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Metallic and other inorganic coatings - Review of methods of measurement of thickness (ISO 3882:2024)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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Metallic and other inorganic coatings - Review of methods of measurement of thickness (ISO 3882:2024)

Revêtements métalliques et autres revêtements inorganiques - Revue des méthodes de mesurage de l'épaisseur (ISO 3882:2024)

Metallische und andere anorganische Überzüge - Übersicht über Verfahren zur Schichtdickenmessung (ISO 3882:2024)

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 3882:2024 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 3882:2024) has been prepared by Technical Committee ISO/TC 107 "Metallic and other inorganic coatings" in collaboration with Technical Committee CEN/TC 262 "Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2024, and conflicting national standards shall be withdrawn at the latest by July 2024.

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

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Endorsement notice

The text of ISO 3882:2024 has been approved by CEN as EN ISO 3882:2024 without any modification.



International Standard

ISO 3882

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

*Revêtements métalliques et autres revêtements inorganiques —
Revue des méthodes de mesurage de l'épaisseur*

**Fourth edition
2024-01**

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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ISO 3882:2024(en)**Contents**

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Overview	1
5 Non-destructive methods	2
5.1 Split beam microscope (light section) method, ISO 2128.....	2
5.2 Magnetic methods, ISO 2178 and ISO 2361.....	2
5.3 Eddy current methods, ISO 2360 and ISO 21968.....	2
5.4 X-ray spectrometric method, ISO 3497.....	3
5.5 Beta backscatter method, ISO 3543.....	3
6 Destructive methods	4
6.1 Microscopical (optical) method, ISO 1463.....	4
6.2 Fizeau multiple-beam interferometry method, ISO 3868.....	4
6.3 Profilometric method, ISO 4518.....	4
6.4 Scanning electron microscope method, ISO 9220.....	4
6.5 Dissolution methods.....	4
6.5.1 Coulometric method, ISO 2177.....	4
6.5.2 Gravimetric (strip and weigh) method, ISO 10111.....	5
6.5.3 Gravimetric (analytical) method, ISO 10111.....	5
Annex A (informative) Typical measuring application and range	6
Bibliography	9

ISO 3882:2024(en)

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 262, *Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 3882:2003), which has been technically revised.

The main changes are as follows:

- editorial revisions;
- restructuring of the document;
- former Tables 2 and 3 moved to [Annex A](#);
- new subclause [6.5.1.2](#) for the STEP method;
- review of measurement uncertainties;
- phase-sensitive eddy current, as described in ISO 21968, added to measurement methods and [Tables A.1](#) and [A.2](#).

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ISO 3882:2024(en)

Introduction

This document summarizes the various methods used for the measurement of coating thickness and describes their working principles. Methods of measuring coating thickness are either destructive or non-destructive (see [Table 1](#)). The information given in [Annex A, Table A.1](#) will assist in the choice of typical instrumental methods suitable for thickness measurements. For all instrumental methods, manufacturers' instructions contain useful information on the correct handling of the instruments.

The thickness ranges covered by the different methods depend on the coating materials, thickness of the coating, substrates and instruments used (see [Annex A, Table A.2](#)); for example, 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 can 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 can contain useful information on the preferred method.

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

1 Scope

This document reviews methods for measuring the thickness of metallic and other inorganic coatings on both metallic and non-metallic substrates (see [Tables 1](#), [A.1](#) and [A.2](#)). It is limited to tests already specified, or to be specified, in International Standards and excludes certain tests that are used for special applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2064, *Metallic and other inorganic coatings — Definitions and conventions concerning the measurement of thickness*

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