
**Anodizing of aluminium and its alloys —
Determination of electric breakdown
potential**

*Anodisation de l'aluminium et de ses alliages — Détermination de la
tension électrique de claquage*



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2010

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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 2376 was prepared by Technical Committee ISO/TC 79, *Light metals and their alloys*, Subcommittee SC 2, *Organic and anodic oxidation coatings on aluminium*.

This second edition cancels and replaces the first edition (ISO 2376:1972), which has been technically revised.

This document is a preview generated by EVS

Anodizing of aluminium and its alloys — Determination of electric breakdown potential

1 Scope

This International Standard specifies test methods for the determination of the electric breakdown potential of anodic oxidation coatings on aluminium and its alloys, on flat or near-flat surfaces and on round wire. The methods are applicable to anodic oxidation coatings used primarily as electrical insulators.

The methods are not applicable to coatings in the vicinity of cut edges, the edges of holes, or sharp changes of angle on, for example, extruded shapes.

NOTE 1 The methods described do not give satisfactory results for unsealed coatings.

NOTE 2 Electric breakdown potential is affected by relative humidity.

2 Principle

The electric voltage at which current first passes through an anodic oxidation coating is measured; this breakdown potential is a function of the dielectric characteristics and the insulation properties of the oxidation coatings. The breakdown potential depends upon the thickness of the coating, as well as on many other factors, particularly the composition of the basis metal, its surface condition, the effectiveness of sealing, the dryness of the sample and the degree of ageing.

3 Apparatus

3.1 Power supply, from a suitable 50 Hz or 60 Hz source.

3.2 Transformer (a.c.), having an output with a waveform as nearly sinusoidal as possible, capable of producing the potential required.

3.3 Voltage regulator, enabling the test potential to be increased gradually from any point without interruption, and providing an essentially undistorted waveform so that the peak potential is within the limit $\sqrt{2} \pm 5\%$ (i.e. 1,34 to 1,48) of the root-mean-square (r.m.s.) potential.

3.4 Current limiting resistor, 0,5 M Ω , in series with secondary winding of the transformer and the test electrode probe (3.6).

3.5 Potential-measuring device, which gives r.m.s. values, expressed in volts.

3.6 Electrode probe, made from conducting material, suitably insulated for handling purposes, free to move as required and adequately supported. The contact surface shall be spherical with a diameter of 3 mm to 8 mm and shall be maintained in a smooth, untarnished condition. The design of the probe shall be such that, when the spherical surface is placed on the surface of the anodized test specimen, the total force exerted on the coating is 0,5 N to 1,0 N (a probe of mass 50 g to 100 g is suitable).