BRITISH STANDARD

BS EN
602:2004

Aluminium and aluminium alloys — Wrought products — Chemical composition of semi-finished products used for the fabrication of articles for use in contact with foodstuff

The European Standard EN 602:2004 has the status of a British Standard

ICS 67.250; 77.150.10

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 602:2004. It supersedes BS EN 602:1995 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee NFE/35, Light metals and their alloys, to Subcommittee NFE/35/5, Wrought aluminium and aluminium alloys, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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Summary of pages

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EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 602

April 2004

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Supersedes EN 602:1994

English version

Aluminium and aluminium alloys - Wrought products - Chemical composition of semi-finished products used for the fabrication of articles for use in contact with foodstuff

Aluminium et alliages d'aluminium - Produits corroyés - Composition chimique des demi-produits utilisés pour la fabrication d'articles destinés à entrer en contact avec les denrées alimentaires

Aluminium und Aluminiumlegierungen - Kneterzeugnisse - Chemische Zusammensetzung von Halbzeug für die Herstellung von Erzeugnissen, die in Kontakt mit Lebensmitteln kommen

This European Standard was approved by CEN on 2 February 2004.

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Ref. No. EN 602:2004: E

Contents

Foreword

This document (EN 602:2004) has been prepared by 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of an identical text or by endorsement, at the latest by October 2004 and conflicting national standards shall be withdrawn at the latest by October 2004.

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 a revision of the following standard :

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

This revision consists mainly in the addition of a new clause 6.

This document supersedes EN 602:1994.

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

1 Scope

This European Standard specifies the maximum percentage content of alloying elements and impurities present in wrought aluminium and aluminium alloys which are fabricated into materials and articles designed to be in contact with foodstuff. It contains provisions for the demonstration of conformity of products with the present standard.

NOTE 1 Materials include semi-finished products. Articles are finished goods.

NOTE 2 Some of the products listed in the present standard can be subject to patent or patent applications, and their listing herein does not in anyway imply the granting of a licence under such patent right.

CEN/TC 132 affirms it is its policy that in the case when a patentee refuses to grand licenses on standardized standard products under reasonable and not discriminatory conditions, then this product shall be removed from the corresponding standard.

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 (including amendments).

EN 573-3, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition*.

EN 10204:1991, *Metallic products — Types of inspection documents.*

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

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 12258-1:1998 and the following 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 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) 0,20 (if Cr < 0,05 and Mn < 0,05)
Other elements[a] each	0,10
[a] Other elements are for example, Cr, Mg, Mn, Ni, Zn.	

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
wrought product
product obtained by hot and/or cold working processes such as extruding, forging, hot rolling, cold rolling or drawing, either exclusively or in combination. Examples for wrought products are rod/bar, wire, tube, profile, sheet, strip, forging

4 Maximum permissible content of elements for foodstuff application

4.1 Wrought aluminium

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

— iron + silicon ≤ 1,0 % ;

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

— copper ≤ 0,1 %. 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 Wrought aluminium alloys

The content by mass of the elements which are added to form wrought aluminium alloys 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[a]	11,0
Chromium	0,35
Nickel	3,0
Zinc	0,25
Zirconium	0,3
Titanium	0,3
Other elements[b]	0,05 each 0,15 in total

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

[b] 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 wrought aluminium and wrought aluminium alloys

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

For every use of a standardised wrought aluminium or wrought aluminium alloy for the fabrication of articles for use in contact with foodstuff, the conformity with this European Standard shall be established by checking the maximum contents specified in EN 573-3 against the requirements in 4.1 or 4.2 as applicable.

NOTE It is strongly recommended to use standardised wrought aluminium or wrought aluminium alloys.

The selection of the wrought aluminium or wrought aluminium alloy for a given application shall be the responsibility of the end product manufacturer, depending on the intended final use.

6 Demonstration of conformity with the present standard

The manufacture of wrought products used for the fabrication of articles for use in contact with food shall be carried out in the framework of a quality assurance system. Within this quality assurance system, the manufacturer shall maintain a procedure to control the requirements of the present standard (see clause 4). Special attention shall be given to :

— the qualification of raw materials entering into the formulation of the products ; and to

— traceabillity of delivered products to the measurement of chemical composition of the materials used (see clause 5).

NOTE The qualification of raw materials can be based either on actual measurements done by the producer or on certificates of conformity obtained from the supplier of said raw material.

The manufacturer shall establish an inspection certificate 3.1 according to EN 10204:1991, which certify 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 shipment, or periodically for all products delivered under the present standard within a period of time not exceeding twelve months.

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