

**Water quality - Determination of chloride by
flow analysis (CFA and FIA) and
photometric or potentiometric detection**

Water quality - Determination of chloride by flow
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potentiometric detection

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 15682:2002 sisaldab Euroopa standardi EN ISO 15682:2001 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 14.02.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 15682:2002 consists of the English text of the European standard EN ISO 15682:2001.</p> <p>This document is endorsed on 14.02.2002 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This standard specifies two methods for the determination of chloride by flow analysis.</p>	<p>Scope: This standard specifies two methods for the determination of chloride by flow analysis.</p>
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ICS 13.060.50

Võtmesõnad: chemical, chemical analysis and testin, chloride content, chlorides, determination of content, flow analysis, fluorescent indicator adsorption methods, photometry, potentiometric analysis, quality, testing, water, water quality, water testing, volumetric analysis

English version

**Water quality – Determination of chloride by flow analysis
(CFA and FIA) and photometric or potentiometric detection
(ISO 15682 : 2000)**

Qualité de l'eau – Dosage du chlorure
par analyse en flux (CFA et FIA) et
par détection photométrique ou
potentiométrique (ISO 15682 : 2000)

Wasserbeschaffenheit – Bestimmung
von Chlorid mittels Fließanalyse (CFA
und FIA) und photometrischer oder
potentiometrischer Detektion
(ISO 15682 : 2000)

This European Standard was approved by CEN on 2001-06-18.

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 Management Centre 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 Management Centre has the same status as the official versions.

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CEN

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

Management Centre: rue de Stassart 36, B-1050 Brussels

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Foreword

International Standard
ISO 15682 : 2000 Water quality – Determination of chloride by flow analysis (CFA and FIA) and photometric or potentiometric detection,
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 February 2002 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 15682:2000 was approved by CEN as a European Standard without any modification.

Introduction

Methods using flow analysis automatize wet chemical procedures and are particularly suitable for the processing of many analytes in water in large sample series at a high analysis frequency (up to 100 samples per hour).

Differentiation is required between flow injection analysis (FIA) [1, 2], and continuous flow analysis (CFA) [3]. Both methods share the feature of automatic dosage of the sample into a flow system (manifold) where the analytes in the sample react with the reagent solutions on their way through the manifold. The sample preparation may be integrated in the manifold. The amount of reaction product is measured in a flow detector (e.g. photometer, or ion-selective electrode). The detector produces a signal from which the concentration of the parameter is calculated.

It should be investigated whether and to what extent particular problems will require the specification of additional marginal conditions.

1 Scope

This International Standard specifies two methods for the determination of chloride by flow analysis. The two basic methods are covered in separate clauses as follows:

- a) Clause 3: Determination of chloride by flow analysis and photometric detection.
- b) Clause 4: Determination of chloride by flow analysis and potentiometric detection.

Both methods are applicable to the analysis of water and waste water (including leachates) containing chloride in the concentration range from 1 mg/l to 1 000 mg/l. On a case-by-case basis the range of the analysis can be changed.

After dilution, samples with a chloride concentration > 1 000 mg/l can also be analysed.

The method with potentiometric detection is also applicable to turbid and/or coloured samples.

NOTE From the ecological point of view, the potentiometric method is preferable because it avoids the use of toxic reagents. When the photometric method is applied, volatile and solid wastes containing mercury should be discarded in accordance with environmental regulations.

2 Normative reference

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

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

3 Determination of chloride by flow analysis (FIA and CFA) with photometric detection

3.1 Principle

When using FIA, the sample is injected into a continuous flowing carrier stream (water) through an injection valve. When using CFA, the sample is pumped into the carrier stream via a peristaltic pump. Depending on the concentration of the sample, the sample is diluted with water. A reagent solution (mercury thiocyanate iron(III) nitrate solution), also pumped by the peristaltic pump, is then mixed with the sample stream. The thiocyanate, which is liberated by the chloride, reacts with the iron(III) ions to form a red-coloured iron(III) thiocyanate complex [4], [5], [6].

It is absolutely essential that the tests described in this International Standard be carried out by suitably qualified staff.