

# INTERNATIONAL STANDARD

**ISO  
8403**

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## **Metallic coatings — Coatings anodic to the substrate — Rating of test specimens subjected to corrosion tests**

*Revêtements métalliques — Dépôts électrolytiques anodiques par rapport au  
substrat — Cotation des éprouvettes soumises aux essais de corrosion*



Reference number  
ISO 8403 : 1991 (E)

## 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.

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.

International Standard ISO 8403 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, Sub-Committee SC 7, *Corrosion tests*.

Annex A forms an integral part of this International Standard.

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International Organization for Standardization

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# Metallic coatings — Coatings anodic to the substrate — Rating of test specimens subjected to corrosion tests

## 1 Scope

**1.1** This International Standard specifies a method of evaluating the condition of coated test specimens that have been exposed to corrosive environments for test purposes.

It is based on experience of the method with standard 10 cm × 15 cm test panels, exposed on racks at outdoor test sites in natural atmospheres.

Special precautions must be taken when rating similar panels exposed to accelerated corrosion tests. Any modifications needed to adapt the method to rating actual production parts are not considered in this International Standard.

**1.2** This method is applicable only to protective coatings that are anodic to the substrate, for example zinc coatings on steel or tin coatings on copper, with or without conversion coatings. It is not intended for use with coatings cathodic to the substrate, for which a rating system is specified in ISO 4540.

NOTE — This specification relates to process control as applicable to specially prepared test panels. It is not intended for use in rating manufactured items as artefacts. This will be covered in a subsequent International Standard.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2064 : 1980, *Metallic and other non-organic coatings — Definitions and conventions concerning the measurement of thickness.*

ISO 4540 : 1980, *Metallic coatings — Coatings cathodic to the substrate — Rating of electroplated test specimens subjected to corrosion tests.*

ISO 8044 : 1989, *Corrosion of metals and alloys — Vocabulary.*

## 3 Definitions

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

**3.1 appearance rating:** The severity of possible corrosion defects on the surface of the coating expressed by a letter code from A to H.

**3.2 corrosion rating:** The amount of corroded area of the surface of the coating expressed by a numerical value.

**3.3 corrosion grade:** The combined rating for severity and amount of corrosion defects on the coating.

**3.4 corrosion:** Physicochemical interaction between a metal and its environment which results in changes in the properties of the metal and which may often lead to impairment of the function of the metal, the environment or the technical system of which these form a part.

NOTE — This interaction is usually of an electrochemical nature.

**3.5 corrosive environment:** Environment that contains one or more corrosive agents.

**3.6 corrosive system:** System consisting of a metal and all parts of its environment which influence corrosion.

NOTE — Part of the environment may be coating, surface layer, additional electrode, etc.

**3.7 corrosion defect:** Corrosion effect of the coating and the basis metal, resulting in corrosion damage of the coating and finally the basis metal.

### NOTES

**1 corrosion effect:** Change in the corrosion system caused by corrosion.

**2 corrosion damage:** Corrosion effect which is considered detrimental to the function of the metal, the environment or the technical system of which these form a part.

**3.8 corrosion product:** Substance formed by a change of state as a result of corrosion.

**3.8.1** Where corrosion has occurred, the corrosion products may be derived from the metal coating as well as from the basis metal. The corrosion products may vary considerably in appearance and distribution, depending on both the coating and the basis metal and the corrosive medium. General corrosion produces a deposit that is more or less equally dispersed all over the metal surface while localized corrosion produces nodules of corrosion products over cavities.