

Australian Standard[®]

**Surface chemical analysis—Guidelines
for preparation and mounting of
specimens for analysis**



This Australian Standard® was prepared by Committee CH-016, Spectroscopy. It was approved on behalf of the Council of Standards Australia on 20 September 2006. This Standard was published on 20 October 2006.

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- Australian Institute of Physics
- CSIRO Energy Technology
- Department of Defence (Australia)
- Department of Natural Resources and Mines Qld
- National Association of Testing Authorities Australia
- Queensland Health Scientific Services

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-

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OF

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**Surface chemical analysis—Guidelines for preparation and mounting of specimens
for analysis**

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NOTES

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PREFACE

This Standard was prepared by the Standards Australia Committee CH-016, Spectroscopy. This Standard is identical with, and has been reproduced from, ISO 18116:2005, *Surface chemical analysis—Guidelines for preparation and mounting of specimens for analysis*.

The objective of this Standard is to provide guidance on methods of mounting and surface treatment for a specimen about to undergo surface chemical analysis.

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<i>Reference to International Standard</i>		<i>Australian Standard</i>	
ISO		AS ISO	
18115	Surface chemical analysis— Vocabulary	18115	Surface chemical analysis— Vocabulary

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INTRODUCTION

This International Standard is intended to assist analysts in the handling, mounting and treatment of specimens submitted for surface chemical analysis. Although primarily prepared for the surface-analysis techniques of Auger electron spectroscopy (AES), X-ray photoelectron spectroscopy (XPS) and secondary-ion mass spectrometry (SIMS), the methods described in this International Standard will also be applicable to many other surface-sensitive analytical techniques such as ion-scattering spectrometry, low-energy electron diffraction and electron energy-loss spectroscopy, where specimen handling can influence surface-sensitive measurements. AES, XPS and SIMS are sensitive to surface layers that are typically a few nanometres in thickness. Such thin layers may be subject to severe perturbations caused by specimen handling or surface treatments that may be necessary prior to introduction into the analytical chamber.

Proper preparation and mounting of specimens is particularly critical for surface chemical analysis. Improper preparation may result in the alteration of the surface composition and in unreliable analyses. Specimens have to be handled carefully so that the introduction of spurious contaminants is avoided or minimized. The goal is to preserve the state of the surface during preparation and mounting so that the analysis remains representative of the original specimen. This International Standard describes methods that the surface analyst may need to use in order to minimize the effects of specimen preparation when using any surface-sensitive analytical technique. This International Standard also describes methods to mount specimens in order to ensure that the desired analytical information is not compromised.