
**Zinc coatings — Guidelines and
recommendations for the protection
against corrosion of iron and steel in
structures —**

**Part 1:
General principles of design and
corrosion resistance**

*Revêtements de zinc — Lignes directrices et recommandations pour la
protection contre la corrosion du fer et de l'acier dans les
constructions —*

Partie 1: Principes généraux de conception et résistance à la corrosion



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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 14713-1 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Subcommittee SC 4, *Hot dip coatings (galvanized, etc.)*.

This first edition, together with ISO 14713-2 and ISO 14713-3, cancels and replaces ISO 14713:1999, which has been technically revised.

ISO 14713 consists of the following parts, under the general title *Zinc coatings — Guidelines and recommendations for the protection against corrosion of iron and steel in structures*:

- *Part 1: General principles of design and corrosion resistance*
- *Part 2: Hot dip galvanizing*
- *Part 3: Sherardizing*

Zinc coatings — Guidelines and recommendations for the protection against corrosion of iron and steel in structures —

Part 1:

General principles of design and corrosion resistance

1 Scope

This part of ISO 14713 provides guidelines and recommendations regarding the general principles of design which are appropriate for articles to be zinc coated for corrosion protection and the level of corrosion resistance provided by zinc coatings applied to iron or steel articles, exposed to a variety of environments. Initial protection is covered in relation to

- available standard processes,
- design considerations, and
- environments for use.

This part of ISO 14713 applies to zinc coatings applied by the following processes:

- a) hot dip galvanized coatings (applied after fabrication);
- b) hot dip galvanized coatings (applied onto continuous sheet);
- c) sherardized coatings;
- d) thermal sprayed coatings;
- e) mechanically plated coatings;
- f) electrodeposited coatings.

These guidelines and recommendations do not deal with the maintenance of corrosion protection in service for steel with zinc coatings. Guidance on this subject can be found in ISO 12944-5 and ISO 12944-8.

NOTE There are a variety of product-related standards (e.g. for nails, fasteners, ductile iron pipes, etc.) which provide specific requirements for the applied zinc coating systems which go beyond any general guidance presented in this part of ISO 14713. These specific product-related requirements will take precedence over these general recommendations.

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 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods*

ISO 2063, *Thermal spraying — Metallic and other inorganic coatings — Zinc, aluminium and their alloys*

ISO 2064, *Metallic and other inorganic coatings — Definitions and conventions concerning the measurement of thickness*

ISO 2081, *Metallic and other inorganic coatings — Electroplated coatings of zinc with supplementary treatments on iron or steel*

ISO 8044:1999, *Corrosion of metals and alloys — Basic terms and definitions*

ISO 9223, *Corrosion of metals and alloys — Corrosivity of atmospheres — Classification*

ISO 9224, *Corrosion of metals and alloys — Corrosivity of atmospheres — Guiding values for the corrosivity categories*

ISO 9226, *Corrosion of metals and alloys — Corrosivity of atmospheres — Determination of corrosion rate of standard specimens for the evaluation of corrosivity*

ISO 11844-1, *Corrosion of metals and alloys — Classification of low corrosivity of indoor atmospheres — Determination and estimation of indoor corrosivity*

ISO 12683, *Mechanically deposited coatings of zinc — Specification and test methods*

ISO 12944-5, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 5: Protective paint systems*

ISO 12944-8, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 8: Development of specifications for new work and maintenance*

ISO 14713-2, *Zinc coatings — Guidelines and recommendations for the protection against corrosion of iron and steel in structures — Part 2: Hot dip galvanizing*

ISO 14713-3, *Zinc coatings — Guidelines and recommendations for the protection against corrosion of iron and steel in structures — Part 3: Sherardizing*

EN 10240, *Internal and/or external protective coatings for steel tubes — Specification for hot dip galvanized coatings applied in automatic plants*

EN 10346, *Continuously hot-dip coated steel flat products — Technical delivery conditions*

EN 13438, *Paints and varnishes — Powder organic coatings for galvanized or sherardized steel products for construction purposes*

EN 13811, *Sherardizing — Zinc diffusion coatings on ferrous products — Specification*

EN 15520, *Thermal spraying — Recommendations for constructional design of components with thermally sprayed coatings*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1461, ISO 2063, ISO 2064, ISO 8044, ISO 12683, EN 13811 and the following apply.

3.1 atmospheric corrosion

corrosion with the earth's atmosphere at ambient temperature as the corrosive environment

(see ISO 8044:1999, 3.04)