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Surface chemical analysis — X-ray photoelectron spectroscopy — Description of selected instrumental performance parameters

Analyse chimique des surfaces — Spectroscopie de photoélectrons X — Description de certains paramètres relatifs à la performance instrumentale

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 201, *Surface chemical analysis*, Subcommittee SC 7, *X-ray photoelectron spectroscopy*.

This second edition cancels and replaces the first edition (ISO 15470:2004), of which it constitutes a minor revision.

The changes compared to the previous edition are as follows:

— a typo has been corrected in 5.10;

— a Bibliography has been added;

— the text has been editorially revised to comply with the most recent drafting rules.

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Introduction

X-ray photoelectron spectrometers are produced by many manufacturers throughout the world. While the basic principle of the XPS analytical method in each instrument is the same, the specific designs of the instruments and the way that performance specifications are provided differ widely. As a result, it is often difficult to compare the performance of instruments from one manufacturer with those from another. This document provides a basic list of items devised to enable all X-ray photoelectron spectrometers to be described in a common manner. This document is not intended to replace the manufacturer's specification, which may extend to 30 or more pages. It is intended that, where certain items are defined in that specification, there is an agreed and defined meaning to that item.

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Surface chemical analysis — X-ray photoelectron spectroscopy — Description of selected instrumental performance parameters

1 Scope

This document describes the way in which specific aspects of the performance of an X-ray photoelectron spectrometer are described.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 18115 (all parts), *Surface chemical analysis — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 18115 (all parts) apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Abbreviated terms

FWHM full width at half maximum

XPS X-ray photoelectron spectroscopy

5 Description of selected instrumental performance parameters

5.1 Method of analysis

A short description of the methods used to obtain information from the sample shall be given, and the availability (as an option) of other analytical techniques in the system under consideration shall be stated.

5.2 Samples

The size and shape of samples that may be analysed with the instrument performing to specification shall be given. If the size or shape is restricted for particular modes of analysis, e.g. angle-resolved measurements, measurements for insulators, etc., this shall be specified.

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