Irish Standard
I.S. EN 1982:2017

Copper and copper alloys - Ingots and castings

I.S. EN 1982:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 1982:2017 is the adopted Irish version of the European Document EN 1982:2017, Copper and copper alloys - Ingots and castings

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1982

September 2017

ICS 77.150.30

Supersedes EN 1982:2008

English Version

Copper and copper alloys - Ingots and castings

Cuivre et alliages de cuivre - Lingots et pièces moulées

Kupfer und Kupferlegierungen - Blockmetalle und Gussstücke

This European Standard was approved by CEN on 9 July 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 1982:2017) has been prepared by Technical Committee CEN/TC 133 “Copper and copper alloys”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by March 2018, and conflicting national standards shall be withdrawn at the latest by March 2018.

This document supersedes EN 1982:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive 2014/68/EU, see informative Annex ZA, which is an integral part of this document.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 7 “Ingots and castings” to prepare the revision of the following standard:

EN 1982:2008, *Copper and copper alloys — Ingots and castings*

In comparison with EN 1982:2008, the following significant changes were made:

a) introduction of a clear distinction between ingots and castings with regard to pressure equipment applications in the whole standard;

b) addition of information concerning pressure equipment application to the introduction and to the scope;

c) addition of information concerning materials that can be used for products in contact with drinking water in Tables F.1, F.4, G.4, G.8, G.9, H.2, K.2, P.1 and P.2;

d) rearrangements of the tables giving the chemical compositions and mechanical properties of the materials which were moved from Clause 6 to Annex C to Annex P;

e) addition of the following 16 new materials: CB773S and CC773S (new Table F.4), CB757S and CC757S (new Table G.8), CB768S and CC768S (new Table H.2), CB770S and CC770S (new Table G.4), CB771S and CC771S (new Table F.1), CB772S and CC772S (new Table G.9) CB245E and CC245E (new Table P.1) and CB246E and CC246E (new Table P.2);

f) addition of the terms “ingot” and “casting” and their definitions in Clause 3;

g) deletion of item o) in Clause 5 “Ordering information” and renumbering of the subsequent items;

h) subdivision between ingots and castings with regard to pressure equipment applications in 6.2.1 “Ingots” and 6.2.2 “Castings”;

i) revision of Clause 5 i), 6.1, 6.4, 6.5 and 8.2.3;

j) indication that mechanical properties for the “Pressure die cast – GP” castings are mandatory;

k) amendment of Table ZA.1;

l) deletion of B.5;

m) several editorial amendments.

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

Introduction

This European Standard for copper alloy ingots, and copper and copper alloy castings is based on previous national standards and harmonizes the compositions and mechanical properties required.

This European Standard does not include copper refinery shapes which are intended for working into wrought products and are the subject of EN 1976. Nor does it include master alloys intended for the manufacture of copper alloys which are the subject of EN 1981.

The essential information relevant to correct ordering, given in Clause 5 of the standard, is supplemented by Annex A, which is based upon the recommended practice for the ordering and supply of castings given in EN 1559-1. Its purpose is to assist the purchaser in providing full information to the supplier to ensure that he supplies castings according to the purchaser's requirements. It is recommended that full consultation takes place between the purchaser and the supplier at the stages of enquiry and ordering.

Sampling and testing frequency, where applicable, are specified in Clause 7. For certain applications, more rigorous inspection procedures may be required. Annex B gives supplementary inspection procedures which may be invoked, at the option of the purchaser [see Clause 5 o)].

Some copper and copper alloys can be used in castings for pressure equipment. Ingots are not suitable for pressure equipment.

The permitted material grades of copper and copper alloys for pressure applications and the conditions for their use are given in specific product or application standards.

For the design of pressure equipment, specific design rules apply.

Annex ZA gives information relating to the conformance of permitted material grades of copper and copper alloys used in castings to the New Approach Pressure Equipment Directive 2014/68/EU.

The European Committee for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning the alloy CuZn21Si3P-B (CB768S) and CuZn21Si3P-C (CC768S) given in Table H.2 as well as concerning the alloy CuSi4Zn4MnP-B (CB245E) and CuSi4Zn4MnP-C (CC245E) given in Table P.1 as well as concerning the alloy CuSi4Zn9MnP-B (CB246E) and CuSi4Zn9MnP-C (CC246E) given in Table P.2

CEN takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has ensured the CEN that he is willing to negotiate licenses either free of charge or under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with CEN.

— For CuZn21Si3P-B (CB768S) and CuZn21Si3P-C (CC768S) information may be obtained from

Wieland-Werke AG

Graf Arco Straße 36

D-89079 Ulm

GERMANY

— For CuSi4Zn4MnP-B (CB245E), CuSi4Zn4MnP-C (CC245E), CuSi4Zn9MnP-B (CB246E) and CuSi4Zn9MnP-C (CC246E) information may be obtained from

VIEGA GmbH and Co. KG

Viega Platz 1

D-57439 Attendorn

GERMANY

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. CEN shall not be held responsible for identifying any or all such patent rights.

CEN and CENELEC maintain online lists of patents relevant to their standards. Users are encouraged to consult the lists for the most up to date information concerning patents (ftp://ftp.cencenelec.eu/EN/IPR/Patents/IPRdeclaration.pdf).

Due to developing legislation, the composition of a material specified in this European Standard may be restricted to the composition with respect to individual uses (e.g. for the use in contact with drinking water in some Member States of the European Union). These individual restrictions are not part of this European Standard. Nevertheless, for materials for which traditional and major uses are affected, these restrictions are indicated. The absence of an indication, however, does not imply that the material can be used in any application without any legal restriction.

1 Scope

This European Standard specifies the composition, mechanical properties and other relevant characteristics of copper and copper alloys. The sampling procedures and test methods for the verification of conformity to the requirements of this standard are also specified.

This European Standard is applicable to:

a) copper alloy ingots intended to be remelted for later processing (e.g. castings); and

b) copper and copper alloy castings which are intended for use without subsequent working other than machining.

Recommended practice for the ordering and supply of castings is included in Annex A. Optional supplementary inspection procedures for ingots and castings are included in Annex B.

NOTE Ingots are **not** suitable for pressure equipment applications.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 764-5, *Pressure equipment - Part 5: Inspection documentation of metallic materials and compliance with the material specification*

EN 1655, *Copper and copper alloys - Declarations of conformity*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN ISO 2624, *Copper and copper alloys - Estimation of average grain size (ISO 2624)*

EN ISO 6506-1, *Metallic materials - Brinell hardness test - Part 1: Test method (ISO 6506-1)*

EN ISO 6509-1, *Corrosion of metals and alloys - Determination of dezincification resistance of copper alloys with zinc - Part 1: Test method (ISO 6509-1)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
ingot
metal cast into a form suitable for remelting

3.2
casting
workpiece that has been shaped by solidification of liquid metal or alloy in a mould

[SOURCE: EN 1559-1:2011, 3.3]