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Metallic and other inorganic coatings — Review of methods of measurement of thickness

*Revêtements métalliques et autres revêtements inorganiques — Vue
d'ensemble sur les méthodes de mesurage de l'épaisseur*

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Non-destructive methods	2
4.1 Split beam microscope (light section) method, ISO 2128	2
4.2 Magnetic methods, ISO 2178 and ISO 2361	2
4.3 Eddy current method, ISO 2360	3
4.4 X-ray spectrometric methods, ISO 3497	3
4.5 Beta backscatter method, ISO 3543	3
5 Destructive methods	4
5.1 Microscopical (optical) method, ISO 1463	4
5.2 Fizeau multiple-beam interferometry method, ISO 3868	4
5.3 Profilometric (stylus) method, ISO 4518	4
5.4 Scanning electron microscope method, ISO 9220	4
5.5 Dissolution methods	5
5.5.1 Coulometric method, ISO 2177	5
5.5.2 Gravimetric (strip and weigh) method, ISO 10111	5
5.5.3 Gravimetric (analytical) method, ISO 10111	5
Bibliography	9

ISO 3882:2003

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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 3882 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 2, *Test methods*.

This third edition cancels and replaces the second edition (ISO 3882:1986), which has been technically revised.

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Introduction

This International Standard summarizes the various methods used for the measurement of coating thickness and describes their working principles. Methods of measuring coating thickness may be either destructive or non-destructive (see Table 1). The information given in Table 2 will assist in the choice of typical instrumental methods suitable for thickness measurements. For all instrumental methods, manufacturers' instructions should be followed.

The thickness ranges covered by the different methods depend on the coating materials, thickness of the coating, substrates and instruments used (see Table 3); e.g., although X-ray spectrometry can be used to measure the thickness of a chromium coating, thicknesses of 20 µm or more cannot be measured with sufficient precision. Similarly, while magnetic methods may be used to measure the thickness of a gold coating over a magnetic steel substrate, many magnetic instruments do not have the sensitivity to measure accurately thicknesses of gold coatings less than 2 µm.

Where a referee method is required the appropriate coating specification should be consulted.

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