INTERNATIONAL STANDARD

ISO 15329

First edition
2006-05-15

Corrosion of metals and alloys — Anodic test for evaluation of intergranular corrosion susceptibility of heat-treatable aluminium alloys

Corrosion des métaux et alliages — Essai anodique pour l'évaluation de la sensibilité à la corrosion intergranulaire des alliages d'aluminium aptes au traitement thermique

Reference number
ISO 15329:2006(E)

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Published in Switzerland

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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 15329 was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*.

Corrosion of metals and alloys — Anodic test for evaluation of intergranular corrosion susceptibility of heat-treatable aluminium alloys

1 Scope

This International Standard specifies an electrochemical method to determine susceptibility to intergranular corrosion of solution-heat-treatable aluminium alloys, that is 2XXX, 6XXX, 7XXX and 8XXX alloys, without protective coatings and in various ageing conditions.

This International Standard is applicable to cast and wrought heat-treatable aluminium alloys in the form of castings, forgings, plates, sheets, extrusions, and semi-finished or finished parts, in order to carry out a comparative assessment of alloys of different grades and thickness depending on their chemical composition and other factors, and also to check the thermal processing quality of the tested materials. The test results provide information to help to determine the intergranular corrosion resistance and thermal processing quality of the tested materials (see Clauses 8 and 9).

The test results cannot be regarded as absolute, because they are not applicable to all environments that can be met in service. They are best used in a relative manner, to compare the intergranular corrosion resistance of various heats of solution-heat-treatable aluminium alloys.

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 3696:1987, *Water for analytical laboratory use — Specification and test methods*

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

ISO 11846:1995, *Corrosion of metals and alloys — Determination of resistance to intergranular corrosion of solution heat-treatable aluminium alloys*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8044 apply.

4 Principle

The method is based on the principle that, if an aluminium alloy is susceptible to intergranular corrosion, this susceptibility will show as a breakdown during the anodic polarization of the alloy when exposed to solutions containing chloride ions.

The sensitivity of solution-heat-treatable aluminium alloys to intergranular corrosion depends on the alloy composition, method of manufacturing, solution heat treatment, quench treatment, and artificial precipitation hardening (ageing) treatment.