## INTERNATIONAL STANDARD

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# Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods

Revêtements par galvanisation à chaud sur produits finis en fonte et en acier — Spécifications et méthodes d'essai



Reference number ISO 1461:2009(E)

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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 Maison 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 convertees 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 gentifying any or all such patent rights.

ISO 1461 was prepared by Technical Committee ISO/TC 107, Metallic and other inorganic coatings, Subcommittee SC 4, Hot dip coatings (galvanized, etc.).

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This third edition cancels and replaces the second edition (ISO 1461:1999), which has been technically revised. This revision reflects the experience gained pathe use of ISO 1461 and includes a simplification of procedures and presentation.

Significant changes to the text include the following:

- further refining of the scope of application of the standard texclude woven or welded mesh products that are continuously galvanized;
- adding a definition for weld seepage in Clause 3;
- adding references to the availability of secondary zinc supply;
- adding explanatory notes on coating finish;
- simplifying requirements for sampling and testing;
- related Dy adding references for the use of alternative renovation materials and for methods of adhesion testing;
- moving much informative information on the influence of the basis metal on the bet dip galvanized coatings produced and designed for galvanizing into the guidance document ISO 147

# Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods

## 1 Scope

This International Standard specifies the general properties of coatings and test methods for coatings applied by dipping fabricated test and steel articles (including certain castings) in a zinc melt (containing not more than 2 % of other metals), does not apply to the following:

- a) sheet, wire and woven or welded mesh products that are continuously hot dip galvanized;
- b) tube and pipe that are hot divalvanized in automatic plants;
- c) hot dip galvanized products (e.g. fasteners) for which specific standards exist and which might include additional requirements or requirements which are different from those of this International Standard.

NOTE Individual product standards can incorporate this International Standard for the coating by quoting its number, or can incorporate it with modifications specific to the product. Different requirements can also be made for galvanized coatings on products intended to meet specific requirements.

After-treatment/over-coating of hot dip galvanized articles is not covered by this International Standard.

#### 2 Normative references

The following referenced documents are indispensable on 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 752, Zinc ingots

ISO 1460, Metallic coatings — Hot dip galvanized coatings on ferrous materials — Gravimetric determination of the mass per unit area

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

ISO 2178, Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method

ISO 2808, Paints and varnishes — Determination of film thickness

ISO 2859-1, Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

ISO 2859-2, Sampling procedures for inspection by attributes — Part 2: Sampling plans indexed by limited quality (LQ) for isolated lot inspection

ISO 2859-3, Sampling procedures for inspection by attributes — Part 3: Skip-lot sampling procedures

ISO 3549, Zinc dust pigments for paints — Specifications and test methods

ISO 3882, Metallic and other inorganic coatings — Review of methods of measurement of thickness

ISO 10474, Steel and steel products — Inspection documents

EN 1179, Zinc and zinc alloys — Primary zinc

EN 13283, Zinc and zinc alloys — Secondary zinc

#### Terms and definitions 3

For the purposes of this document, the terms and definitions given in ISO 2064 and the following apply.

#### 3.1

hot dip galvanizing

formation of a coating of zinc and/or zinc iron alloys on iron and steel products by dipping prepared steel or cast iron in a zinc melt

#### 3.2

hot dip galvanized coating coating obtained by hot dip galvanizing

NOTE The term "hot dip galvanized coating" is subsequently referred to as the "coating".

#### 3.3

coating mass total mass of zinc and/or zinc alloys per area of surface

NOTE The coating mass is expressed in grams per square m

#### 3.4

coating thickness

total thickness of zinc and/or zinc alloys

NOTE The thickness is expressed in micrometres, μm. **3.5 significant surface** part of the article covered or to be covered by the coating and for which the coating is essential for serviceability and/or appearance

#### 3.6

#### control sample

article or group of articles from a lot that is selected for sampling

#### 3.7

#### reference area

area within which a specific number of single measurements are made

#### 3.8

#### local coating thickness

mean value of coating thickness obtained from the specific number of measurements within a reference area for a magnetic test or the single value from a gravimetric test

#### 3.9

mean coating thickness

average value of the local thicknesses