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European foreword

This document (CEN/TS 13388:2020) 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 shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 13388:2015.

In comparison with CEN/TS 13388:2015, the following changes were made:

a) modifications regarding materials and compositions from EN 1982:2017, EN 12164:2016, EN 12165:2016, EN 12167:2016, EN 12168:2016, EN 12449:2016+A1:2019, EN 12735-1:2016 and EN 12861:2018 considered.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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 realized the necessity and seized the opportunity:

a) to coordinate and in some cases also to rationalize 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 computerized handling;

c) to confirm, clarify and redefine 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 document provides a summary of material designations, compositions and the product forms in which they are available, for coppers and copper alloys standardized in European Standards by CEN/TC 133 “Copper and copper alloys”.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 1982:2017, *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) according to EN 1978

Table 1.3 — Composition of unalloyed copper grades, other than those made from Cu-CATH-1 (CR001A) according to EN 1978

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