



SLOVENSKI STANDARD SIST EN ISO 3735:1999

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Crude petroleum and fuel oils - Determination of sediment - Extraction method (ISO 3735:1999)

Rohöle und Heizöle - Bestimmung des Gehalts an Sediment - Extraktionsverfahren (ISO 3735:1999)

Pétrole brut et fuel-oils - Détermination de la teneur en sédiments - Méthode par extraction (ISO 3735:1999)

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Ta slovenski standard je istoveten z: EN ISO 3735:1999

ICS:

75.040	Surova nafta	Crude petroleum
75.160.20	V^[æ[iææ	Liquid fuels

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 3735

March 1999

ICS 75.040; 75.160.00

Supersedes EN ISO 3735:1995

English version

Crude petroleum and fuel oils - Determination of sediment -
Extraction method (ISO 3735:1999)

Pétrole brut et fuel-oils - Détermination de la teneur en
sédiments - Méthode par extraction (ISO 3735:1999)

Rohöl und Heizöle - Bestimmung des Gehaltes an
Sedimenten - Extraktionsverfahren (ISO 3735:1999)

This European Standard was approved by CEN on 3 March 1999.

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.

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 Central Secretariat has the same status as the official versions.

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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 ISO 3735:1999 has been prepared by Technical Committee ISO/TC 28 "Petroleum products and lubricants" in collaboration with Technical Committee CEN/TC 19 "Petroleum products, lubricants and related products", the secretariat of which is held by NNI.

This European Standard supersedes EN ISO 3735:1995.

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 September 1999, and conflicting national standards shall be withdrawn at the latest by September 1999.

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

NOTE FROM CEN/CS: The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of the International Standard ISO 3735:1999 was approved by CEN as a European Standard without any modification.

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INTERNATIONAL STANDARD

**ISO
3735**

Second edition
1999-03-15

Crude petroleum and fuel oils — Determination of sediment — Extraction method

*Pétrole brut et fuel-oils — Détermination de la teneur en sédiments —
Méthode par extraction*

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Reference number
ISO 3735:1999(E)

ISO 3735:1999(E)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3735 was developed by Technical Committee TC 28, *Petroleum products and lubricants*, Subcommittee 6, *Bulk cargo transfer, accountability, inspection and reconciliation*.

This second edition cancels and replaces the first edition (ISO 3735:1975), of which it constitutes a technical revision.

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Crude petroleum and fuel oils — Determination of sediment — Extraction method

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 International 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 determination of sediment in crude petroleum and fuel oils by extraction with toluene. The precision applies to a range of sediment levels from 0,01 % (*m/m*) to 0,40 % (*m/m*), although higher levels may be determined.

NOTE 1 If this International Standard is applied to crude petroleum samples containing significant amounts of salts, an overestimation of the sediment content may be obtained because a proportion of the inorganic salts may be trapped in the extraction thimble. This problem is generally not significant for crude petroleum samples containing less than 0,1 % (*m/m*) total salts.

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NOTE 2 For the purposes of this International Standard, the terms “% (*m/m*)” and “% (*V/V*)” are used to represent the mass and volume fractions of materials, respectively.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1773:1997, *Laboratory glassware — Narrow-necked boiling flasks*.

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

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

ISO 4793:1980, *Laboratory sintered (fritted) filters — Porosity grading, classification and designation*.

ISO 5272:1979, *Toluene for industrial use — Specifications*.

3 Principle

A test portion, in a refractory thimble, is extracted with hot toluene until the residue reaches constant mass.

4 Reagents and materials

4.1 **Methylbenzene (toluene)**, (C₆H₅CH₃), conforming to grade 2 of ISO 5272.

5 Apparatus

Usual laboratory apparatus and glassware, together with the following:

5.1 **Extraction apparatus**, as illustrated in figures 1 and 2, and consisting of the elements described in 5.1.1 to 5.1.6.

5.1.1 **Extraction flask**, consisting of a wide-necked conical (Erlenmeyer) flask of 1 litre capacity, conforming generally to the requirements of ISO 1773, but with a minimum external neck diameter of 50 mm.

