

AS/NZS ISO 17672:2023  
ISO 17672:2016



Australian/New Zealand Standard™

# Brazing — Filler metals



AS/NZS ISO 17672:2023

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Bureau of Steel Manufacturers of Australia  
New Zealand Heavy Engineering Research Association  
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Weld Australia

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Australian/New Zealand Standard™

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## Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WD-002, Welding Consumables, to supersede AS/NZS 1167.1:2005, *Welding and brazing—Filler metals, Part 1: Filler metal for brazing and braze welding*.

The objective of this document is to specify the compositional ranges of a series of filler metals used for brazing. The filler metals are divided into seven classes, related to their composition, but not necessarily to the major element present.

This document is identical with, and has been reproduced from, ISO 17672:2016, *Brazing — Filler metals*.

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- (a) In the source text “this International Standard” should read “this document”.
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## National Foreword

Australian/New Zealand Standards are voluntary unless included in legal or statutory requirements. Voluntary Standards do not replace Australian or New Zealand legal requirements and other requirements with which Standards users are understood to comply and which take precedence.

Australian and New Zealand Workplace Health and Safety regulations and other legal requirements prescribe what a person controlling a business or undertaking must do with respect to risks in the workplace.

It is a requirement that risks to personnel be eliminated, or minimised so far as is reasonably practicable.

To this end, users of consumables with composition conforming with this standard should review and understand the contents of the applicable Safety Data Sheet available from the manufacturer and/or importer of the consumables.

In particular, users should be aware of the adverse risks of cadmium fume exposure through the use of consumables containing cadmium, including lung damage, kidney disease, cancer and death due to cadmium poisoning. Cadmium-free brazing consumables are readily available and the use of consumables containing cadmium should therefore be avoided.

For further information, refer to Weld Australia's Technical Note 7 *Health and safety in welding*.

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*.

This second edition cancels and replaces the first edition (ISO 17672:2010), which has been technically revised.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44 via your national standards body. A complete listing of these bodies can be found at [www.iso.org](http://www.iso.org).

## NOTES

# Australian/New Zealand Standard

## Brazing — Filler metals

### 1 Scope

This International Standard specifies the compositional ranges of a series of filler metals used for brazing. The filler metals are divided into seven classes, related to their composition, but not necessarily to the major element present.

NOTE 1 For the major element(s) present, see [Annex A](#).

In the case of composite products, such as flux-coated rods, pastes or plastics tapes, this International Standard covers only the filler metal that forms parts of such products. The melting temperatures given in the tables are only approximate, as they necessarily vary within the compositional range of the filler metal. Therefore, they are given only for information. Technical delivery conditions are given for brazing filler metals and products containing brazing filler metals with other constituents such as flux and/or binders.

NOTE 2 For some applications, e.g. precious metal jewellery, aerospace and dental, filler metals other than those included in this International Standard are often used and these are covered by other International Standards to which reference can be made.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3677, *Filler metal for soft soldering and braze welding — Designation*

ISO 80000-1:2009, *Quantities and units — Part 1: General*

### 3 Composition

The filler metal shall have a composition in accordance with [Tables 5 to 13](#) for the particular type, except as modified for special vacuum requirements (see [Clause 4](#) and [Table 1](#)).

If the values for an element range from 0 (—) to a defined value, the element may be, but does not have to be, in that brazing filler metal.

For the purposes of determining compliance with composition limits, any value obtained from the analysis shall be rounded to the same number of decimal places as used in this International Standard in expressing the specified limit. The following rules shall be used for rounding.

- a) When the figure immediately after the last figure to be retained is less than five, then the last figure to be retained shall be kept unchanged.
- b) When the figure immediately after the last figure to be retained is either
  - 1) greater than five, or
  - 2) equal to five and followed by at least one figure other than zero,the last figure to be retained shall be increased by one.
- c) When the figure immediately after the last figure to be retained is equal to five, and followed by zeros only, then the last figure to be retained shall be left unchanged if even, and increased by one if odd. For the purposes of determining compliance with the requirements of this International Standard, the actual test values obtained shall be subjected to the rounding-off instructions given in ISO 80000-1:2009, Annex B.

NOTE The chemical analysis is of the bulk material, but the material can be composed of discrete powders with different individual compositions or multiple layers of roll-clad foils where each layer can have a different individual composition.

## 4 Special vacuum requirement

In a few instances, which are most likely to apply to Ag 272, Pd 287, Pd 387, Pd 388, Pd 481, Pd 483, Pd 484, Pd 587, Pd 647 and Au 295, Au 375, Au 625, Au 752, Au 801 and Au 827, lower impurity limits can be required for brazing in vacuum or service in vacuum and these limits shall be as given in [Table 1](#).

Filler metals complying with [Table 1](#) shall have the letter V added as a suffix to the codification plus the digit 1 or 2 to indicate the grade.

NOTE Grade 1 is intended for the most demanding duties, Grade 2 for less demanding.

**Table 1 — Impurity limits for special vacuum requirements**

| Impurity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Limit<br>% by mass max. |                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Grade 1                 | Grade 2            |
| Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0,005                   | 0,005              |
| Cd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0,001                   | 0,002              |
| P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0,002                   | 0,002 <sup>b</sup> |
| Pb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0,002                   | 0,002              |
| Zn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0,001                   | 0,002              |
| Mn <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0,001                   | 0,002              |
| In <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0,002                   | 0,003              |
| All other elements where vapour pressure at 500 °C is $> 1,3 \times 10^{-5}$ Pa <sup>d</sup>                                                                                                                                                                                                                                                                                                                                                                                                           | 0,001                   | 0,002              |
| <sup>a</sup> For filler metal Ag 272 (see <a href="#">Table 6</a> ), lower levels may be available by agreement between the purchaser and the supplier.<br><sup>b</sup> For filler metal Ag 272, 0,02 % maximum.<br><sup>c</sup> Except where otherwise specified in <a href="#">Tables 5</a> to <a href="#">13</a> .<br><sup>d</sup> Examples of such elements are Ca, Cs, K, Li, Mg, Na, Rb, S, Sb, Se, Sr, Te and Tl. For such elements (including Cd, Pb and Zn), the total is limited to 0,010 %. |                         |                    |

## 5 Chemical analysis

Chemical analyses shall be carried out by any suitable method, but it should be noted that in the case of many brazing alloys, the use of reference standards may be essential, as agreed between the purchaser and the supplier. Analysis is only required to be carried out routinely for those elements for which specific limits are shown. If, however, the presence of other elements is suspected or in the course of routine analysis is indicated to be in excess of the limits laid down for unnamed elements, or would bring the total of impurities above the specified limit, further analyses shall be carried out for such elements.

## 6 Designation

The filler metal shall be designated by the description “filler metal,” reference to this International Standard (i.e. ISO 17672) and a code. Details of the two options for the code system used are given in [Annex A](#).