AS 1574—1984
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Australian Standard®
1574—1984

COPPER AND COPPER ALLOYS—WIRE FOR ELECTRICAL PURPOSES

[Title allocated by Defence Cataloguing Authority:
WIRE, ELECTRICAL (Copper and Copper Alloy, Solid, Bare)
Nato Supply Classification 6145]

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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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.S.W.

Telecom Australia

Universities

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AUSTRALIAN STANDARD

COPPER AND COPPER ALLOYS—WIRE FOR ELECTRICAL PURPOSES

AS 1574—1984

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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 copper and copper alloy electrical wire, to supersede AS 1574-1975. It applies to copper and copper alloy wire for use generally in the electrical industry, *but does not apply to wires for special applications such as enamelling or textile covering, nor does it apply to wires taken from stranded conductors either bare or covered or from insulated cables and flexible cords.* The copper wire may be plain or tinned, but it should be noted that the tin coating, which is applied prior to final drawing, is very thin and is not intended to provide an assurance of solderability.

In revising the standard, cognizance was taken of the following British standards:

BS 4109 Copper for Electrical Purposes. Wire for General Electrical Purposes and for Insulated Cables and Flexible Cords

BS 5714 Method of Measurement of Resistivity of Metallic Materials.

Fire refined High Conductivity Copper has been deleted from the standard as it is no longer produced. It should be noted that Grades 101 and 102 are not produced in Australia, and consequently are not provided for in AS 2738.1, Copper and Copper Alloys—Compositions and Designations, Part 1—Refinery Products. In this revision, a solderability test has been added for both tinned and plain wires. In addition, a new Appendix A presents purchasing guidelines, including contractual requirements previously included in the body of AS 1574—1975, and directs attention to matters requiring consideration at the time of enquiry and/or order.

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

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies requirements for wires for general electrical purposes supplied in forms other than straight lengths and manufactured from the following classes of materials in the finishes and tempers stated:

Class of Material	Temper	Finish
Oxygen-free electronic copper (101)	Annealed	Plain
	Hard	Plain
Oxygen-free copper (102)	Annealed	Plain
	Hard	Plain
Electrolytic tough pitch copper (110)	Annealed	Plain
	Hard	Plain
	Annealed	Tinned
	Hard	Tinned
Cadmium copper (162)	Hard	Plain

NOTES:

1. Guidelines to 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. See Appendix B for related composition specifications.

1.2 APPLICATION. This standard does not apply to wires for special applications such as enamelling or textile covering, nor does it apply to wires taken from stranded conductors either bare or covered or from insulated cables and flexible cords. It represents a basic standard for wires which may be used in the production of insulated wires and cables and for other electrical applications. The type of tin coating in this standard is not intended as an assurance of solderability but only of corrosion resistance.

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

AS 1099 Basic Environmental Testing Procedures for Electrotechnology 1099.2T—1980 Soldering
AS 1279 Copper Refinery Shapes
AS 1391 Methods for Tensile Testing of Metals
AS 2614 Copper and Copper Alloys—Sampling for Chemical Analysis and Electrical Resistivity
AS 2706 Numerical Values—Rounding and Interpretation of Limiting Values
AS 2738.1 Copper and Copper Alloys—Compositions and Designations, Part 1—Refinery Products
AS 2738.2 Copper and Copper Alloys—Compositions and Designations Part 2—Wrought Products
AS 2737 Copper Drawing Stock
AS K208 Methods for the Analysis of Unalloyed Copper
BS 5714 Method of Measurement of Resistivity of Metallic Materials
ISO 2626 Copper—Hydrogen Embrittlement Test.

1.4 DESIGNATION.

1.4.1 Material Designation. The material designation of copper and copper alloys, as shown in Table 2.1, shall be in accordance with AS 2738.2.

1.4.2 Temper designation. The temper designation (see Clause 2.3) shall follow material designation, the two being separated by a dash.

Example of Complete Designation: 110-H

1.5 DEFINITIONS. For the purpose of this standard, the following definitions apply:

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

1.5.2 Mean diameter—the average of two diameter measurements made at right angles to one another at the same cross-section at any position along the length.

1.6 PROCESS OF MANUFACTURE. The wire shall be manufactured from wire bars or billets in accordance with AS 1279, or from drawing stock in accordance with AS 2737.

1.7 PACKAGING. The method of packaging shall be such as to ensure protection of the product during transit and shall facilitate handling by the purchaser.

1.8 IDENTIFICATION. Each package shall be tagged or labelled to include designation, size, mass and the manufacturer's name or trademark.

1.9 INTERPRETATION OF SPECIFIED LIMITING VALUES. For the purpose of assessing compliance with this standard, the specified limiting values herein shall be interpreted in accordance with the 'rounding method' described in AS 2706, i.e. the observed or calculated value shall be rounded to the same number of figures as in the specified limiting value and then compared with the specified limiting value. For example, for specified limiting values of 2.5, 2.50, and 2.500, the observed or calculated value would be rounded respectively to the nearest 0.1, 0.01 or 0.001. (See also Appendix C.)