Toornafta ja vedelad või tahked naftasaadused. Tiheduse või suhtelise tiheduse määramine. Kapillaarselt suletava püknomeetri ja gradueeritud bikapillaarse püknomeetri meetod

Crude petroleum and liquid or solid petroleum products - Determination of density or relative density - Capillary-stoppered pyknometer and graduated bicapillary pyknometer methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 3838:2000 sisaldab Euroopa standardi EN ISO 3838:1995 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 3838:2000 consists of the English text of the European standard EN ISO 3838:1995.
Standard on kinnitatud Eesti Standardikeskuse 11.01.2000 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 11.01.2000 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 .	Date of Availability of the European standard text .
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 75.040, 75.080

Võtmesõnad: kalibreerimine, naftasaadused, püknomeetrilised analüüsid, tahked ained, testimisseade, testimistingimused, tihedus (mass/maht), tiheduse mõõtmine, toorõli, vedelikud,

Inglisekeelsed võtmesõnad: calibration, crude oil, density (mass/volume), density measurement, liquids, petroleum products, pycnometric analysis, solids, test equipment, testing conditions,

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 3838

October 1995

ICS 75.200

Descriptors: petroleum products, crude oil, liquids, solids, pycnometric analysis, density (mass/volume), density measurement testing conditions, test equipment, calibration

English version

Crude petroleum and liquid or solid petroleum products - Determination of density or relative density - Capillary-stoppered pyknometer and graduated bicapillary pyknometer methods (ISO 3838:1983)

Pétrole brut et produits pétroliers liquides ou solides - Détermination de la masse volumique ou de la densité relative - Méthodes du pycnomètre à bouchon capillaire et du pycnomètre bicapillaire gradué (ISO 3838:1983)

Rohöl und flüssige oder feste Mineralölerzeugnisse - Bestimmung der Dichte oder der relativen Dichte - Verfahren mittels Pyknometer mit Kapillarstopfen und Bikapillar-Pyknometer mit Skale (ISO 3838:1983)

This European Standard was approved by CEN on 1995-09-09. 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.

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.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

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

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Foreword

The text of the International Standard from ISO/TC 28 "Petroleum products and lubricants" of the International Organization for Standardization (ISO) has been taken over as a European Standard by the Technical Committee CEN/TC 19 "Petroleum products, lubricants and related products".

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 April 1996, and conflicting national standards shall be withdrawn at the latest by April 1996.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 3838:1983 has been approved by CEN as a European Standard without any modification.

International Standard ISO 3838

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Crude petroleum and liquid or solid petroleum products — Determination of density or relative density — Capillary-stoppered pyknometer and graduated bicapillary pyknometer methods

Pétrole brut et produits pétroliers liquides ou solides — Détermination de la masse volumique ou de la densité relative — Méthodes du pycnomètre à bouchon capillaire et du pycnomètre bicapillaire gradué

First edition — 1983-06-01

UDC 665.6/.7 : 531.756.4 **Ref. No. ISO 3838-1983 (E)**

Descriptors : petroleum products, crude oil, liquids, solids, pyknometric analysis, density (mass/volume), density measurement, testing conditions, test equipment, calibrating.

Price based on 11 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3838 was developed by Technical Committee ISO/TC 28, *Petroleum products and lubricants,* and incorporates draft International Standard ISO/DIS 3658. Both documents were circulated to the member bodies in July 1981.

They have been approved by the member bodies of the following countries :

Australia	India	Romania
Austria	Iraq	South Africa, Rep. of
Belgium	Israel	Spain
Brazil	Italy	Sweden
Canada	Japan	Switzerland
China	Netherlands	United Kingdom
France	Norway	USA
Germany, F. R.	Peru *	USSR
Hungary	Poland	

No member body expressed disapproval of the documents.

* Peru approved DIS 3838 only.

Printed in Switzerland

Crude petroleum and liquid or solid petroleum products — Determination of density or relative density — Capillary-stoppered pyknometer and graduated bicapillary pyknometer methods

1 Scope and field of application

1.1 This International Standard specifies methods for the determination of the density or relative density of crude petroleum and of petroleum products handled as liquids.

1.2 The capillary-stoppered pyknometer method is also for use with solids and this method may also be used for coal tar products, including road tars, creosote and tar pitches, or for mixtures of these with petroleum products. This method is not suitable for the determination of the density or relative density of highly volatile liquids having Reid vapour pressures greater than 50 kPa (0,5 bar) according to ISO 3007 or having an initial boiling point below 40 °C.

1.3 The graduated bicapillary pyknometer method is recommended for the accurate determination of the density or relative density of all except the more viscous products, and is particularly useful when only small amounts of samples are available. The method is restricted to liquids having Reid vapour pressures of 130 kPa (1,3 bar) or less according to ISO 3007 and having kinematic viscosities less than 50 cSt (50 mm^2/s) at the test temperature.

Special precautions are specified for the determination of the density or relative density of highly volatile liquids.

2 References

ISO 91, *Petroleum measurement tables.*[1)]

ISO 653, *Long solid-stem thermometers for precision use.*

ISO 3007, *Petroleum products — Determination of vapour pressure — Reid method.*

ISO 3507, *Pyknometers.*

ISO 5024, *Petroleum liquids and gases — Measurement — Standard reference conditions.*

3 Definitions

For the purpose of this International Standard, the following definitions shall apply.

3.1 density : The mass of the substance divided by its volume.

When reporting the density, the unit of density used, together with the temperature, shall be explicitly stated, for example kilograms per cubic metre, or grams per millilitre, at t °C.

3.2 apparent mass in air : The value obtained by weighing in air against standard masses without making correction for the effect of air buoyancy on either the standard masses or the object weighed.

3.3 observed density : The value required in order to enter tables 53A and 53B referred to in ISO 91/1 or given in table A in ISO/R 91 Addendum 1, determined with soda-lime glass apparatus at a test temperature which differs from the calibration temperature of the apparatus, no correction having been made for the thermal expansion or contraction of the glass.

3.4 relative density : The ratio of the mass of a volume of a substance at a temperature t_1 to the mass of an equal volume of another substance at a temperature t_2. The temperatures t_1 and t_2 may be equal. For the purpose of this International Standard, the other substance is water, i.e. the relative density is the ratio of the density of the substance at a temperature t_1 to the density of water at a temperature t_2.

When reporting the relative density, the temperatures t_1 and t_2 must be explicitly stated. ISO 91 refers only to tables for the reduction of relative density to 60/60 °F. If results are required referred to another reference temperature, the determination should be carried out at that temperature.

1) ISO 91/1 has been published, but the revision of ISO/R 91 Addendum 1 is at present at the stage of draft.