



**SLOVENSKI STANDARD**  
**oSIST prEN ISO 17672:2008**  
**01-november-2008**

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**Trdo spajkanje - Dodajni materiali (ISO/DIS 17672:2008)**

Brazing - Filler metals (ISO/DIS 17672:2008)

Hartlötten - Lötzusätze (ISO/DIS 17672:2008)

Brasage fort - Métaux d'apport (ISO/DIS 17672:2008)

**Ta slovenski standard je istoveten z: prEN ISO 17672**

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**ICS:**

25.160.50      Trdo in mehko lotanje      Brazing and soldering

**oSIST prEN ISO 17672:2008**

**en,fr,de**



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NORME EUROPÉENNE  
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**DRAFT**  
**prEN ISO 17672**

April 2008

ICS 25.160.50

Will supersede EN 1044:1999

English Version

## Brazing - Filler metals (ISO/DIS 17672:2008)

Brasage fort - Métaux d'apport (ISO/DIS 17672:2008)

Hartlötten - Lotzusätze (ISO/DIS 17672:2008)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 121.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (prEN ISO 17672:2008) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding" the secretariat of which is held by DIN.

This document is currently submitted to the parallel Enquiry.

This document will supersede EN 1044:1999.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, B, C or D, which is an integral part of this document.

### Endorsement notice

The text of ISO/DIS 17672:2008 has been approved by CEN as a prEN ISO 17672:2008 without any modification.

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## DRAFT INTERNATIONAL STANDARD ISO/DIS 17672

ISO/TC 44

Secretariat: **AFNOR**

Voting begins on:  
**2008-04-24**

Voting terminates on:  
**2008-09-24**

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## Brazing — Filler metals

*Brasage fort — Métaux d'apport*

ICS 25.160.50

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The CEN Secretary-General has advised the ISO Secretary-General that this ISO/DIS covers a subject of interest to European standardization. **In accordance with the ISO-lead mode of collaboration as defined in the Vienna Agreement, consultation on this ISO/DIS has the same effect for CEN members as would a CEN enquiry on a draft European Standard.** Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month FDIS vote in ISO and formal vote in CEN.

**To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.**

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## ISO/DIS 17672

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## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 17672 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC , and by Technical Committee CEN/TC 121, *Welding* in collaboration.

This second/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

## Introduction

Requests for official interpretations of any aspect of this standard should be directed to the Secretariat of ISO/TC 44/WG 3 via your national standards body, a complete listing which can be found at [www.iso.org](http://www.iso.org).

# Brazing — Filler metals

## 1 Scope

This document specifies the compositions of a range of filler metals used for brazing. The filler metals have been divided into seven classes, related to their composition but not necessarily to the major element present, see annex A. In the case of composite products such as flux-coated rods, pastes or plastics tapes, the standard only covers the filler metal that forms part of such products. Although the melting range is given in the tables, it will necessarily vary within the compositional range of the filler metal and can only be regarded as approximate. Therefore, it is not a part of the specification *and is 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 For some applications, e.g. precious metal jewelry, aerospace and dental, filler metals other than those included in this standard will often be used and these are covered by other standards to which reference should be made.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. 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, brazing and braze welding — Designation*

## 3 Composition

The filler metal shall have a composition in accordance with Tables 5 to 11 for the particular type, except as modified for special vacuum requirements (see Clause 4 and Table 1).

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 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;then 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.

## 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 (% by mass, max.)	
	Grade 1	Grade 2
C <sup>a</sup>	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 $>1,3 \times 10^{-10}$ bar <sup>d</sup>	0,001	0,002
<p><sup>a</sup> For filler metal Ag 272 (see table 6), lower levels may be available by agreement between purchaser and supplier.</p> <p><sup>b</sup> For filler metal Ag 272, 0,02 % maximum</p> <p><sup>c</sup> Except where otherwise specified in tables 5 to 11.</p> <p><sup>d</sup> Examples of such elements are Ca, Cs, K, Li, Mg, Na, Rb, S, Sb, Se, Sr, Te, Tl. For such elements (including Cd, Pb and Zn), the total is limited to 0,010 %.</p>		

## 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 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.