INTERNATIONAL STANDARD

IEC 60746-3

Second edition
2002-06

Expression of performance of electrochemical analyzers –

Part 3: Electrolytic conductivity

Expression des qualités de fonctionnement des analyseurs électrochimiques –

Partie 3: Conductivité électrolytique

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPRESSION OF PERFORMANCE OF ELECTROCHEMICAL ANALYZERS –

Part 3: Electrolytic conductivity

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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.
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International Standard IEC 60746-3 has been prepared by subcommittee 65D: Analyzing equipment, of IEC technical committee 65: Industrial-process measurement and control.

This second edition cancels and replaces the first edition, published in 1985, and constitutes a technical revision.

This standard shall be used in conjunction with IEC 60746-1.

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

FDIS	Report on voting
65D/85/FDIS	65D/87/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annex C forms an integral part of this standard.

Annexes A, B and D are for information only.

IEC 60746 consists of the following parts, under the general title *Expression of performance of electrochemical analyzers:*

Part 1: General

Part 2: pH value

Part 3: Electrolytic conductivity

Part 4: Dissolved oxygen in water measured by membrane covered amperometric sensors

Part 5: Oxidation-reduction potential or redox potential

Part 6: Conductivity effect of foreign ions in ultrapure waters, from combined conductivity and pH[1)]

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.

A bilingual version of this publication may be issued at a later date.

The contents of the corrigendum of January 2003 have been included in this copy.

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1) Under consideration.

EXPRESSION OF PERFORMANCE OF ELECTROCHEMICAL ANALYZERS –

Part 3: Electrolytic conductivity

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1 Scope

This part of IEC 60746 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 electrolytic conductivity 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.

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.

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

3 Definitions

For the purpose of this part of IEC 60746, the definitions of IEC 60746-1 apply, together with the following definitions.

3.1
electrolytic conductance
current divided by the potential difference in the case of ionic charge transport within an electrolytic solution filling a conductivity cell:

$$G = \frac{I}{U}$$

where

I is the current through the electrolyte, in amperes (A);

U is the potential difference applied across the electrodes, in volts (V);

G is the electrolytic conductance, in siemens (S).

Electrolytic resistance is the reciprocal of electrolytic conductance with the ohm (Ω) as the unit of measurement