Toornafta ja vedelad naftaproduktid. Laboratoorne tiheduse määramine. Areomeetriline meetod (ISO 3675:1998)

Crude petroleum and liquid petroleum products - Laboratory determination of density - Hydrometer method (ISO 3675:1998)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 3675:2006 sisaldab Euroopa standardi EN ISO 3675:1998 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 3675:2006 consists of the English text of the European standard EN ISO 3675:1998.
Standard on kinnitatud Eesti Standardikeskuse 20.03.2000 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 20.03.2000 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 15.06.1998.	Date of Availability of the European standard text 15.06.1998.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 75.040, 75.080

Võtmesõnad: laborikatsed, määramine, naftasaadused, testimine, tihedus (mass/maht), tiheduse mõõtmine, toorõli, vedelikud

EUROPEAN STANDARD
NORME EUROPÉENNE
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EN ISO 3675

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English version

Crude petroleum and liquid petroleum products

Laboratory determination of density – Hydrometer method
(ISO 3675 : 1998)

Pétrole brut et produits pétroliers liquides – Détermination en laboratoire de la masse volumique – Méthode à l'aréomètre (ISO 3675 : 1998)

Rohöl und flüssige Mineralölerzeugnisse – Bestimmung der Dichte im Labor – Aräometer-Verfahren (ISO 3675 : 1998)

This European Standard was approved by CEN on 1998-06-06.

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

International Standard

ISO 3675 : 1998 Crude petroleum and liquid petroleum products – Laboratory determination of density – Hydrometer method,

which was prepared by ISO/TC 28 'Petroleum products and lubricants' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 19 'Petroleum products, lubricants and related products', the Secretariat of which is held by NNI, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by December 1998 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 3675 : 1998 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

WARNING — The use of this International Standard may involve hazardous materials, operations and equipment. This International 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 establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies a method for the laboratory determination, using a glass hydrometer, of the density at 15 °C of crude petroleum, liquid petroleum products, and mixtures of petroleum and non-petroleum products normally handled as liquids and having a Reid vapour pressure (RVP) of 100 kPa or less.

This International Standard is suitable for determining the density of mobile transparent liquids. It can also be used for viscous liquids by carrying out the determinations at temperatures above ambient using a suitable liquid bath for temperature control. It can also be used for opaque liquids by reading the hydrometer scale where the top of the meniscus meets the stem of the hydrometer and applying a correction from table 1 (see 11.2).

Since hydrometers are calibrated to read correctly at the specified temperature, scale readings made at other temperatures are only hydrometer readings and not values of density at these other temperatures.

NOTES

1 The accuracy of the density, determined by the procedures given in this International Standard, for volatile and/or waxy crude oils containing free and/or suspended water and sediments can be less than inferred from the precision data quoted in clause 13. This is due to the possible loss of light components during sample mixing. However, sample mixing is necessary to ensure that the test portion transferred to the hydrometer cylinder is as representative as possible of the bulk sample. Techniques are given in clause 7 which are designed to minimize such loss of light component.

2 Values of density at 15 °C can be converted using standard measurement tables to equivalent values of API gravity or relative density so that measurements may be made in the units of local convenience.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 91-1:1992, *Petroleum measurement tables — Part 1: Tables based on reference temperatures of 15 °C and 60 °F.*

ISO 649-1:1981, *Laboratory glassware — Density hydrometers for general purposes — Part 1: Specification.*

ISO 3170:1988, *Petroleum liquids — Manual sampling.*

ISO 3171:1988, *Petroleum liquids — Automatic pipeline sampling.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1
density
mass per unit volume expressed in either kilograms per cubic metre or grams per millilitre at 15 °C and 101,325 kPa

3.2
cloud point
temperature at which a cloud of wax crystals first appears in a liquid when it is cooled under specified conditions

3.3
wax appearance temperature
WAT
temperature at which waxy solids form when petroleum or petroleum products are cooled under specified conditions

3.4
pour point
lowest temperature at which a sample of petroleum or petroleum product will continue to flow when it is cooled under specified conditions

4 Principle

The sample is brought to a specified temperature and a test portion transferred to a hydrometer cylinder that has been brought to approximately the same temperature. The appropriate hydrometer, whose temperature has also been regulated, is lowered into the test portion and allowed to settle. After temperature equilibrium has been reached, the hydrometer scale is read, the temperature of the test portion taken and the observed hydrometer reading reduced to 15 °C using standard measurement tables. If necessary, the hydrometer cylinder and its contents are placed in a constant temperature bath to avoid excessive temperature variation during the test.

5 Apparatus

5.1 Hydrometer cylinder, of clear glass, plastics material, or metal, with an inside diameter at least 25 mm greater than the outside diameter of the hydrometer (5.2) and a height such that the hydrometer floats in the test portion with at least 25 mm clearance between the bottom of the hydrometer and the bottom of the cylinder.

Plastics material used for the construction of hydrometer cylinders shall be resistant to discolouration or attack and shall not affect the properties of the material being tested. In addition, they shall not become opaque under prolonged exposure to light.

NOTE — For convenience in pouring, the hydrometer cylinder may have a lip on the rim.

5.2 Hydrometers, of glass, graduated in units of density, conforming to ISO 649-1 and the requirements given in table 1. (See also annex A.)