BRITISH STANDARD

BS EN
1179:2003

Zinc and zinc alloys — Primary zinc

The European Standard EN 1179:2003 has the status of a British Standard

ICS 77.120.60

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 1179:2003. It supersedes BS EN 1179:1996 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee NFE/8, Zinc and zinc alloys, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/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.

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 22 May 2003

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 7 and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

ISBN 0 580 41931 2

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1179

May 2003

ICS 77.120.60

Supersedes EN 1179:1995

English version

Zinc an zinc alloys - Primary zinc

Zinc et alliages de zinc - Zinc primaire

Zink und Zinklegierungen - Primärzink

This European Standard was approved by CEN on 5 March 2003.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 1179:2003 E

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Foreword

This document (EN 1179:2003) has been prepared by Technical Committee CEN /TC 209 "Zinc and zinc 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of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2002.

This document will supersede EN 1179:1995.

This is one of a series of European Standards for zinc and zinc alloy products. Other products are specified in the following standards:

EN 988, *Zinc and zinc alloys — Specifications for rolled flat products for building.*

EN 1774, *Zinc and zinc alloys — Alloys for foundry purposes — Ingot and liquid.*

EN 12844, *Zinc and zinc alloys —Castings — Specification.*

EN 13283, *Zinc and zinc alloys — Secondary zinc.*

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

1 Scope

This European Standard specifies the classification, chemical composition, marking and other requirements for primary zinc. The grades of zinc included in the standard are those which are traded internationally. The standard does not include requirements for secondary zinc produced by remelting.

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 12060, *Zinc and zinc alloys — Method of sampling — Specifications.*

EN 12441-3, *Zinc and zinc alloys - Chemical analysis - Part 3: Determination of lead, cadmium and copper - Flame atomic absorption spectrometric method*

EN 12441-5, *Zinc and zinc alloys - Chemical analysis - Part 5: Determination of iron in primary zinc - Spectrophotometric method*

EN 12441-6, *Zinc and zinc alloys - Chemical analysis - Part 6: Determination of aluminium and iron - Flame atomic absorption spectrometric method*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1
ingot
cast product intended for remelting

3.2
primary zinc
zinc obtained from the ore, or other zinc-bearing material, by a process of distillation or by chemical or electrolytic reduction

NOTE Primary zinc is normally supplied in ingot form, but may also be available in liquid form.

3.3
cast

3.3.1
cast, for non-continuous casting
product of one furnace, or crucible melt

3.3.2
cast, for continuous casting
identified volume of liquid metal

3.4
batch
number of ingots taken from a single cast

3.5
bundle
collection of ingots taken from a single cast and secured, for example by banding, for the purposes of handling, shipment and storage

3.6
jumbo
large ingot not suitable for manual handling, weighing at least 30 kg. Normally a jumbo weighs several hundred kilogram

4 Manufacture

Zinc ingots shall be manufactured by casting from liquid primary zinc.

5 Ordering information

The following information shall be supplied by the purchaser in the order to assist the supplier in providing the correct material:

a) the number of this European Standard (EN 1179);

b) the grade of the primary zinc required (see Table 1);

c) the total mass required;

d) for ingots, their individual nominal mass;

e) when a specific ingot shape is required (see 6.2);

f) when a certificate of analysis or a declaration of conformity is required (see clause 9).

6 Requirements

6.1 Chemical composition

The primary zinc shall conform to the chemical composition given for the appropriate grade in Table 1.

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 in Table 1.

The following rules shall be used for rounding:

a) if the figure following the last figure to be retained is less than 5, the last figure to be retained shall be kept unchanged;

b) if the figure following the last figure to be retained is equal to or greater than 5, the last figure to be retained shall be increased by one unit.

6.2 Shape of ingots

The shape of ingots shall be at the supplier's discretion unless a specific shape has been agreed upon between purchaser and supplier and stated in the enquiry and order [see clause 5 e)].

6.3 Surface condition of ingots

The surface condition of ingots shall be such that it does not affect the chemical composition requirements, and is not detrimental to the end use of the ingots.

7 Sampling and analysis

The sampling of primary zinc for verification of its conformity to the chemical composition requirements of this standard shall be in accordance with EN 12060.

The chemical composition given in Table 1 shall, in case of dispute, be determined by wet chemical methods given in EN 12441-3, EN 12441-5, and EN 12441-6, unless otherwise agreed.

NOTE: Optical emission spectrometry analysis, according to EN 12019, is recommended only for production control purposes and end-product certification.

8 Marking and labelling

All ingots or bundles shall be marked, or labelled, with the following minimum information:

a) the producer's mark;

b) the zinc grade (by grade classification or by colour code [see Table 1];

c) the batch or cast reference;

d) the mass of the ingot or bundle.

9 Inspection documents

If requested by the purchaser at the time of ordering, the supplier shall furnish inspection documents with each consignment. The documentation shall be as chosen by the purchaser [see clause 5 f)] and shall be in accordance with either a) or b), as follows:

a) a certificate of analysis, giving the results obtained on the specific casts in the consignment;

b) a declaration of conformity of the consignment with the order requirements. This declaration shall include the following information:

   1) name and address of supplier;

   2) date of declaration of conformity;

   3) name and address of purchaser;

   4) purchaser's order number;

   5) a description of the goods and the quantity supplied;

   6) identification of this standard and the grade supplied;

   7) the following declaration:

   'The goods detailed hereon have been manufactured to conform to the requirements of the purchaser's order and specification detailed thereon.'

   Signature: _____

   (supplier's authorized representative)

Table 1 — Chemical composition of primary zinc

Grade classification	Colour code	Composition in % (mass fraction)							
		Nominal zinc content	1	2	3	4	5	6	Total of elements in columns 1 to 6
			Pb	Cd	Fe	Sn	Cu	Al	
			max.	max.	max.	max.	max.	max.	max.
Z1	White	99,995	0,003	0,003	0,002	0,001	0,001	0,001	0,005
Z2	Yellow	99,99	0,005	0,003	0,003	0,001	0,002	—	0,01
Z3	Green	99,95	0,03	0,005	0,02	0,001	0,002	—	0,05
Z4	Blue	99,5	0,45	0,005	0,05	—	—	—	0,5
Z5	Black	98,5	1,4	0,005	0,05	—	—	—	1,5

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