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Copper and copper alloys — Copper cathodes

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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 committee manager.

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Kupfer und Kupferlegierungen - Kupfer-Kathoden

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European foreword

This document (EN 1978:2022) 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of an identical text or by endorsement, at the latest by March 2023, and conflicting national standards shall be withdrawn at the latest by March 2023.

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 EN 1978:1998.

In comparison with the previous edition, the following technical modifications have been made:

a) The reference to EN 1655 has been replaced by EN ISO/IEC 17050-1 and EN ISO/IEC 17050-2.

This is one of a series of European Standards for products manufactured from refined copper grades. Other products are specified as follows:

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

— EN 1977, *Copper and copper alloys - Copper drawing stock (wire rod*)

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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Introduction

This document was prepared to combine the various requirements and methods of test for copper cathodes, previously dealt with in a range of separate national standards.

Copper cathodes are intended for melting. Cu-CATH-1 (CR001A) is primarily intended for the production of high conductivity copper, such as for drawing stock. Cu-CATH-2 (CR002A) is intended for the production of other wrought products for electrical and general purposes.

1 Scope

This document specifies the composition and property requirements for cathodes of two copper grades, designated Cu-CATH-1 (CR001A) and Cu-CATH-2 (CR002A).

Annex A (normative) describes methods for sampling cathodes for use in cases of dispute between the purchaser and the supplier. Annex B (informative) gives information on the relationships between electrical resistivity and conductivity of copper.

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.

IEC 60468, *Method of measurement of resistivity of metallic materials*

EN 16117-2, *Copper and copper alloys - Determination of copper content - Part 2: Electrolytic determination of copper in materials with copper content higher than 99,80 %*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
cathode
flat, unwrought product made by electrolytic deposition

3.2
lot
quantity of copper cathodes weighing over 25 t and up to and including 200 t, consisting of one consignment, or part of one consignment, produced by one refinery

3.3
bundle
total amount of a certain number of cathodes, typically 20 to 60, stacked together and secured, generally by steel bands

3.4
sample of cathodes
number of cathodes randomly selected from the lot, and considered in total to be representative of the lot

3.5
cathode sample
portion of one of the sampled cathodes (see 3.4) obtained by systematic cutting of vertical strips