
**Metallic coatings — Measurement of
coating thickness — Coulometric method
by anodic dissolution**

*Revêtements métalliques — Mesurage de l'épaisseur — Méthode
coulométrique par dissolution anodique*



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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.

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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 2177 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 2177:1985), which has been technically revised.

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Metallic coatings — Measurement of coating thickness — Coulometric method by anodic dissolution

1 Scope

This International Standard describes a coulometric method, by anodic dissolution, for measuring the thickness of metallic coatings. It is only applicable to conductive coatings.

Typical combinations of coatings and substrates that can be tested by this method are given in Table 1. Other combinations may be tested with electrolytes in current use (see Annex A), or new electrolytes may be developed for them but, in both cases, it is necessary to verify the suitability of the complete system.

This International Standard is also applicable to multi-layer systems, e.g. Cu-Ni-Cr (see also 8.5).

It may be used to measure the thickness of coatings applied by various means, if due account is taken of special features such as the presence of an alloy layer. In some cases, the presence and thickness of diffusion layers can also be measured. It can also be used to measure the thickness of coatings on cylindrical specimens and wires (see 8.7).

2 Normative references

The following referenced documents are indispensable for the application 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 2064:1996, *Metallic and other inorganic coatings — Definitions and conventions concerning the measurement of thickness*

ISO 2080, *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 2064 and ISO 2080 as well as the following apply.

3.1

measuring area

area of the significant surface over which a single measurement is made

NOTE The measuring area for this method is the area enclosed by the sealing ring of the cell.