

ICS 77.150.10; 67.250

English Version

## Aluminium and aluminium alloys - Requirements for anodised products for use in contact with foodstuff

Aluminium et alliages d'aluminium - Spécifications pour les produits anodisés destinés à entrer en contact avec les aliments

Aluminium und Aluminiumlegierungen - Anforderungen an anodisierte Erzeugnisse, die in Kontakt mit Lebensmitteln kommen

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## Foreword

This document (EN 14392:2007) has been prepared by Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", the secretariat of which is held by AFNOR.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2008 and conflicting national standards shall be withdrawn at the latest by May 2008.

Within its programme of work, Technical Committee CEN/TC 132 has entrusted CEN/TC 132/WG 9 to prepare the following standard:

EN 14392, *Aluminium and aluminium alloys — Requirements for anodised products for use in contact with foodstuff.*

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.

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## 1 Scope

This European Standard specifies requirements for coloured or uncoloured anodic oxidation coatings on wrought and cast products in aluminium and aluminium alloys for use in contact with food.

These requirements cover the chemical composition of the bath, the sealing and the properties of the obtained anodic oxidation coatings. They do not cover dyestuffs and pigments but do cover the metallic deposits produced by electrolytic colouring.

## 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.

EN 601, *Aluminium and aluminium alloys — Castings — Chemical composition of castings for use in contact with foodstuff*

EN 602, *Aluminium and aluminium alloys — Wrought products — Chemical composition of semi products used for the fabrication of articles for use in contact with foodstuff*

EN 10204, *Metallic products — Types of inspection documents*

EN 12258-1:1998, *Aluminium and aluminium alloys — Terms and definitions — Part 1: General terms*

EN 12373-1, *Aluminium and aluminium alloys — Anodizing — Part 1: Method for specifying decorative and protective anodic oxidation coatings on aluminium*

EN 12373-4, *Aluminium and aluminium alloys — Anodizing — Part 4: Estimation of loss of absorptive power of anodic oxidation coatings after sealing by dye spot test with prior acid treatment*

EN 12373-5, *Aluminium and aluminium alloys — Anodizing — Part 5: Assessment of quality of sealed anodic oxidation coatings by measurement of admittance*

EN 12373-7, *Aluminium and aluminium alloys — Anodizing — Part 7: Assessment of quality of sealed anodic oxidation coatings by measurement of the loss of mass after immersion in phosphoric acid/chromic acid solution with prior acid treatment*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12258-1:1998 and the following apply.

### 3.1

#### **anodic oxidation coating**

coating obtained by an electrolytic oxidation process, having protective, decorative or functional properties

### 3.2

#### **sealing**

treatment of anodic oxide coating to reduce porosity and the absorption capacity of the coating by hydrothermal processes carried out after anodising

### 3.3

#### **order document**

document or set of documents agreed between supplier and purchaser at the time of ordering

NOTE An order document can be an order of the purchaser confirmed by the supplier or a quotation of the supplier confirmed by the purchaser.

## 4 Ordering information

In addition to the information necessary for sufficient definition of the product and its properties as defined by EN 12373-1, order documents shall contain the following information:

- a) the number of this European Standard;
- b) any requirement on the periodicity of inspection certificates (see Clause 8).

## 5 Chemical composition of the aluminium or aluminium alloy

The chemical composition of the aluminium or aluminium alloys for use in contact with food, intended to be anodised, shall comply with the requirements of EN 601 or EN 602, as applicable.

## 6 Chemical composition of the anodization bath

The anodization of aluminium or aluminium alloy products intended to be in contact with foodstuff shall be carried out in a diluted aqueous solution of one or more of the following acids:

- sulfuric acid;
- sulfomaleic acid;
- sulfosalicylic acid;
- oxalic acid;
- sulfophtalic acid;
- phosphoric acid.

## 7 Sealing

### 7.1 General

The anodic oxidation coating shall be sealed unless the coating has been produced in a bath containing only diluted phosphoric acid, or unless the product on which the anodic oxidation coating has been produced will receive another organic or inorganic coating prior to use in contact with food.

### 7.2 Composition of the sealing bath

Sealing shall be done in distilled or demineralized water, which may contain appropriate additives.

The inspection certificate shall confirm that the additives and their respective concentrations in the sealing bath comply with current legal requirements.

### **7.3 Technical parameters of the sealing process**

All the technical parameters of the sealing process, especially the temperature and pH of the bath, the duration of the treatment and the nature and concentration of additives shall be chosen to minimise the absorptive power of the anodic oxidation coating and maximise its chemical resistance and to minimize the migration of potentially hazardous additives.

### **7.4 Quality assurance and quality assessment**

The producer shall set up a suitable quality assurance system in order to monitor the quality of the sealing. The method described in EN 12373-4 and EN 12373-5 shall be used for routine control, and the method described in EN 12373-7 for calibration purpose.

NOTE Quality assurance and quality assessment can be done in the framework of a recognised European quality label such as QUALANOD<sup>1)</sup>.

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## **8 Demonstration of conformity with the present standard**

The anodizing of aluminium and aluminium alloys products for use in contact with food shall be carried out in the framework of a quality assurance system.

This quality assurance system shall allow traceability of a delivered lot to the parameters of the production process that are relevant to the present standard (see Clauses 5 to 7).

The manufacturer shall establish an inspection certificate "3.1" according to EN 10204 which certifies compliance of the delivered products with the requirements of the present standard. Unless otherwise agreed upon between manufacturer and purchaser, this certificate can be issued at the discretion of the manufacturer either for each delivered lot, or periodically for all products delivered under the present standard within a period of time not exceeding twelve months.

## **Annex A** (informative)

### **A–deviations**

A- deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.

This European Standard does not fall under any Directive of the EU. In the relevant CEN/ CENELEC countries these A-deviations are valid instead of the provisions of the European Standard until they have been removed.

#### **Deviation**

7.1 (France) The Order of 27th August 1987 concerning aluminium or aluminium alloys materials and objects in contact with foodstuffs, products and food drinks, article 5, enumerates authorized acids put in contact with the above products intended for the French territory.