

Surface chemical analysis — Sputter depth profiling — Optimization using layered systems as reference materials

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Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to v, a blank page, pages 1 to 15 and a back cover.

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Surface chemical analysis — Sputter depth profiling — Optimization using layered systems as reference materials

*Analyse chimique des surfaces — Profilage d'épaisseur par
bombardement — Optimisation à l'aide de systèmes mono- ou
multicouches comme matériaux de référence*



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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.

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Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 14606 was prepared by Technical Committee ISO/TC 201, *Surface chemical analysis*, Subcommittee SC 4, *Depth profiling*.

Annexes A, B, C and D of this International Standard are for information only.

Introduction

Reference materials are useful in optimizing the depth resolution of sputter profiling methods in materials such as silicon wafers, multilayered devices (for example AlGaAs double-hetero lasers, high electron mobility transistors) and alloy-galvanized steel for corrosion-resistant car bodies.

The specific applications of this International Standard are as follows:

- a) Single-layered and multilayered systems on a substrate as reference materials are useful for the optimization of depth resolution as a function of instrument settings in Auger electron spectroscopy, X-ray photoelectron spectroscopy and secondary ion mass spectrometry.
- b) These systems are useful for illustrating the effects of the evenness of the sputter crater, the inclination of the crater bottom, the sample drift, the drift of sputter conditions (for example ion beam current density) on depth resolution.
- c) These systems are useful for illustrating the effects of sputter-induced surface roughening and sputter-induced atomic mixing on depth resolution.
- d) These systems are useful for the evaluation of instrument performance for instrument suppliers and users.
- e) This International Standard is timely and topical, and can be used for a basis of future development of sputter depth profiling.

A list of ISO Guides related to this International Standard is given in the Bibliography^{[1][2][3][4][5]}.

