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Metallic and other inorganic coatings — Measurement of mass per unit area — Review of gravimetric and chemical analysis methods

Revêtements métalliques et autres revêtements inorganiques — Mesurage de la masse surfacique — Présentation des méthodes d'analyse gravimétrique et chimique



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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).

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For an explanation of 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 www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 10111:2000), which has been technically revised. The following changes have been made:

a) a gravimetric method has been added for weighing the uncoated substrate and the finished sample;

b) the surface area increase caused by surface roughness has been considered to obtain a more realistic estimation of local geometric coating thickness (optional);

c) Annex A, which gives reagents for etching or stripping solutions, has been changed to informative as other solutions can be applied;

d) reagents in Annex A that referred to no longer existing standards or which contain hazardous chemicals have been removed;

e) outdated and uncited references in the Bibliography have been removed.

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.

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Metallic and other inorganic coatings — Measurement of mass per unit area — Review of gravimetric and chemical analysis methods

WARNING — The use of this document can involve hazardous materials, operations and equipment. It does not purport to address all of the safety or environmental problems associated with its use. It is the responsibility of users of this document to take appropriate measures to ensure the safety and health of personnel and the environment prior to application of this document.

1 Scope

This document gives guidelines for determining the average surface density over a measured area of anodic oxide or of a coating deposited autocatalytically, mechanically, by chemical conversion, by electrodeposition, by hot dip galvanizing and by chemical or physical vapour deposition using gravimetric and other chemical analysis procedures that have attained some degree of national or international standardization.

A variety of procedures are described and include:

— gravimetric procedures for chemical or electrochemical dissolution of the coating or the substrate to determine the coating surface density;

— gravimetric procedures for weighing the uncoated substrate and the coated (finished) specimen to determine the coating surface density;

— analytical procedures that utilize dissolution of the coating for determination of the coating surface density by instrumental chemical analysis methods.

With the exception of the gravimetric method as described in ISO 3892, this document does not give the measurement uncertainties of the methods cited.

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 2080, *Metallic and other inorganic coatings — Surface treatment, metallic and other inorganic coatings — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2080 apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

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