

PD CEN/TS 13388:2013



BSI Standards Publication

Copper and copper alloys — Compendium of compositions and products

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee NFE/34, Copper and copper alloys.

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

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English Version

Copper and copper alloys - Compendium of compositions and products

Cuivre et alliages de cuivre - Inventaire des compositions et des produits

Kupfer und Kupferlegierungen - Übersicht über Zusammensetzungen und Produkte

This Technical Specification (CEN/TS) was approved by CEN on 17 December 2012 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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Contents

Page

Foreword.....	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Compositions of coppers and copper alloys standardised by CEN/TC 133	6
3.1 Composition of coppers	6
3.2 Composition of copper alloys	6
3.3 Composition of master alloys	7
3.4 Composition of ingots and castings.....	7
3.5 Composition of filler metals	7
3.6 Composition of copper and copper alloy scrap	7
4 Available product forms of copper and copper alloys standardised by CEN/TC 133	7
4.1 Wrought coppers and copper alloys	7
4.2 Master alloys	7
4.3 Ingots and castings	8
4.4 Filler metals	8
4.5 Scrap	8
5 Copper and copper alloys standardised by other CEN Technical Committees	8
6 Copper and copper alloys registered by CEN/TC 133	8
Table 1.1 — Composition of copper cathodes according to EN 1978:1998, Cu-CATH-1 (CR001A) and Cu-CATH-2 (CR002A)	9
Table 1.2 — Composition of unalloyed copper grades made from Cu-CATH-1 (CR001A) according to EN 1978	10
Table 1.3 — Composition of unalloyed copper grades, other than those made from Cu-CATH-1 (CR001A) according to EN 1978.....	11
Table 1.4 — Composition of phosphorus-containing copper grades	11
Table 1.5 — Composition of silver-containing copper grades (silver-bearing coppers)	12
Table 2 — Composition of copper alloys, low alloyed (less than 5 % alloying elements).....	13
Table 3 — Composition of copper-aluminium alloys	15
Table 4 — Composition of copper-nickel alloys.....	15
Table 5 — Composition of copper-nickel-zinc alloys	16
Table 6 — Composition of copper-tin alloys	17
Table 7 — Composition of copper-zinc alloys, binary	18
Table 8 — Composition of copper-zinc-lead alloys	19
Table 9 — Composition of copper-zinc alloys, complex	21
Table 10 — Wrought coppers and copper alloys specified in European product Standards prepared by CEN/TC 133.....	23
Table 11 — Master alloys — Composition	35
Table 12.1 — Ingots and castings — Copper and copper-chromium alloys — Compositions and casting processes	38
Table 12.2 — Ingots and castings — Copper-zinc alloys — Composition and casting processes	39
Table 12.3 — Ingots and castings — Copper-tin alloys — Composition and casting processes	42
Table 12.4 — Ingots and castings — Copper-tin-lead alloys — Composition and casting processes ..	43
Table 12.5 — Ingots and castings — Copper-aluminium alloys — Composition and casting processes	45
Table 12.6 — Ingots and castings — Copper-manganese-aluminium alloys — Composition and casting processes	46
Table 12.7 — Ingots and castings — Copper-nickel alloys — Composition and casting processes	47
Table 13.1 — Filler metals — Composition of copper.....	48
Table 13.2 — Filler metals — Composition of miscellaneous copper alloys	49
Table 13.3 — Filler metals — Composition of copper-zinc alloys	50
Table 13.4 — Filler metals — Composition of copper-tin alloys.....	51
Table 13.5 — Filler metals — Composition of copper-aluminium alloys	51
Table 13.6 — Filler metals — Composition of copper-nickel-zinc alloys.....	52
Table 14 — Scrap — Composition	52

Table 15.1 — Class AG: silver brazing filler metals standardised by CEN/TC 121	56
Table 15.2 — Class CP: copper-phosphorus brazing filler metals standardised by CEN/TC 121	57
Table 15.3 — Class CU: copper brazing filler metals — Series CU 100 and CU 200 standardised by CEN/TC 121	58
Table 15.4 — Class CU: copper brazing filler metals — Series Cu 300 standardised by CEN/TC 121	58
Table 16 — Composition of copper alloys, standardised by CLC/TC 9X	59
Bibliography	60

Foreword

This document (CEN/TS 13388:2013) has been prepared by Technical Committee CEN/TC 133 “Copper and copper alloys”, the secretariat of which is held by DIN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 13388:2008.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

This revision takes into account the latest changes regarding materials and compositions to:

- EN 1172:2011;
- EN 1976:2012;
- EN 12449:2012;
- EN 12163:2011;
- EN 12164:2011;
- EN 12165:2011;
- EN 12166:2011;
- EN 12167:2011;
- EN 12168:2011.

Introduction

CEN/TC 133 "Copper and copper alloys" was established in 1988 to prepare and maintain standards in the field of unwrought, wrought and cast products made from copper and copper alloys. Its responsibilities included developing, defining, specifying and giving guidance on, as appropriate, material compositions, designations, terminology, dimensions and tolerances, mechanical and physical characteristics, conditions of delivery and methods of testing peculiar to copper and copper alloys.

During the development of standards for copper and copper alloy products, the experts realised the necessity and seized the opportunity:

- a) to co-ordinate and in some cases also to rationalise the composition limits which already existed for the various product forms;
- b) to establish unique, new and identifiably European designations for copper and copper alloys, including a numerical option to be particularly convenient for computerised handling;
- c) to confirm, clarify and re-define where necessary, the terminology which already existed in common usage, at the international level or in customs nomenclature.

CEN/TC 133 decided, in view of the new form of presentation and new parameters for the description and provision of information on copper and copper alloy products, to prepare and publish the present consolidation and summary of essential details.

1 Scope

This Technical Specification provides a summary of material designations, compositions and the product forms in which they are available, for coppers and copper alloys standardised in European Standards by CEN/TC 133 "Copper and copper alloys".

It also includes copper alloys which are not standardised by CEN/TC 133 but by other CEN Technical Committees responsible for products in copper alloys, and other copper alloys not yet standardised. These alloys have been registered by CEN/TC 133 in accordance with the procedures laid down in CR 12776.

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 1976, *Copper and copper alloys — Cast unwrought copper products*

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

3 Compositions of coppers and copper alloys standardised by CEN/TC 133

3.1 Composition of coppers

The symbol and number designations and compositions of copper grades are given in the following tables:

Table 1.1 — Composition of copper cathodes according to EN 1978:1998, Cu-CATH-1 (CR001A) and Cu-CATH-2 (CR002A)

Table 1.2 — Composition of unalloyed copper grades made from Cu-CATH-1 (CR001A)

Table 1.3 — Composition of unalloyed copper grades, other than those made from Cu-CATH-1 (CR001A)

Table 1.4 — Composition of phosphorus-containing copper grades

Table 1.5 — Composition of silver-containing copper grades (silver-bearing coppers)

3.2 Composition of copper alloys

The symbol and number designations and compositions of copper alloys are given in the following tables:

Table 2 — Composition of copper alloys, low alloyed (less than 5 % alloying elements)

Table 3 — Composition of copper-aluminium alloys

Table 4 — Composition of copper-nickel alloys

Table 5 — Composition of copper-nickel-zinc alloys

Table 6 — Composition of copper-tin alloys

Table 7 — Composition of copper-zinc alloys, binary

Table 8 — Composition of copper-zinc-lead alloys

Table 9 — Composition of copper-zinc alloys, complex