

**VEE KVALITEET. LEELISELISUSE MÄÄRAMINE. OSA 2:
KARBONAATSE LEELISELISUSE MÄÄRAMINE**

**Water quality - Determination of alkalinity - Part 2:
Determination of carbonate alkalinity**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN ISO 9963-2:1999 sisaldab Euroopa standardi EN ISO 9963-2:1995 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 9963-2:1999 consists of the English text of the European standard EN ISO 9963-2:1995.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 13.12.1995.	Date of Availability of the European standard is 13.12.1995.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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ICS 13.060.50

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Descriptors: Water quality, alkalinity, water analysis.

English version

Water quality

Determination of alkalinity

Part 2: Determination of carbonate alkalinity

(ISO 9963-2:1994)

Qualité de l'eau; détermination de l'alcalinité. Partie 2: détermination de l'alcalinité carbonate (ISO 9963-2:1994)

Wasserbeschaffenheit; Bestimmung der Alkalinität. Teil 2: Bestimmung der Carbonatalkalinität (ISO 9963-2:1994)

This European Standard was approved by CEN on 1995-10-11 and is identical to the ISO Standard as referred to.

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.

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

International Standard

ISO 9963-2:1994 Water quality; determination of alkalinity; determination of carbonate alkalinity, 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' 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 June 1996 at the latest.

In accordance with 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 United Kingdom.

Endorsement notice

The text of the International Standard ISO 9963-2:1994 was approved by CEN as a European Standard without any modification.

1 Scope

This part of ISO 9963 specifies a method for the titrimetric determination of carbonate alkalinity in natural and drinking water. Using a higher pH value for the endpoint than the method specified in ISO 9963-1, the influence of other hydrogen acceptors, such as anions of humic acids, is reduced by the procedure.

The method is intended for samples with a carbonate alkalinity between 0,01 mmol/l and 4 mmol/l (as H⁺ equivalents). For samples containing higher concentrations of alkalinity, a smaller test portion can be used for analysis.

In this context, carbonate alkalinity is often called total alkalinity and usually has nearly the same numerical value as methyl orange alkalinity (MO-alkalinity).

The endpoint detection, using a pH-meter is less prone to interferences than the use of the indicator.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 9963. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9963 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 385-1:1984, *Laboratory glassware — Burettes — Part 1: General requirements.*

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

ISO 5667-2:1991, *Water quality — Sampling — Part 2: Guidance on sampling techniques.*

ISO 6107-2:1989, *Water quality — Vocabulary — Part 2.*

ISO 9963-1:1994, *Water quality — Determination of alkalinity — Part 1: Determination of total and composite alkalinity.*

IEC 746-2:1982, *Expression of performance of electrochemical analyzers — Part 2: pH value.*

3 Definition

For the purposes of this part of ISO 9963, the following definition applies.

3.1 alkalinity (A): The quantitative capacity of aqueous media to react with hydrogen ions. [ISO 6107-2]

In this method, the endpoint is chosen in such a way as to permit the full neutralization of the carbonate system.

$$A = c(\text{HCO}_3^-) + 2c(\text{CO}_3^{2-}) + c(\text{OH}^-) + c(\text{X}) - c(\text{H}^+)$$

Usually proton acceptors (X) other than the carbonate system are present in low concentrations and can often be disregarded. Examples of such buffering sub-