
INTERNATIONAL STANDARD 2081

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Metallic coatings — Electroplated coatings of zinc on iron or steel

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Metallic coatings — Electroplated coatings of zinc on iron or steel

0 INTRODUCTION

This International Standard covers a range of coatings of zinc for the protection of iron and steel against corrosion under various service conditions.

The minimum thickness requirements apply only to those portions of the significant surface that can be touched by a ball 20 mm in diameter.

Passivation by chromate conversion coatings gives additional protection against corrosion and shall be applied unless there is reason to the contrary.

Articles to be painted may require alternative treatment such as phosphating to provide good adhesion.

It is essential that the purchaser state the service condition number or the classification number: merely to ask for plating to be carried out in accordance with ISO 2081 without this information is insufficient.

1 SCOPE AND FIELD OF APPLICATION

This International Standard applies to electroplated coatings of zinc on iron or steel for protection against corrosion, except for the following:

- coatings applied to machine screw threads (with tolerance);
- coatings applied to sheet, strip or wire in the unfabricated form, or to coil springs.

This International Standard does not specify the surface condition of the basis metal prior to plating; agreement on the degree of roughness which is acceptable shall be reached between the interested parties.

2 REFERENCE

ISO 1463, *Metal and oxide coatings — Measurement of thickness by microscopical examination of cross-sections.*

3 DEFINITION

For the purposes of this International Standard the following definition applies:

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

When necessary the significant surface shall be the subject of agreement, and shall be indicated on drawings or by the provision of suitably marked samples.

4 CLASSIFICATION

4.1 Grading of service conditions

The service condition number indicates the severity of the service conditions in accordance with the following scale:

- 4 — exceptionally severe
- 3 — severe
- 2 — moderate
- 1 — mild

These designations are conventional and it is recommended that the choice of the service condition number corresponding to the use of the part to be plated should be the subject of agreement between the interested parties.

4.2 Classification of coatings

The classification number comprises:

- the chemical symbol, Fe, for the basis metal (iron or steel);
- the chemical symbol for zinc, Zn;
- a number indicating the minimum thickness (in micrometres) of the zinc coatings;
- the letter "c" indicating that passivation has been applied (to be omitted if agreed to the contrary — see section 6).

In the case of articles having a significant surface area less than 100 mm² this minimum thickness shall be regarded as the minimum value of average thickness measured by the method given in Annex B.

7.3 Adhesion

The coating shall continue to adhere to the basis metal when subjected to the test given in Annex C.

7.4 Continuity of passivation film

The passivation film shall be continuous over the zinc surface. The presence of a colourless film shall be verified by the test method given in Annex D.

7.5 Adhesion of passivation film

The passivation film shall be adherent and coloured films shall be tested by one of the methods given in Annexes E and F.

7.6 Corrosion resistance of colourless passivation films

Colourless passivation films shall be tested in accordance with the method given in Annex G. After the passivated article has been subjected to two cycles of the humidity

test, there shall be no breakdown of the film, or any appearance of white corrosion products. Slight staining may be ignored.

NOTE — When heat treatment is required after plating it is usual to passivate after the heat treatment process. This is because many passivation films are affected by heat. In any event, tests on passivation films shall be made after heat treatment.

7.7 Manner of specifying requirements

When ordering articles to be plated in accordance with this International Standard, the purchaser shall state, in addition to the number of the International Standard, either the service condition number denoting the severity of the condition the coating is required to withstand (see 4.1) or the classification number of the particular coating required (see 4.2). The purchaser shall also indicate any heat treatment required before and after plating.

8 SAMPLING

The method of sampling shall be agreed between the interested parties.