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1573—1985

COPPER AND COPPER ALLOYS—
WIRE FOR ENGINEERING PURPOSES

[Title allocated by Defence Cataloguing Authority:
WIRE, NON-ELECTRICAL (Copper and Copper Alloy, General Engineering Purposes).....NSC 9525]

STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests are represented on Committee MT/2:

Australian Foundry Institute

Australian Welding Institute

Confederation of Australian Industry

Copper Development Association of Australia Limited

Coppermetals Extruders Council of Australia

Department of Defence

Metropolitan Water, Sewerage and Drainage Board, N.. W

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Suggestio or improvements to Australian standards, addressed to the head office of the Association, welcome Notification of any inaccuracy or ambiguity found in an Australian standard should be nau without delay in order that the matter may be investigated and appropriate action taken.

This standard was issued in draft form for comment as DR 81298.

AS/NZS 1573:1995
Copper and copper alloys—Wire for engineering purposes

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Specifies requirements for copper and copper alloy wire for general engineering purposes supplied in forms other than straight lengths. Requirements including chemical composition, mechanical properties and dimensional tolerances are specified.

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AUSTRALIAN STANDARD

COPPER AND COPPER ALLOYS— WIRE FOR ENGINEERING PURPOSES

AS 1573—1985

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PREFACE

This edition of this standard was prepared under the direction of the Association's Committee on Copper and Copper Alloys by its subcommittee on general engineering wire, to supersede AS 1573—1974. It specifies requirements for copper and copper-alloy wire for general engineering purposes, supplied in forms other than straight lengths.

In revising AS 1573—1974, cognizance was taken of the following draft standard issued by the International Organization for Standardization (ISO):

ISO/DIS 3492 Wrought Copper and Copper Alloys—Drawn Round Wire—Dimensions and Tolerances.

The tolerances were considered to be too wide for Australian practice, and were not accepted for inclusion in the revision.

The former appendix dealing with copper and copper alloy designation has been deleted in the light of the current standard on this topic. Appendix A presents purchasing guidelines, including contractual requirements previously included in the body of AS 1573—1974, and directs attention to matters requiring consideration at the time of enquiry and/or order. The intention is to avoid misinterpretation or other problems and to ensure a clear understanding of product requirements by both purchaser and supplier.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
COPPER AND COPPER ALLOYS—WIRE FOR ENGINEERING PURPOSES

1 SCOPE. This standard specifies requirements for copper and copper alloy wire for general engineering purposes supplied in forms other than straight lengths.

NOTE: Guidelines for purchasers on requirements that must be specified by the purchaser and those that must be agreed at the time of enquiry and/or order are given in Appendix A.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1391 Methods for Tensile Testing of Metals
AS 1515 Methods for the Analysis of Copper Alloys
AS 1696 Methods for the Analysis of Copper
AS 1817 Method for Vickers Hardness Test Part 1—Testing of Metals
AS 2338 Preferred Dimensions of Wrought Metal Products
AS 2614 Copper and Copper Alloys—Sampling for Chemical Analysis and Resistivity
AS 2706 Numerical Values—Rounding and Interpretation of Limiting Values
AS 2738 Copper and Copper Alloys—Compositions and Designations Part 2—Wrought Products
AS K208 Methods for the Analysis of Unalloyed Copper
AS K209 Methods for the Analysis of Copper Alloys
BS 1748 Methods for the Analysis of Copper Alloys.

3 DESIGNATION.

3.1 General. The designation as given in Tables 1 to 3 inclusive, shall include the number of this Australian standard, i.e. AS 1573, together with the alloy designation and temper designation in accordance with Clauses 3.2 and 3.3 respectively.

3.2 Alloy designation. The designation of coppers and copper alloys, as given in Tables 1, 2 and 3, shall be in accordance with AS 2738.2.

3.3 Temper designation. The temper designation, as given in Tables 2 and 3, shall be designated as 0, ¼H, ½H, ¾H, H or SH (see Clause 5), and shall follow the alloy designation.

Example of complete designation: AS 1573/260-H.

4 DEFINITION. For the purpose of this standard, the following definition applies:

Wire—a solid product, other than strip or foil, of round, square, hexagonal or other cross-section including flat wire, supplied in coils or on spools, reels or drums.

5 TEMPER OF MATERIAL ON DELIVERY. The material shall be supplied in one of the following conditions of temper, and shall comply with Table 2 or Table 3, as appropriate:

O Annealed
¼H Quarter hard
½H Half hard
¾H Three-quarter hard
H Hard
SH Spring hard

NOTE: SH temper is also available to other than spring material, and other tempers are available for spring manufacture.

6 CHEMICAL COMPOSITION. The chemical composition of the coppers and copper alloys shall conform to the limits specified in Table 1.

NOTE: Related compositional specifications are given in Appendix B.

7 FREEDOM FROM DEFECTS. The wire shall be clean, smooth and free from defects detrimental to its subsequent processing and end use.

Notwithstanding that wire has been accepted previously, if subsequent processing reveals that it contains defects found to be detrimental, the wire shall be deemed not to comply with this standard, provided that it has not been improperly treated after delivery.

8 JOINTS. There shall be no joints in the wire except those made in the base rod or wire before final drawing.

9 MANUFACTURING TOLERANCES. The manufacturing tolerances shall be in accordance with Tables 4 to 6, as appropriate.

10 MECHANICAL PROPERTIES.

10.1 Selection and preparation of test samples Wire of the same alloy, temper and dimensions shall be grouped in batches.

The selected test samples (see Paragraph A2.1 of Appendix A), shall not, except for the necessary straightening, be mechanically worked or re-heat treated before testing.

10.2 Tensile test (not applicable to flat wire). The tensile test shall be carried out in accordance with AS 1391, and the tensile strength and elongation shall comply with Table 2.

10.3 Hardness test (applicable to flat wire only). The hardness test shall be carried out in accordance with AS 1817, Part 1, and the values so obtained shall comply with Table 3.

11 RETESTS. Should any test piece first selected fail to pass the relevant test specified in Clause 10, one or both of the following procedures shall be adopted:

(a) The wire represented by the test piece which failed shall either be withdrawn or be set aside for further testing and two further test samples shall be taken from the remainder of the same batch.