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

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Foreword

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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](#).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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.

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