BS ISO 18337:2015

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Surface chemical analysis — Surface characterization — Measurement of the lateral resolution of a confocal fluorescence microscope

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The UK participation in its preparation was entrusted to Technical Committee CII/60, Surface chemical analysis.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ISBN 978 0 580 81132 6

ICS 71.040.40

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2015.

Amendments issued since publication

Date	Text affected

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INTERNATIONAL STANDARD

ISO 18337

First edition
2015-06-15

Surface chemical analysis — Surface characterization — Measurement of the lateral resolution of a confocal fluorescence microscope

Analyse chimique des surfaces — Caractérisation des surfaces — Mesurage de la résolution latérale d'un microscope confocal à fluorescence

Reference number
ISO 18337:2015(E)

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Foreword

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The committee responsible for this document is ISO/TC 201 *Surface chemical analysis*.

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Introduction

Confocal fluorescence microscopes (CFMs) are laser scanning confocal microscopes (LSCMs) operated in a fluorescence imaging mode so as to obtain a fluorescence image of a sample. Fluorescence is the light emitted by a molecule or solid lattice during relaxation after undergoing photon absorption and electronic excitation. The fluorescence wavelength, intensity and spectral shape are specific to the electronic structure of the material; therefore, fluorescence spectroscopy and imaging techniques are useful for chemical characterization and analysis. Among the optical imaging and spectroscopy tools, CFM yields a high spatial resolution that is advantageous for analysing nanomaterials and thin films. The spatial resolution is one of the most important performance factors for a CFM.

The spatial resolution of a technique refers to the maximum resolvability of two adjacent objects. This value is often characterized in different ways by the manufacturers. The spatial resolution of a CFM is characterized by both the lateral and axial resolution, which have different values and are not necessarily dependent on one another. In this International Standard, one convenient and effective method for measuring the lateral resolution of a CFM is presented. This method is suitable for use by non-expert operators.

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