



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 2106:2020

Anodizing of aluminium and its alloys -  
Determination of mass per unit area  
(surface density) of anodic oxidation  
coatings - Gravimetric method (ISO  
2106:2019)

**I.S. EN ISO 2106:2020**

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## National Foreword

I.S. EN ISO 2106:2020 is the adopted Irish version of the European Document EN ISO 2106:2020, Anodizing of aluminium and its alloys - Determination of mass per unit area (surface density) of anodic oxidation coatings - Gravimetric method (ISO 2106:2019)

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EUROPEAN STANDARD

EN ISO 2106

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2020

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Supersedes EN ISO 2106:2011

English Version

## Anodizing of aluminium and its alloys - Determination of mass per unit area (surface density) of anodic oxidation coatings - Gravimetric method (ISO 2106:2019)

Anodisation de l'aluminium et de ses alliages -  
Détermination de la masse surfacique (masse par unité  
de superficie) des couches d'oxydation anodique -  
Méthode gravimétrique (ISO 2106:2019)

Anodisieren von Aluminium und  
Aluminiumlegierungen - Bestimmung der Masse je  
Flächeneinheit (flächenbezogene Masse) von anodisch  
erzeugten Oxidschichten - Gravimetrisches Verfahren  
(ISO 2106:2019)

This European Standard was approved by CEN on 2 January 2020.

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

**EN ISO 2106:2020 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

## **European foreword**

This document (EN ISO 2106:2020) 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of an identical text or by endorsement, at the latest by July 2020, and conflicting national standards shall be withdrawn at the latest by July 2020.

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 2106:2011.

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## **Endorsement notice**

The text of ISO 2106:2019 has been approved by CEN as EN ISO 2106:2020 without any modification.

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# INTERNATIONAL STANDARD

**ISO  
2106**

Fourth edition  
2019-11

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

*Anodisation de l'aluminium et de ses alliages — Détermination  
de la masse par unité de surface (masse surfacique) des couches  
d'oxydation anodique — Méthode gravimétrique*



Reference number  
ISO 2106:2019(E)

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**ISO 2106:2019(E)**



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<b>Contents</b>		Page
<b>Foreword</b> .....		<b>iv</b>
<b>1 Scope</b> .....		<b>1</b>
<b>2 Normative references</b> .....		<b>1</b>
<b>3 Terms and definitions</b> .....		<b>1</b>
<b>4 Principle</b> .....		<b>1</b>
<b>5 Reagents</b> .....		<b>2</b>
<b>6 Apparatus</b> .....		<b>2</b>
<b>7 Preparation of test specimen</b> .....		<b>2</b>
7.1 Sampling.....		2
7.2 Size.....		3
7.3 Method of degreasing.....		3
<b>8 Procedure</b> .....		<b>3</b>
8.1 Method using test solution A.....		3
8.1.1 Treatment before test.....		3
8.1.2 Performance of the test.....		3
8.2 Method using test solution B.....		3
8.2.1 Treatment before test.....		3
8.2.2 Performance of the test.....		3
<b>9 Expression of results</b> .....		<b>4</b>
<b>10 Test report</b> .....		<b>5</b>
<b>Annex A (normative) Method for the degreasing and drying of test specimens</b> .....		<b>6</b>
<b>Bibliography</b> .....		<b>7</b>

## ISO 2106:2019(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.

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](http://www.iso.org/directives)).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 [www.iso.org/iso/foreword.html](http://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 fourth edition cancels and replaces the third edition (ISO 2106:2011), which has been technically revised. The main changes compared with the previous edition are as follows:

- phosphoric acid/sodium molybdate solution has been added as a test solution;
- the information of the test specimen has been added;
- [Formula \(2\)](#) has been corrected.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

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

## 1 Scope

This document specifies a gravimetric method for determining the mass per unit area (surface density) of anodic oxidation coatings on aluminium and its alloys.

The method is applicable to all oxidation coatings formed by anodizing aluminium and its alloys, either cast or wrought, and is suitable for most aluminium alloys, except those in which the mass fraction of copper is greater than 6 %.

NOTE 1 A high content of copper in the alloy can lead to increased dissolution of the substrate aluminium.

NOTE 2 If the thickness is known with sufficient precision (for example, using the method specified in ISO 2128), the determination of the mass per unit area (surface density) of the coatings will enable its apparent density to be calculated. Conversely, if the conditions of application of the coating and its density are known, the determination of its mass per unit area (surface density) can permit the calculation of the average mass and an approximate evaluation of the thickness (see [Clause 9](#)).

## 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 7583, *Anodizing of aluminium and its alloys — Terms and definitions*

## 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 Principle

The anodic oxidation coating on a weighed test specimen of known surface area is dissolved without significantly attacking the substrate aluminium, using a solution of phosphoric acid and chromium(VI) oxide or phosphoric acid and sodium molybdate of specified concentration.

After dissolution of the coating, the test specimen is reweighed in order to calculate the loss in mass. The mass loss is related to the unit area covered by the coating, and is expressed in milligrams of coating per square decimetre of surface.

NOTE This is a destructive test.

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