INTERNATIONAL STANDARD



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Water quality — Determination of pH

Qualité de l'eau — Détermination du pH



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Foreword

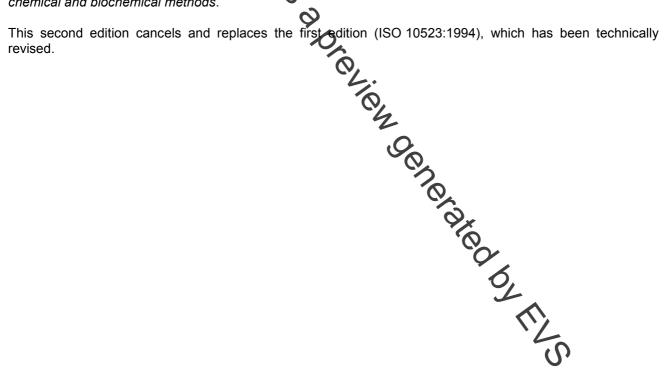
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ISO 10523 was prepared by Technical Committee ISO/TC 147, Water quality, Subcommittee SC 2, Physical, chamical and biochemical methods chemical and biochemical methods.



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 electrole, electrole, applied can be in liquid, polymer or gel form.

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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 suitebly trained staff.

1 Scope

This International Standard spectres 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: $\gamma_{25 \ ^{\circ}C} < 2\ 000$ 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 uncated 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 peck 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

pН

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 $(a_{\rm H})$ multiplied by -1

$$\mathsf{pH} = -\mathsf{lg} \ a_{\mathsf{H}} = -\mathsf{lg} \left(m_{\mathsf{H}} \ \gamma_{\mathsf{H}} \ / \ m^{\mathsf{o}} \right)$$

(1)