

Anodizing of aluminium and its alloys - Method for specifying decorative and protective anodic oxidation coatings on aluminium (ISO 7599:2018)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 7599:2018 sisaldab Euroopa standardi EN ISO 7599:2018 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 7599:2018 consists of the English text of the European standard EN ISO 7599:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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EUROPEAN STANDARD

EN ISO 7599

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English Version

Anodizing of aluminium and its alloys - Method for specifying decorative and protective anodic oxidation coatings on aluminium (ISO 7599:2018)

Anodisation de l'aluminium et de ses alliages -
Méthode de spécification des caractéristiques des
revêtements décoratifs et protecteurs obtenus par
oxydation anodique sur aluminium (ISO 7599:2018)

Anodisieren von Aluminium und
Aluminiumlegierungen - Verfahren zur Spezifizierung
dekorativer und schützender anodisch erzeugter
Oxidschichten auf Aluminium (ISO 7599:2018)

This European Standard was approved by CEN on 29 December 2017.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 7599:2018) 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 August 2018, and conflicting national standards shall be withdrawn at the latest by August 2018.

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

This document supersedes EN ISO 7599:2010.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 7599:2018 has been approved by CEN as EN ISO 7599:2018 without any modification.

Contents

	Page
Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Information supplied by the customer to the anodizer	2
4.1 General.....	2
4.2 Essential information.....	2
4.3 Additional information.....	3
5 Tests	3
5.1 Sampling procedures.....	3
5.2 Test specimens.....	4
5.3 Acceptance tests.....	4
5.4 Referee tests.....	4
5.5 Production control tests.....	4
6 Coating thickness	4
6.1 General.....	4
6.2 Classification.....	4
6.3 Measurement of thickness.....	5
7 Quality of sealing	5
7.1 General.....	5
7.2 Assessment of quality of hydrothermal sealing.....	5
7.2.1 Referee test.....	5
7.2.2 Production control tests.....	6
7.3 Assessment of quality of cold sealing.....	6
7.4 Assessment of quality of other sealing treatments.....	6
8 Appearance and colour	6
8.1 Visible defects.....	6
8.2 Colour and surface texture.....	6
8.3 Production control.....	7
9 Corrosion resistance	7
10 Abrasion (wear) resistance	7
11 Resistance to cracking by deformation	8
12 Fastness to light and ultraviolet radiation	8
12.1 General.....	8
12.2 Fastness to light.....	8
12.3 Fastness to ultraviolet radiation.....	8
13 Light reflection properties	8
13.1 General.....	8
13.2 Total reflectance.....	9
13.3 Specular reflectance (high gloss).....	9
13.4 Specular gloss (medium or low gloss).....	10
13.5 Diffuse reflectance.....	10
13.6 Image clarity.....	10
14 Electrical breakdown potential	10
15 Continuity of coating	10
16 Mass per unit area (surface density) of coating	10
Annex A (informative) Guide to grades of aluminium for anodizing	11

Annex B (informative) Guidance on surface preparation	12
Annex C (normative) Interpretation of average and local thickness requirements	14
Annex D (informative) Calibration standards for eddy-current apparatus used to measure the thickness of anodic oxidation coatings on aluminium	15
Annex E (informative) Guidance on cleaning materials for external architectural applications	19
Annex F (informative) Summary of information to be supplied by the customer to the anodizer	20
Bibliography	21

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This third edition cancels and replaces the second edition (ISO 7599:2010), which has been technically revised.

The main changes compared to the previous edition are as follows:

- certain terms and definitions have been deleted;
- [Annex D](#) has been revised.

Anodizing of aluminium and its alloys — Method for specifying decorative and protective anodic oxidation coatings on aluminium

1 Scope

This document specifies 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 anodic oxidation coatings of the barrier layer type,
- b) anodic oxidation coatings produced by chromic acid or phosphoric acid anodizing,
- c) anodic oxidation coatings intended merely to prepare the substrate for subsequent application of organic coatings or for the electrodeposition of metals, and
- 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 documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 base metals — 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 acid solution(s)*

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 — Terms and definitions*

ISO 8251, *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, *Anodizing of aluminium and its alloys — Rating system for the evaluation of pitting corrosion — Grid method*

ISO 9220, *Metallic coatings — Measurement of coating thickness — Scanning electron microscope 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 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Information supplied by the customer to the anodizer

4.1 General

The information required from the customer by the anodizer in order to anodize the product correctly is given in 4.2 and 4.3: 4.2 specifies information that is essential whenever a product is to be anodized; 4.3 identifies additional information required for particular product applications. A summary of the subclause references relating to this information is given in Annex E.

NOTE Certain properties (for example, high specular reflectance) are only obtainable by the use of special alloys, and some properties can be incompatible with others.

The customer and the anodizer can share the information about cleaning in case of external architectural application (see Annex E).

4.2 Essential information

The following information shall be supplied by the customer to the anodizer, if necessary in consultation with the aluminium supplier and/or anodizer:

- a) a reference to this document, i.e. ISO 7599;
- b) the intended service use of the article to be anodized;
- c) the specification of the aluminium to be anodized;
- d) an indication of the significant surface(s) of the article to be anodized;
- e) the surface preparation to be used on the aluminium before anodizing;
- f) the anodic oxidation coating thickness class required (see 6.2);
- g) whether a clear or coloured anodized finish is required;