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Metallic and other inorganic coatings — Electroplated coatings of zinc with supplementary treatments on iron or steel

Revêtements métalliques et autres revêtements inorganiques — Dépôts électrolytiques de zinc avec traitements supplémentaires sur fer ou acier

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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 2081 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 3, *Electrodeposited coatings and related finishes*.

This third edition cancels and replaces the second edition (ISO 2081:1986), which has been technically revised.

Introduction

Zinc coatings are applied to iron or steel articles for protective and decorative purposes by electrodeposition from acid zinc chloride, alkaline non-cyanide zinc, and alkaline zinc cyanide solutions. Electroplated, bright zinc coatings are popular and the processes for preparing bright zinc coatings are widely used.

The ability of a zinc coating to prevent corrosion is a function of its thickness and the type of service conditions to which it is exposed. For example, the rate of corrosion of zinc will generally be greater in industrial exposures than in rural ones. The type of service condition should, therefore, be taken into consideration when specifying the minimum coating thickness. Chromate conversion coatings and other supplementary treatments enhance the corrosion resistance of electrodeposited zinc coatings and are commonly applied after electroplating.

Because the appearance and serviceability of zinc coatings depends on the surface condition of the basis metal, agreement should be reached between the interested parties that the surface finish of the basis metal is satisfactory for electroplating.

Chromate conversion coatings are omitted, or replaced by other conversion coatings, at the specific request of the purchaser. This International Standard provides the codes for all types of chromate conversion and other supplementary coatings.

Chemical conversion coatings that do not contain hexavalent chromium or are chromium-free, conforming to this International Standard, are commercially available. The appearance of these substitutes may be different from those produced with hexavalent chromium. All forms of chromate conversion coatings, alternative conversion coatings or substitutes, with the exception of phosphate coatings, can be used and are required to satisfy the corrosion requirements given in this International Standard.

Standard designations for metals and alloys can be found in References [6] to [10] in the Bibliography.