



SLOVENSKI STANDARD

SIST EN 611-1:1998

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Kositer in kositrove zlitine - Kositer-antimonove zlitine in izdelki iz njih - 1. del: Kositer-antimonove zlitine

Tin and tin alloys - Pewter and pewterware - Part 1: Pewter

Zinn und Zinnlegierungen - Zinnlegierungen und Zinngerät - Teil 1: Zinnlegierungen

Étain et alliages d'étain - Étain pour la fabrication d'objets en étain et objets en étain -
Partie 1: Étain pour la fabrication d'objets en étain

Ta slovenski standard je istoveten z: **EN 611-1:1995**

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ICS:

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| 77.120.60 | Svinec, cink, kositer in njihove zlitine | Lead, zinc, tin and their alloys |
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EUROPEAN STANDARD

EN 611-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 1995

ICS 77.120.60

Descriptors: tin, tin alloys, ingots, sheets, manufacturing, works of art, specifications, chemical composition, sampling, marking

English version

Tin and tin alloys - Pewter and pewterware - Part 1: Pewter

Etain et alliages d'étain - Etain pour la fabrication d'objets en étain et objets en étain - Partie 1: Etain pour la fabrication d'objets en étain

Zinn und Zinnlegierungen - Zinnlegierungen und Zinngerät - Teil 1: Zinnlegierungen

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CEN

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

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 220 "Tin and tin alloys" of which the secretariat is held by BSI.

This draft standard consists of two parts, of which Part 1 specifies the requirements for pewter alloys. The compositions of pewter alloys in Part 1 are based largely on proposals from the European Pewter Union. Part 2 of EN 611 will specify requirements for pewterware, made from the pewter alloys specified in Part 1.

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of an identical text or by endorsement, at the latest by January 1996, and conflicting national standards shall be withdrawn at the latest by January 1996.

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 and the United Kingdom.

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1 Scope

This Part of EN 611 specifies the chemical composition of pewter alloys to be used for the manufacture of pewterware. The specified compositions apply to the alloy in the form of ingots, sheets and blanks.

This Part of prEN 611 also specifies the chemical composition of the solders to be used for the joining of:

- a) pewterware which may reasonably be expected to come into contact with foodstuffs; and
- b) pewterware for other purposes.

NOTE: The requirements for pewterware and the procedures for sampling pewterware are specified in prEN 611-2.

2 Normative references

This part of 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.

| | |
|----------|--|
| EN 610 | Tin and tin alloys - Ingot tin |
| EN 29453 | Soft solder alloys - Chemical compositions and forms |

3 Definitions

For the purposes of this standard the following definitions apply:

- 3.1 **ingot**: Cast, unwrought product in a form suitable only for remelting.
- 3.2 **sheet**: Rolled flat product supplied in straight lengths.
- 3.3 **blank**: Shape stamped, or cut, from a sheet.

3.4 batch: Series of ingots, sheets or blanks produced from a single uniform melt.

4 Ordering information

The following information shall be supplied by the purchaser in the enquiry and/or order, to assist the supplier in providing the correct material:

- a) the number of this Part of this European Standard (EN 611-1);
- b) the pewter alloy required (see table 1);
- c) whether ingots, sheets or blanks are required;
- d) if sheets or blanks are required, their nominal dimensions;
- e) the quantity required;
- f) whether a certificate of analysis or a statement of conformity is required (see clause 8);
- g) for alloy 1, the agreed range for the silver content (see table 1);
- h) the specific packaging requirements.

5 Requirements

5.1 Chemical composition of pewter alloys

The chemical composition of the pewter alloys in the form of ingots, sheets or blanks, shall conform to the requirements for the appropriate alloy given in table 1 when determined on samples selected in accordance with clause 6. In expressing the results for the analysis, the values obtained shall be rounded to the same number of decimal places as used in expressing the specified limit given in table 1. The rounding rules are given in annex A.

