

Glossary of

Terms for copper and copper alloys

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- Copper Development Association
- London Metal Exchange
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Foreword

This British Standard glossary has been prepared under the direction of the Non-ferrous Metals Standards Committee and replaces BS 1420 “*Glossary of terms applicable to wrought products in copper, zinc and their alloys*” which was withdrawn in 1983.

BS 1420 covered definitions of terms applicable to zinc and its alloys as well as copper, whereas this glossary gives the meaning of terms when applied to copper and its alloys. Some of the terms may be used for other metals, and indeed many are in common everyday use, but this glossary gives the meaning to be understood when they are applied to copper and copper alloys.

This glossary is based, to a very large extent, on ISO 197 prepared by Technical Committee TC 26 of the International Organization for Standardization (ISO). Some changes have, however, been made to make it more truly representative of current usage of the terms in the UK, whereas ISO 197 has taken considerable account of the usage of English terms in other countries. The aim of the glossary is to provide definitions of terms which are technically realistic but which can also be used for statistics and for legal and commercial transactions.

Non-preferred terms are given in less prominent type beneath the preferred term. Appendix A gives details of the dividing line between copper and copper alloys.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard glossary defines terms used to describe copper and copper alloys, product forms and the processes by which they are made. Those definitions marked with an asterisk (*) are identical with the definitions in ISO 197.

NOTE 1 Throughout this standard compositions are given in terms of percentage by mass.

NOTE 2 The title of the publication referred to in this standard is given on the inside back cover.

Section 1. Materials

No.	Term	Definition
1 01	alloy	A metallic substance consisting of more than one element usually and predominantly, but not exclusively, metallic which are intentionally included or retained. NOTE 1 Most commercial alloys, including those of copper, consist of a predominant metallic element present in a greater concentration than any other element and one or more elements which are usually, but not exclusively, metallic and which are intentionally added or retained. NOTE 2 See Appendix A for the dividing line between refined copper and copper alloys.
1 02	alloying element	A metallic or non-metallic element intentionally added to, or retained in, an alloy for the purpose of giving the alloy certain properties.
1 03	impurity	A metallic or non-metallic element present in a metal or alloy but which has not intentionally been added or retained.
1 04	master alloy	An alloy intended only for addition to a melt to adjust composition.
1 05	casting alloy	*An alloy primarily intended for the production of castings.
1 06	cast metal	Metal which has solidified from the liquid state in a mould and which has not subsequently been worked to eradicate or change substantially the cast structure.
1 07	hot working alloy	An alloy intended primarily for final working at elevated temperatures into wrought semi-finished products.
1 08	cold working alloy	An alloy intended primarily for final working at ambient temperature to give wrought semi-finished products.
1 09	wrought metal	Metal which has been subjected to sufficient mechanical and thermal treatment to eradicate or change substantially the original crystal structure and which is usually cast.
1 10	heat-treatable alloy	An alloy capable of being strengthened or having other properties changed, other than the removal of work hardening or internal stresses, by suitable thermal treatment.
1 11	non-heat-treatable alloy	An alloy which is incapable of having its properties significantly changed by heat treatment, other than by annealing for the removal of work hardening or internal stresses.

Section 2. Unrefined coppers

No.	Term	Definition
2 01	copper matte	*An intermediate product consisting mainly of ferrous and cuprous sulphides, which is oxidized in converters to produce metallic copper, usually termed blister copper.
2 02	black copper	*An impure form of copper produced by smelting impure copper scrap and/or oxidized copper ores, usually in a blast furnace. The copper content varies widely, usually in a range of approximately 60 % to 85 %.
2 03	blister copper	*An impure form of copper produced by blowing air through molten copper matte. During the conversion process, sulphur, iron and other impurities are oxidized. The copper content is normally about 98 %.
2 04	anode copper	An impure form of copper made by the further removal of sulphur and oxygen from blister copper in the molten state. NOTE Anode copper is cast into shapes suitable for use as expendable anodes, which are the raw material input to the electrolytic refining of copper.
2 05	cement copper	*An impure, finely divided mixture of copper and copper oxide obtained by precipitation of copper usually by iron (cementation) from aqueous solution of copper compounds. The copper content, dry basis, varies widely, usually in a range of approximately 50 % to 85 %.

Section 3. Refined coppers (see also Appendix A)

No.	Term	Definition
3 01	refined copper	Either *a) metal with a minimum content of 99.85 % of copper; or *b) metal with a minimum content of 97.5 % of copper, provided that the content by mass of any other element does not exceed the limits given in Table 1.

Table 1 — Limiting content of other elements in refined copper

Element	Limiting content
	%
Silver	0.25
Arsenic	0.5
Cadmium	1.3
Chromium	1.4
Magnesium	0.8
Lead	1.5
Sulphur	0.7
Tin	0.8
Tellurium	0.8
Zinc	1.0
Zirconium	0.3
Other elements ^a each	0.3

^a Other elements are, for example, aluminium, beryllium, cobalt, iron, manganese, nickel, silicon.

NOTE The definitions 3 02 to 3 04 refer to those refined coppers having a minimum copper content of 99.85 %. They originate from one or more of the refining methods defined in section 8.