

**Vee kvaliteet. 33 elemendi sisalduse määramine
induktiivselt sidestatud plasma-
aatomemissioonspektroskoopia abil**

Water quality - Determination of 33 elements by inductively
coupled plasma atomic emission spectroscopy

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 11885:1999 sisaldab Euroopa standardi EN ISO 11885:1997 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 12.12.1999 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 29.11.1997.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 11885:1999 consists of the English text of the European standard EN ISO 11885:1997.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 12.12.1999 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 29.11.1997.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 13.060.50

Võtmesõnad: keemiline analüüs, kvaliteet, metallid, sisalduse määramine, spektromeetiline meetod, veereostus, veetestid, vesi

Standardite reprodutseerimis- ja levitamisoigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
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ICS 13.060.01

Descriptors: Water quality, analysis, metals content.

English version

Water quality

Determination of 33 elements by inductively coupled plasma atomic emission spectroscopy
(ISO 11885 : 1996)

Qualité de l'eau – Dosage de 33 éléments par spectroscopie d'émission atomique avec plasma couplé par induction
(ISO 11885 : 1996)

Wasserbeschaffenheit – Bestimmung von 33 Elementen durch induktiv gekoppelte Plasma-Atom-Emissionsspektrometrie
(ISO 11885 : 1996)

This European Standard was approved by CEN on 1997-10-30.

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

International Standard

ISO 11885 : 1996 Water quality – Determination of 33 elements by inductively coupled plasma atomic emission spectroscopy,

which was prepared by ISO/TC 147 'Water quality' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 230 'Water analysis', the Secretariat of which is held by DIN, 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 May 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 11885 : 1996 was approved by CEN as a European Standard without any modification.

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

1 Scope

1.1 Field of application

This International Standard specifies a method for the determination of dissolved, particulate or total elements in raw, potable and waste water for the following elements:

aluminium, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, molybdenum, nickel, phosphorus, potassium, selenium, silicon, silver, sodium, strontium, sulfur, tin, titanium, tungsten, vanadium, zinc, zirconium.

Table 1 lists these elements along with the recommended wavelengths and typical estimated instrumental detection limits using conventional pneumatic nebulization. Actual working detection limits are sample-dependent and as the sample matrix varies, these concentrations can also vary.

Because of the differences between various makes and models of satisfactory instruments, no detailed instrumental operating instructions can be provided. Instead, the analyst will need to refer to the instructions provided by the manufacturer of the particular instrument.

1.2 Interferences

Table 2 lists elements and the most important spectral interferences at the wavelengths recommended for analysis.

Several types of interference effects can contribute to inaccuracies in the determination of trace elements. They can be summarized as follows.

a) Spectral interferences, categorized as:

- 1) overlap of a spectral line from another element; these effects can be compensated by utilizing computer correction of the raw data;
- 2) unresolved overlap of molecular band spectra; these effects can possibly be overcome by selection of an alternative wavelength.

If the appropriate equipment is available, wavelength scanning can be performed to detect potential spectral interferences.

b) Background influences, categorized as:

- 2) background contribution from continuous or recombination phenomena;
- 3) background contribution from stray light from the line emission of elements in high concentration.

The effect of background interferences can usually be compensated by background correction adjacent to the analyte line.