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Second edition
2013-11-15

Surface chemical analysis — Vocabulary —

Part 1: General terms and terms used in spectroscopy

Analyse chimique des surfaces — Vocabulaire —

Partie 1: Termes généraux et termes utilisés en spectroscopie



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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 201, *Surface chemical analysis*, Subcommittee SC 1, *Terminology*.

This second edition cancels and replaces the first edition (ISO 18115-1:2010), which has been technically revised.

ISO 18115 consists of the following parts, under the general title *Surface chemical analysis — Vocabulary*:

- *Part 1: General terms and terms used in spectroscopy*
- *Part 2: Terms used in scanning-probe microscopy*

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Introduction

Surface chemical analysis is an important area which involves interactions between people with different backgrounds and from different fields. Those conducting surface chemical analysis might be materials scientists, chemists, or physicists and might have a background that is primarily experimental or primarily theoretical. Those making use of the surface chemical data extend beyond this group into other disciplines.

With the present techniques of surface chemical analysis, compositional information is obtained for regions close to a surface (generally within 20 nm) and composition-versus-depth information is obtained with surface analytical techniques as surface layers are removed. The surface analytical terms covered in this part of ISO 18115 extend from the techniques of electron spectroscopy and mass spectrometry to optical spectrometry and X-ray analysis. The terms covered in ISO 18115-2 relate to scanning-probe microscopy. Concepts for these techniques derive from disciplines as widely ranging as nuclear physics and radiation science to physical chemistry and optics.

The wide range of disciplines and the individualities of national usages have led to different meanings being attributed to particular terms and, again, different terms being used to describe the same concept. To avoid the consequent misunderstandings and to facilitate the exchange of information, it is essential to clarify the concepts, to establish the correct terms for use, and to establish their definitions.

The terms and definitions in this International Standard have been prepared in conformance with the principles and style defined in ISO 1087-1:2000 and ISO 10241:1992. Essential aspects of these standards appear in [2.1](#) to [2.3](#). This part of ISO 18115 comprises the 78 abbreviations and 590 definitions of the combined ISO 18115-1:2010 and Amendment 1 to ISO 18115-1:2010. Corrections have been made to terms [4.61](#), backscattering factor, and [4.480](#), unified atomic mass unit that appeared in ISO 18115-1:2010.

The terms are given in alphabetical order, classified under [Clauses 3](#), [4](#), and [5](#) from the former International Standard with corrections and [Clauses 6](#), [7](#), and [8](#) from Amendment 1:

- [Clause 3](#): Definitions of the surface analysis methods;
- [Clause 4](#): Definitions of terms for surface analysis;
- [Clause 5](#): Definitions of terms for multivariate analysis;
- [Clause 6](#): Definitions of supplementary terms for the surface analysis methods;
- [Clause 7](#): Definitions of supplementary terms for surface analysis;
- [Clause 8](#): Definitions of supplementary terms for multivariate analysis.

Additional terms, important for surface analysis, are given in an extract from IEC 60050-111 in [Annex A](#).