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**Non-conductive coatings on non-magnetic electrically conductive base metals — Measurement of coating thickness — Amplitude-sensitive eddy-current method**

*Revêtements non conducteurs sur matériaux de base non magnétiques conducteurs de l'électricité — Mesurage de l'épaisseur de revêtement — Méthode par courants de Foucault sensible aux variations d'amplitude*



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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.

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 documents 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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

This fourth edition cancels and replaces the third edition (ISO 2360:2003), which has been technically revised.

# Non-conductive coatings on non-magnetic electrically conductive base metals — Measurement of coating thickness — Amplitude-sensitive eddy-current method

## 1 Scope

This document specifies a method for non-destructive measurements of the thickness of non-conductive coatings on non-magnetic electrically conductive base metals, using amplitude-sensitive eddy-current instruments.

In this document, the term “coating” is used for materials such as, for example, paints and varnishes, electroplated coatings, enamel coatings, plastic coatings, claddings and powder coatings. This method is particularly applicable to measurements of the thickness of most oxide coatings produced by anodizing, but is not applicable to all conversion coatings, some of which are too thin to be measured by this method (see [Clause 6](#)).

This method can also be used to measure non-magnetic metallic coatings on non-conductive base materials. However, the phase-sensitive eddy-current method specified in ISO 21968 is particularly usable to this application and can provide thickness results with a higher accuracy (see [Annex A](#)).

This method is not applicable to measure non-magnetic metallic coatings on conductive base metals. The phase-sensitive eddy-current method specified in ISO 21968 is particularly useful for this application. However, in the special case of very thin coatings with a very small conductivity, the amplitude-sensitive eddy-current method can also be used for this application (see [Annex A](#)).

Although the method can be used for measurements of the thickness of coatings on magnetic base metals, its use for this application is not recommended. In such cases, the magnetic method specified in ISO 2178 can be used. Only in case of very thick coatings above approximately 1 mm, the amplitude-sensitive eddy-current method can also be used for this application (see [Annex A](#)).

## 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*

ISO 4618, *Paints and varnishes — Terms and definitions*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2064 and ISO 4618 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>