Methods for sampling a batch for analysis are given in annex B.

5.2 Chemical composition of solders for joining pewterware

For those cases where the soldered joint may reasonably be expected to come into contact with foodstuffs, the solder used for joining the component parts of the pewterware shall contain not more than 0,25 % lead and 0,05 % cadmium. Examples of solders which meet this requirement are as follows:

- a) one of the alloys designated 1 to 6 in table 1 of this Part of this European Standard; or
- b) alloy No. 21 in EN 29453 (see annex C); or
- c) tin conforming to any of the grades specified in EN 610.

NOTE: It is recommended that soldered joints which may reasonably be expected not to come into contact with foodstuffs should be made using solder which conforms to a), b), c) of this subclause, or to alloy No. 11 or alloy No. 12 in EN 29453 (see annex C).

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Table 1: Chemical composition of pewter alloys

| Pewter alloy number | Sn | Element | Composition in % (m/m) | | | | | | |
|---------------------|--|---------|------------------------|-----|------|------|------|-----|----------------------|
| | | | Ag | Bi | Cd | Cu | Pb | Sb | Total other elements |
| 1 | Remainder, but tin + silver not less than 91 % | min. | - | - | - | 1,0 | - | 5,0 | - |
| | | max. | 4,0 ^{b)} | 0,5 | 0,05 | 2,5 | 0,25 | 7,0 | 0,2 |
| 2 | Remainder, but not less than 94 % | min. | - | - | - | 0,5 | - | 3,0 | - |
| | | max. | 0,05 | 0,5 | 0,05 | 2,5 | 0,25 | 5,0 | 0,2 |
| 3 | Remainder, but not less than 91,5 % | min. | - | - | - | 0,25 | - | 4,5 | - |
| | | max. | 0,05 | 0,5 | 0,05 | 2,0 | 0,25 | 8,0 | 0,2 |
| 4 | Remainder, but not less than 94 % | min. | - | - | - | - | - | 3,0 | - |
| | | max. | 0,05 | 0,5 | 0,05 | 0,05 | 0,25 | 6,0 | 0,2 |
| 5 | Remainder, but not less than 92,5 % | min. | - | - | - | - | - | 6,5 | - |
| | | max. | 0,05 | 0,5 | 0,05 | 0,05 | 0,25 | 7,5 | 0,2 |
| 6 | Remainder | min. | - | - | - | - | - | - | - |
| | | max. | 0,05 | 0,5 | 0,05 | 1,5 | 0,25 | 2,5 | 0,2 |

^{b)} For alloy 1, the silver range required, up to a maximum of 4,0 % Ag, shall be agreed between the purchaser and the supplier, and stated in the order [see 4 g)].

6 Selection and preparation of samples for analysis

When analysis is to be carried out to verify conformity of a batch of ingots, sheets or blanks with the composition requirements of this European Standard, the selection of the samples, and the preparation of the analysis samples, shall be in accordance with annex B.

7 Analytical methods

For routine control purposes, the samples selected and prepared in accordance with clause 6 shall be analyzed by the use of recognized chemical or instrumental analytical methods. In cases of dispute concerning the results of chemical analysis of pewter ingots, sheets or blanks, until the publication of European Standards¹⁾ for the analysis of pewter, the analytical methods to be used shall be subject to agreement between the disputing parties and any independent arbitrator.

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8 Inspection documentation standards.iteh.ai

The supplier shall provide inspection documentation with each consignment of ingots, sheets or blanks. The documentation shall be as requested by the purchaser in the enquiry and/or order [see 4 f)], and shall be in accordance with either a) or b) as follows:

- a) a certificate giving the chemical analysis specific to each batch in the consignment, based on sample(s) taken from the melt from which the batch was produced; or
- b) a statement of conformity of the consignment with the order requirements.

NOTE: The statement of conformity does not necessarily relate to specific tests carried out on the consignment.

¹⁾ In course of preparation.