Vee kvaliteet. pH määramine

Water quality - Determination of pH (ISO 10523:2008)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 10523:2012 sisaldab Euroopa standardi EN ISO 10523:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 10523:2012 consists of the English text of the European standard EN ISO 10523:2012.
Standard on kinnitatud Eesti Standardikeskuse 29.02.2012 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 29.02.2012 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 15.02.2012.	Date of Availability of the European standard text 15.02.2012.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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English Version

Water quality - Determination of pH (ISO 10523:2008)

Qualité de l'eau - Détermination du pH (ISO 10523:2008)

Wasserbeschaffenheit - Bestimmung des pH-Wertes (ISO 10523:2008)

This European Standard was approved by CEN on 15 January 2012.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

The text of ISO 10523:2008 has been prepared by Technical Committee ISO/TC 147 “Water quality” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10523:2012 by Technical Committee CEN/TC 230 “Water analysis” the secretariat of which is held by DIN.

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 August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 10523:2008 has been approved by CEN as a EN ISO 10523:2012 without any modification.

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Introduction

The measurement of the pH value of water is of great importance for many types of sample. High and low pH values are toxic for aquatic organisms, either directly or indirectly. The pH value is the most useful parameter in assessing the corrosive properties of an aquatic environment. Also, it is important for the effective operation of water treatment processes and their control (e.g. flocculation and chlorine disinfection), control of plumbosolvency of drinking waters and biological treatment of sewage and sewage discharges.

The electrometric methods addressed in this International Standard are based on measuring the potential difference of an electrochemical cell where one of the two half-cells is a measuring electrode and the other is a reference electrode. The potential of the measuring electrode is a function of the hydrogen ion activity of the measuring solution (Reference [5]).

In view of its great practical importance, universality and exactitude, only measuring using the pH glass electrode is described in this International Standard.

In the reference electrode, electrolytes applied can be in liquid, polymer or gel form.

Water quality — Determination of pH

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This International Standard does not purport to address any safety problems associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted according to this International Standard be carried out by suitably trained staff.

1 Scope

This International Standard specifies a method for determining the pH value in rain, drinking and mineral waters, bathing waters, surface and ground waters, as well as municipal and industrial waste waters, and liquid sludge, within the range pH 2 to pH 12 with an ionic strength below I = 0,3 mol/kg (conductivity: $\gamma_{25\ °C}$ < 2 000 mS/m) solvent and in the temperature range 0 °C to 50 °C.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 4796-2, *Laboratory glassware — Bottles — Part 2: Conical neck bottles*

ISO 5667-3, *Water quality — Sampling — Part 3: Guidance on the preservation and handling of water samples*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
pH
measure of the activity of hydrogen ions in solution

NOTE 1 Adapted from ISO 80000-9 [1].

NOTE 2 Whether a reaction is acid or alkaline is determined by the activity of the hydrogen ions present.

3.2
pH value
logarithm to the base 10 of the ratio of the molar hydrogen-ion activity (a_H) multiplied by −1

$$\mathrm{pH} = -\lg a_H = -\lg\left(m_H\ \gamma_H / m^\circ\right) \quad (1)$$

