
Expression of performance of electrochemical analyzers - Part 2: pH value

Expression of performance of electrochemical analyzers -- Part 2: pH value

Angabe zum Betriebsverhalten von elektrochemischen Analysatoren -- Teil 2: pH-Wert

Expression des qualités de fonctionnement des analyseurs électrochimiques -- Partie 2:
Mesure du pH

Ta slovenski standard je istoveten z: EN 60746-2:2003

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EUROPEAN STANDARD

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Expression of performance of electrochemical analyzers
Part 2: pH value
(IEC 60746-2:2003)

Expression des qualités
de fonctionnement des analyseurs
électrochimiques
Partie 2: Mesure du pH
(CEI 60746-2:2003)

Angabe zum Betriebsverhalten
von elektrochemischen Analysatoren
Teil 2: pH-Wert
(IEC 60746-2:2003)

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This European Standard was approved by CENELEC on 2003-02-01. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

EN 60746-2:2003

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Foreword

The text of document 65D/90A/FDIS, future edition 2 of IEC 60746-2, prepared by SC 65D, Analysing equipment, of IEC TC 65, Industrial-process measurement and control, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60746-2 on 2003-02-01.

This Part 2 of EN 60746 shall be used in conjunction with EN 60746-1.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2003-11-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2006-02-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes C and ZA are normative and annexes A and B are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60746-2:2003 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60746-1	2003	Expression of performance of electrochemical analyzers Part 1: General	EN 60746-1	2003
ISO 9001	- ¹⁾	Quality management systems - Requirements	EN ISO 9001	2000 ²⁾
ISO 9002	- ¹⁾	Quality systems - Model for quality assurance in production, installation and servicing	EN ISO 9002	1994 ²⁾
ISO 9003	- ¹⁾	Quality systems - Model for quality assurance in final inspection and test	EN ISO 9003	1994 ²⁾

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¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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IEC
60746-2

Second edition
2003-01

Expression of performance of electrochemical analyzers –

Part 2: pH value

iTeh STANDARD PREVIEW

*Expression des qualités de fonctionnement
des analyseurs électrochimiques –*

SIST EN 60746-2:2004

Partie 2:
Mesure du pH

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPRESSION OF PERFORMANCE OF ELECTROCHEMICAL ANALYZERS –

Part 2: pH value

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
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- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60746-2 has been prepared by subcommittee 65D: Analysing equipment, of IEC technical committee 65: Industrial-process measurement and control.

This second edition cancels and replaces the first edition published in 1982 and constitutes a technical revision.

The text of this standard is based on the following documents:

FDIS	Report on voting
65D/90A/FDIS	65D/94/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The contents of this second edition remain substantially unchanged.

The major change is that Annex B has been updated in line with recent IUPAC *Recommendations for the measurement of pH*.

This part of IEC 60746 shall be used in conjunction with IEC 60746-1, which includes further definition of the scope and provides for the general aspects of all electrochemical analyzers.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until 2007. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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EXPRESSION OF PERFORMANCE OF ELECTROCHEMICAL ANALYZERS –

Part 2: pH value

1 Scope

This International Standard is intended:

- to specify terminology, definitions and requirements for statements by manufacturers for analyzers, sensor units and electronic units used for the determination of the pH of aqueous solutions;
- to establish performance tests for such analyzers, sensor units and electronic units;
- to provide basic documents to support the applications of quality assurance standards ISO 9001, ISO 9002 and ISO 9003.

2 Normative reference

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.

IEC 60746-1:2002, *Expression of performance of electrochemical analyzers – Part 1: General*

ISO 9001, *Quality management systems – Requirements* SIST EN 60746-2:2004
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760cd6f52935/sist-en-60746-2-2004

ISO 9002, *Quality systems – Model for quality assurance in production, installation and servicing*

ISO 9003, *Quality systems – Model for quality assurance in final inspection and test*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this part of IEC 60746, Clause 4 of IEC 60746-1, plus the following apply.

3.1.1

pH value

A measure of the conventional hydrogen ion activity a_{H^+} (see equation (1)), in an aqueous solution given by the expression:

$$pH = -\log a_{H^+}$$

It is measured with respect to pH values assigned to certain reference pH buffer solutions. The measurement is performed by determining the e.m.f., E , between a pair of electrodes immersed in the sample to be measured, according to the cell scheme:

Reference electrode | Sample | pH electrode E

and a measurement with the same electrode pair at the same temperature in a reference buffer solution of pH (S_1) according to