5.1.2 **Condenser**, in the form of a metal coil approximately 25 mm in diameter and 50 mm in length attached to, and with the ends projecting through, a lid of sufficient diameter to cover the neck of the flask as shown in figure 1. The coil shall be made from stainless steel, tin, tin-plated copper or tin-plated brass tubing having an outside diameter of 5 mm to 8 mm and a wall thickness of approximately 1,5 mm. If constructed of tin-plated copper or brass, the tin coating shall have a minimum thickness of 0,075 mm.

NOTE The exposed area of the coil for cooling purposes is approximately 115 cm².

5.1.3 **Extraction thimble**, of a refractory porous material, pore size index P 16 according to ISO 4793, 25 mm in diameter by 70 mm in height, weighing not less than 15 g and not more than 17 g. The thimble shall be suspended from the condenser coil by means of a basket so that it hangs approximately mid-way between the surface of the extracting solvent (4.1) and the bottom of the condenser coil (see 5.1.2).

5.1.4 **Thimble basket**, corrosion-resistant, made of platinum, stainless steel, nickel-chromium alloy, or similar material. It shall meet the design and dimension requirements of figure 2.

5.1.5 **Water cup**, for use when testing a sample with a water content in excess of 10 % (V/V) [see figure 1b)]. The cup shall be made of glass, conical in shape, approximately 20 mm in diameter and 25 mm deep, having a capacity of approximately 3 ml. A glass hook shall be fused onto the rim on one side and shaped so that, when hung on the condenser, the cup hangs with its rim reasonably level.

In these procedures, the thimble basket is suspended either as shown in figure 1a), by means of the corrosion-resistant wire looped over the bottom of the condenser coil and attached to the basket supports, or as in figure 1b), where the wire supports of the basket are attached to hooks soldered to the underside of the condenser lid.

5.1.6 **Heater**, suitable for vaporizing the toluene.

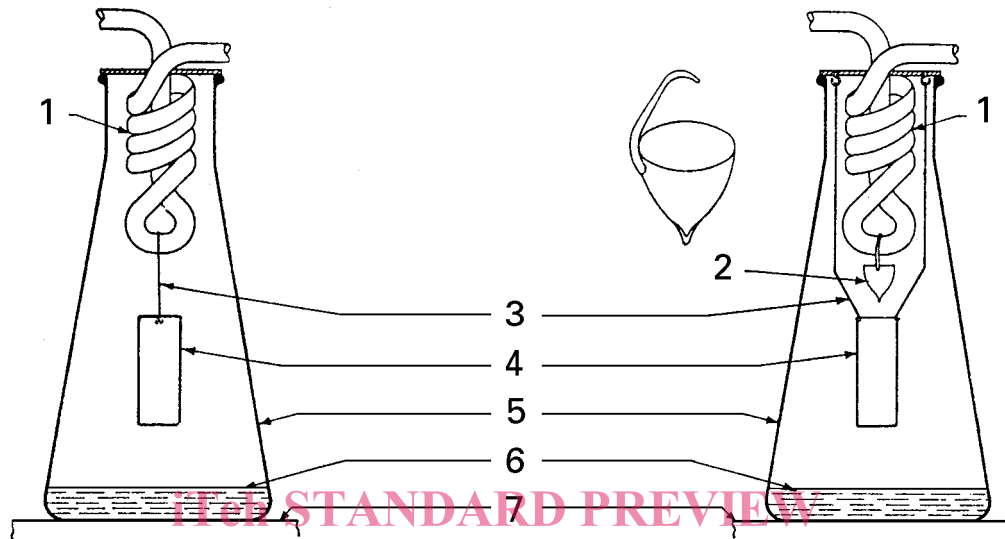
NOTE A hotplate is preferred.

5.2 **Analytical balance**, with an accuracy of 0,1 mg.

5.3 **Non-aerating mixer**, meeting the verification of mixing efficiency requirements specified in ISO 3170 and ISO 3171.

NOTE Both insertion mixers and circulating external mixers are acceptable, provided they meet the above criteria.

5.4 **Oven**, capable of maintaining a temperature of 115 °C to 120 °C.



a) Water content $\leq 10\%$ (V/V)

b) Water content $> 10\%$ (V/V)

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Key

- 1 Condenser
- 2 Water cup
- 3 Wire
- 4 Extraction thimble in basket
- 5 Extraction flask
- 6 Solvent
- 7 Top of hotplate

Figure 1 — Extraction apparatus showing in b) the water cup in position