

**Vee kvaliteet. Lahustunud hapniku sisalduse  
määramine. Elektrokeemiline analüüsimeetod (ISO  
5814:2012)**

**Water quality - Determination of dissolved oxygen -  
Electrochemical probe method (ISO 5814:2012)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 5814:2012 sisaldab Euroopa standardi EN ISO 5814:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 5814:2012 consists of the English text of the European standard EN ISO 5814:2012.
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 15.10.2012.	Date of Availability of the European standard is 15.10.2012.
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ICS 13.060.50

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English Version

Water quality - Determination of dissolved oxygen -  
Electrochemical probe method (ISO 5814:2012)

Qualité de l'eau - Dosage de l'oxygène dissous - Méthode  
électrochimique à la sonde (ISO 5814:2012)

Wasserbeschaffenheit - Bestimmung des gelösten  
Sauerstoffs - Elektrochemisches Verfahren (ISO  
5814:2012)

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## Foreword

This document (EN ISO 5814:2012) has been prepared by Technical Committee ISO/TC 147 "Water quality" in collaboration with 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of an identical text or by endorsement, at the latest by April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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### Endorsement notice

The text of ISO 5814:2012 has been approved by CEN as a EN ISO 5814:2012 without any modification.

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# Water quality — Determination of dissolved oxygen — Electrochemical probe method

**WARNING** — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, 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 an electrochemical method for the determination of dissolved oxygen in water by means of an electrochemical cell which is isolated from the sample by a gas permeable membrane.

Measurement can be made either as a concentration of oxygen in milligrams per litre, percentage saturation (% dissolved oxygen) or both. The method measures oxygen in water corresponding to 1 % to 100 % saturation. However, most instruments permit measurement of values higher than 100 %, i.e. supersaturation.

**NOTE** Supersaturation is possible when the partial pressure of oxygen is higher than in air. Especially when strong algal growth is present, supersaturation of up to 200 % and above can occur.

The method measures oxygen in water with a saturation higher than 100 %, when special arrangements to prevent the outgassing of oxygen during the handling and measurement of the sample are made.

The method is suitable for measurements made in the field and for continuous monitoring of dissolved oxygen, as well as measurements made in the laboratory. It is the preferred method for highly coloured and turbid waters, and also for analysis of waters not suitable for the Winkler titration method because of iron- and iodine-fixing substances, which can interfere in the iodometric method specified in ISO 5813<sup>[1]</sup>.

The method is suitable for drinking waters, natural waters, waste waters, and saline waters. If used for saline waters, such as sea or estuarine waters, a correction for salinity is essential.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

## 3 Principle

Immersion of a probe, consisting of a cell enclosed by a selective membrane and containing the electrolyte and at least two metallic electrodes, in the water to be analysed.

**NOTE** The membrane is effectively impermeable to water and ionic dissolved matter, but is permeable to oxygen and a certain number of other gases.

One of the electrodes is made of a noble metal like gold or platinum. Oxygen is reduced at its surface by an electrochemical process. In order to make this process possible, a suitable electrochemical potential is established at this electrode. For polarographic probes, this is achieved by applying an external voltage related to a second electrode. Galvanic probes are able to build up the potential by themselves.