

Anodizing of aluminium and its alloys - General specifications for anodic oxidation coatings on aluminium

This document is a preview generated by EVS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 7599:2010 sisaldab Euroopa standardi EN ISO 7599:2010 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 30.09.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 01.07.2010.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 7599:2010 consists of the English text of the European standard EN ISO 7599:2010.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 30.09.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 01.07.2010.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

ICS 25.220.20

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: 605 5050; E-mail: info@evs.ee

English Version

Anodizing of aluminium and its alloys - General specifications for anodic oxidation coatings on aluminium (ISO 7599:2010)

Anodisation de l'aluminium et de ses alliages -
Spécifications générales pour couches anodiques sur
aluminium (ISO 7599:2010)

Anodisieren von Aluminium und Aluminiumlegierungen -
Allgemeine Spezifikationen für anodisch erzeugte
Oxidschichten auf Aluminium (ISO 7599:2010)

This European Standard was approved by CEN on 9 June 2010.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 7599:2010) has been prepared by Technical Committee ISO/TC 79 "Light metals and their alloys" in collaboration with Technical Committee CEN/TC 132 "Aluminium and aluminium alloys" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12373-1:2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 7599:2010 has been approved by CEN as a EN ISO 7599:2010 without any modification.

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Information supplied by customer to anodizer	4
5 Tests	5
6 Coating thickness	6
7 Quality of sealing	7
8 Appearance and colour	8
9 Corrosion resistance	9
10 Abrasion resistance	9
11 Resistance to cracking by deformation	9
12 Fastness to light and ultraviolet radiation	9
13 Light reflection properties	10
14 Electrical breakdown potential	12
15 Continuity of coating	12
16 Mass per unit area (surface density) of coating	12
Annex A (informative) Guide to grades of aluminium for anodizing	13
Annex B (informative) Guidance on surface preparation	14
Annex C (normative) Interpretation of average and local thickness requirements	16
Annex D (informative) Standard test panels for calibrating test apparatus for measuring the thickness of anodic oxidation coatings on aluminium	17
Annex E (informative) Guidance on cleaning materials for external architectural applications	20
Annex F (informative) Summary of information to be supplied by the customer to the anodizer	21
Bibliography	22

Anodizing of aluminium and its alloys — General specifications for anodic oxidation coatings on aluminium

1 Scope

This International Standard lays down a method for specifying decorative and protective anodic oxidation coatings on aluminium (including aluminium-based alloys). It defines the characteristic properties of anodic oxidation coatings, lists methods of test for checking the characteristic properties, provides minimum performance requirements, and gives information on the grades of aluminium suitable for anodizing and the importance of pretreatment to ensure the required appearance or texture of the finished work.

It is not applicable to

- a) non-porous oxidation coatings of the barrier layer type,
- b) oxidation coatings produced by chromic acid or phosphoric acid anodizing,
- c) oxidation coatings intended merely to prepare the substrate for subsequent application of organic coatings or electrodeposition of metals,
- d) hard anodic oxidation coatings used mainly for engineering purposes, for which abrasion and wear resistance are the primary characteristics (see ISO 10074).

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 1463, *Metallic and oxide coatings — Measurement of coating thickness — Microscopical method*

ISO 2085, *Anodizing of aluminium and its alloys — Check for continuity of thin anodic oxidation coatings — Copper sulfate test*

ISO 2106, *Anodizing of aluminium and its alloys — Determination of mass per unit area (surface density) of anodic oxidation coatings — Gravimetric method*

ISO 2128, *Anodizing of aluminium and its alloys — Determination of thickness of anodic oxidation coatings — Non-destructive measurement by split-beam microscope*

ISO 2143, *Anodizing of aluminium and its alloys — Estimation of loss of absorptive power of anodic oxidation coatings after sealing — Dye-spot test with prior acid treatment*

ISO 2360, *Non-conductive coatings on non-magnetic electrically conductive basis materials — Measurement of coating thickness — Amplitude-sensitive eddy-current method*

ISO 2376, *Anodizing of aluminium and its alloys — Determination of electric breakdown potential*

ISO 2931, *Anodizing of aluminium and its alloys — Assessment of quality of sealed anodic oxidation coatings by measurement of admittance*

ISO 3210, *Anodizing of aluminium and its alloys — Assessment of quality of sealed anodic oxidation coatings by measurement of the loss of mass after immersion in phosphoric acid/chromic acid solution*

ISO 3211, *Anodizing of aluminium and its alloys — Assessment of resistance of anodic oxidation coatings to cracking by deformation*

ISO 7583, *Anodizing of aluminium and its alloys — Vocabulary*

ISO 8251:—¹⁾, *Anodizing of aluminium and its alloys — Measurement of abrasion resistance of anodic oxidation coatings*

ISO 8993, *Anodizing of aluminium and its alloys — Rating system for the evaluation of pitting corrosion — Chart method*

ISO 8994, *Aluminium and aluminium alloys — Rating system for the evaluation of pitting corrosion — Grid method*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7583 and the following apply.

**3.1
anodized aluminium**
aluminium with an anodic oxidation coating, produced by an electrolytic oxidation process in which the surface of the aluminium is converted to a mainly oxidation coating having protective, decorative or functional properties

**3.2
clear anodized aluminium**
anodized aluminium with a substantially colourless, translucent anodic oxidation coating

**3.3
colour anodized aluminium**
anodized aluminium coloured either during anodizing or by subsequent colouring processes

**3.4
integral colour anodized aluminium**
anodized aluminium that has been anodized using an appropriate (usually organic acid-based) electrolyte which produces a coloured oxidation coating during the anodizing process itself

**3.5
electrolytically coloured anodized aluminium**
anodized aluminium with an anodic oxidation coating that has been coloured by the electrolytic deposition of a metal or metal oxide into the pore structure

**3.6
dyed anodized aluminium**
anodized aluminium with an anodic oxidation coating, coloured by absorption of dye-stuff or pigments into the pore structure

1) To be published. (Revision of ISO 8251:1987 and ISO 8252:1987)