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Electroplated coatings of tin — Specification and test methods

Dépôts électrolytiques d'étain — Spécifications et méthodes d'essai

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 2093 was prepared by Technical Committee ISO/TC 107, *Metallic and other non-organic coatings*.

This second edition cancels and replaces the first edition (ISO 2093-1973), of which it constitutes a technical revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Electroplated coatings of tin – Specification and test methods

0 Introduction

This International Standard specifies requirements for electroplated coatings of tin on fabricated metal articles to protect them from corrosion and to facilitate soldering.

Attention is drawn to legislative requirements that exist in many countries for tin coatings used in the food industry.

Annex C gives additional information as guidance to the user.

It is essential that the purchaser should state the information itemized in 4.1 and, if appropriate, 4.2. Specifying ISO 2093 without this information is insufficient.

1 Scope and field of application

This International Standard specifies requirements for electroplated coatings of nominally pure tin on fabricated metal articles. The coatings may be dull or bright as electroplated or may be flow-melted by fusion after electroplating.

It does not apply to

- a) threaded components;
- b) tin-coated copper wire;
- c) coatings on sheet, strip or wire in unfabricated form, or on articles made from them;
- d) coatings on coil springs;
- e) coatings applied by chemical means (immersion, autocatalytic or "electroless");
- f) electroplating of steels with tensile strength greater than 1 000 MPa¹⁾ (or of corresponding hardness), because such steels are subject to hydrogen embrittlement (see 8.2).

2 References

ISO 1463, *Metallic and oxide coatings – Measurement of coating thickness – Microscopical method.*

ISO 2064, *Metallic and other non-organic coatings – Definitions and conventions concerning the measurement of thickness.*

ISO 2177, *Metallic coatings – Measurement of coating thickness – Coulometric method by anodic dissolution.*

ISO 2819, *Metallic coatings on metallic substrates – Electrodeposited and chemically deposited coatings – Review of methods available for testing adhesion.*

ISO 2859, *Sampling procedures and tables for inspection by attributes.*²⁾

ISO 3497, *Metallic coatings – Measurements of coating thickness – X-ray spectrometric methods.*

ISO 3543, *Metallic and non-metallic coatings – Measurements of thickness – Beta backscatter method.*

ISO 3768, *Metallic coatings – Neutral salt spray test (NSS test).*

ISO 4519, *Electrodeposited metallic coatings and related finishes – Sampling procedures for inspection by attributes.*

ISO 6988, *Metallic and other non-organic coatings – Sulfur dioxide test with general condensation of moisture.*

IEC Publication 68-2-20, *Basic environmental testing procedures – Test T: Soldering.*

3 Definitions

For the purpose of this International Standard, the following definitions apply.

3.1 significant surface: The part of the article covered or to be covered by the coating and for which the coating is essential for serviceability and/or appearance.

(Definition taken from ISO 2064.)

3.2 flow-melting; fusing; flow-brightening; reflowing: A process by which a coating is melted in order to impart desirable properties such as brightness or improved solderability (see clause C.4).

1) 1 MPa = 1 N/mm²

2) At present at the stage of draft. (Revision of ISO 2859-1974.)