# SLOVENSKI STANDARD
# SIST EN 601:1998

**01-april-1998**

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**Aluminij in aluminijeve zlitine - Ulitki - Kemiļ na sestava ulitkov, ki se uporabljajo v stiku s hrano**

Aluminium and aluminium alloys - Castings - Chemical composition of castings for use in contact with food

Aluminium und Aluminiumlegierungen - Gußstücke - Chemische Zusammensetzung von Gußstücken, die in Kontakt mit Lebensmitteln kommen



Aluminium et alliages d'aluminium - Pieces moulées - Composition chimique des pieces moulées destinées a entrer en contact avec les aliments



**Ta slovenski standard je istoveten z: EN 601:1994**

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Descriptors: Aluminium, aluminium alloys, castings, cooking appliances, preservation, food-container contact, specifications, chemical composition, maximum contents

English version

# Aluminium and aluminium alloys - Castings - Chemical composition of castings for use in contact with food

Aluminium et alliages d'aluminium - Pièces moulées - Composition chimique des pièces moulées destinées à entrer en contact avec les aliments

Aluminium und Aluminiumlegierungen - Gußstücke - Chemische Zusammensetzung von Gußstücken, die in Kontakt mit Lebensmitteln kommen



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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CEN**

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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## Contents list

## Foreword

This draft European Standard has been drawn up by CEN/TC 132 "Aluminium and aluminium alloys", whose Secretariat is held by the Association Française de Normalisation (AFNOR).

Within its programme of work, Technical Committee CEN/TC 132 has entrusted CEN/TC 132 WG 9 "Aluminium and aluminium alloy cast and wrought products in contact with food" to prepare the following standard :

| | |
|---|---|
| EN 601 | Aluminium and aluminium alloys - Castings - Chemical composition of castings for use in contact with food. |

CEN/TC 132 met on 20 and 21 October 1992 in Paris and agreed on the text to be submitted to CEN members for formal vote.

The following countries were represented at that meeting : BELGIUM - DENMARK - FRANCE - GERMANY - ITALY - NORWAY - SPAIN - SWEDEN - SWITZERLAND - UNITED-KINGDOM.

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 april 1995, and conflicting national standards shall be withdrawn at the latest by april 1995.



According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

## 1 Scope

This European Standard specifies the maximum percentage content of alloying elements and impurities in aluminium and aluminium alloy cast materials and articles designed to be in contact with food.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

prEN 1706 Aluminium and aluminium alloys - Castings - Chemical composition and mechanical properties (00132024) [1)]

## 3 Definitions

For the purposes of this standard the following definitions apply:



### 3.1 aluminium



Metal with a minimum content of 99,0 % by mass of aluminium, provided that the content by mass of any other element does not exceed the limit specified in the table 1.

**Table 1 : Aluminium - Other elements**

| Element | Maximum content % (by mass) |
|---|---|
| Iron + Silicon | 1,0 |
| Copper | 0,10 (if Cr and / or Mn ≥ 0,05)<br>0,20 (if Cr < 0,05 and Mn < 0,05) |
| Other elements [1)] each | 0,10 |
| 1) Other elements are for example, Cr, Mg, Mn, Ni, Zn. | |

[1)] In preparation

### 3.2 aluminium alloy

Metallic substance in which aluminium predominates by mass over each of the other elements, provided that :

a) the content by mass of at least one of the other elements, or iron plus silicon taken together, is greater than the limits specified in table 1, or ;

b) the total content by mass of such other elements exceeds 1,0 %.

### 3.3 casting

Product at or near finished shape, formed by solidification of a metal or alloy in a mould.

## 4 Maximum permissible content of elements for foodstuff application

### 4.1 Cast aluminium

The content by mass of the other elements which are present in cast aluminium shall not exceed the following limits :



- iron + silicon ≤ 1,0 % ;

- chromium, magnesium, manganese, nickel, zinc, titanium, tin ≤ 0,10 % each ;



- copper ≤ 0,10 %. Copper is permitted in a proportion greater than 0,10 % but not more than 0,20 % and provided that neither the chromium nor manganese content exceeds 0,05 % ;

- other elements ≤ 0,05 % each.

### 4.2 Cast aluminium alloys

The content by mass of the elements which are added to form aluminium alloy cast materials and articles or which are present as impurities, shall not exceed the maximum values given in table 2.

**Table 2 : Aluminium alloys - Maximum content of elements**

| Element | Maximum content % (by mass) |
|---|---|
| Silicon | 13,5 |
| Iron | 2,0 |
| Copper | 0,6 |
| Manganese | 4,0 |
| Magnesium [1] | 11,0 |
| Chromium | 0,35 |
| Nickel | 3,0 |
| Zinc | 0,25 |
| Antimony | 0,2 |
| Tin | 0,10 |
| Strontium | 0,2 |
| Zirconium | 0,3 |
| Titanium | 0,3 |
| Other elements [2] | 0,05 each<br>0,15 in total |

[1] Alloys containing more than 5 % magnesium shall not be used for the production of pressure resisting parts in pressure cooking applications.

[2] For some alloying elements (e.g. Ag) as mentioned under "Other elements" the maximum content is limited at 0,05 % because of insufficient knowledge about behaviour in contact with food. Higher limits may be introduced when more information is available.



## 5 Selection of cast aluminium and aluminium alloys

The cast aluminium and aluminium alloys which shall be used for the fabrication of articles for use in contact with food are those which conform with the requirements in 4.1 or 4.2 as applicable.

For every use of a standardized cast aluminium or aluminium alloy for the fabrication of articles for use in contact with food, the conformity with this European Standard shall be established by checking the maximum contents specified in prEN 1706 against the requirements in 4.1 or 4.2 as applicable.