

Australian/New Zealand Standard[®]

**Copper and copper alloys—
Wire for electrical purposes**

AS/NZS 1574:1996

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee MT/2, Copper and Copper Alloys. It was approved on behalf of the Council of Standards Australia on 5 February 1996 and on behalf of the Council of Standards New Zealand on 18 December 1995. It was published on 5 April 1996.

The following interests are represented on Committee MT/2:

AUSTAP
Australian Foundry Institute
Hunter Water Corporation, Australia
Metal Trades Industry Association of Australia
New Zealand Manufacturers Federation
Welding Technology Institute of Australia

Additional interests participating in preparation of Standard:

Copper fabricators
Manufacturers within the electrical industry

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MT/2, Copper and Copper Alloys, to supersede AS 1574—1984.

The objective of this Standard is to specify requirements for copper and copper alloy wire for the electrical industry. In this edition the copper and copper alloy designations of three of the four alloys have been changed from the three-digit system to the Unified Numbering System (UNS) comprising six characters commencing with the letter C. The copper-cadmium alloy (alloy 162 in the 1984 edition) has been replaced by a non-toxic tin-bearing copper alloy designated as alloy 149, because no equivalent UNS number is available at the present time.

The Standard covers wires of all diameters but particular requirements are applicable to wires of up to 3 mm diameter.

During the preparation of this Standard cognizance was taken of ISO 1638:1987, *Wrought copper and copper alloy wire—Technical conditions of delivery*.

ISO 1638 was not considered to be an appropriate replacement for AS 1574 for the following reasons:

- 1 It covers wire for general engineering purposes and does not contain specific requirements for wire for electrical purposes. The mechanical properties specified do not cover copper wire of less than 3 mm diameter.
- 2 It refers to ISO 1337:1980, *Wrought coppers (having minimum copper contents of 99.85%)—Chemical composition and forms of wrought products*, which gives chemical compositions for grades of pure copper and also requirements for electrical resistivity and conductivity. The copper designations used in ISO 1337 align with those in AS/NZS 1279, *Copper refinery shapes*.

The policy of Committee MT/2 is to designate wrought copper and copper alloys in accordance with the Unified Numbering System.

- 3 It does not cover tin-coated copper wire, the hydrogen embrittlement test or requirements for new alloy 149.
- 4 It refers to ISO 3492:1982, *Wrought copper and copper alloys—Drawn round wire—Tolerances on diameter*, which does not give diameter tolerances for wires less than 0.5 mm in diameter.
- 5 The preference of Australian/New Zealand industry is to contain the requirements for copper and copper alloys for electrical purposes, in the one Standard.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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FOREWORD

Copper wire used in the electrical industry may be plain or tinned. Copper alloy wires referred to in this Standard are generally used as feed material for the production of conductors.

Tinned wire is produced by hot-dip tinning of drawn wires or electrodeposition prior to final drawing and typically has a tin coating of less than 2 μm . This is insufficient to ensure the high solderability required in many applications in the electrical and electronic industries, particularly where automated soldering methods are employed. For these applications, heavier coatings of tin (or tin-lead alloy) may be specified.