INTERNATIONAL STANDARD

ISO 18117

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Surface chemical analysis — Handling of specimens prior to analysis

Analyse chimique des surfaces — Manipulation des échantillons avant analyse

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 18117 was prepared by Technical Committee ISO/TC 201, *Surface chemical analysis*, Subcommittee SC 2, *General procedures*.

This corrected version of ISO 18117:2009 incorporates the following corrections:

— an additional paragraph has been inserted at the beginning of Clause 5;

— subclause 6.6 has been divided into two subclauses, 6.6 and 6.7, and the subsequent subclause numbering (and the cross-references elsewhere in the text to the subclauses concerned) corrected accordingly;

— it has been made clear in Table 1 and 9.2 that the PTFE tape used must be fresh;

— a small number of minor editorial changes have been made.

Introduction

This International Standard instructs those who wish to submit specimens for surface chemical analysis in the handling and delivery of the specimens to the analyst. Although primarily written for auger electron spectroscopy (AES), X-ray photoelectron spectroscopy (XPS) and secondary-ion mass spectrometry (SIMS), these methods can also be applied to other surface-sensitive analytical measurements. AES, XPS and SIMS are sensitive to surface layers that are typically a few nanometres (nm) thick. Such thin layers can be subject to severe perturbations from improper specimen handling [1, 2]. Proper handling and preparation of specimens is particularly critical for analysis. Improper handling of specimens can result in alteration of the surface composition and unreliable data.

This International Standard is intended for the specimen owner or the purchaser of surface analytical services and for the surface analyst. The optimum handling procedures are dependent on the particular specimen and the needed information, and this document provides illustrative examples for each specimen type that a specimen owner and surface analyst will typically encounter. It is recommended that the specimen supplier consult the surface analyst as soon as possible with regard to specimen history, the specific problem to be solved or information needed, and any particular specimen preparation, handling or shipping procedures required.

This International Standard is based on ASTM E 1829-02, *Standard Guide for Handling Specimens Prior to Surface Analysis*, copyright ASTM, used with permission of ASTM.

This International Standard can be used independently of ISO 18116 [4], which gives guidance to the analyst for specimen preparation and mounting for surface analysis.