre-column in series via a splitter with a capillary analytical column. When the *n*-nonane has quantitatively passed to the analytical column, the pre-column is back-flushed to vent the higher boiling components. The individual components are identified by comparison with reference chromatograms and a database of hydrocarbon compounds (see Annex A). The boiling point distribution and recovery up to and including *n*-nonane (*n*-C9) is calculated.

5 Reagents and materials

5.1 Stationary phase for columns, with a bonded polydimethylsiloxane (PDMS) stationary phase for both the pre-column and the analytical capillary column.

5.2 Compressed gases