International Standard

ISO 3677

Filler metal for brazing - Designation

Métaux d'apport de brasage fort — Désignation

Fourth edition
2024-04

Reference number
ISO 3677:2024(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 13, *Brazing materials and processes*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 3677:2016), which has been technically revised.

The main changes are as follows:

— Since soldering is covered by ISO/TC 44/SC 12, *Soldering materials*, and the corresponding designations in ISO 9453, all soldering designations have been deleted from this document.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html. Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: https://committee.iso.org/sites/tc44/home/interpretation.html.

Filler metal for brazing - Designation

1 Scope

This document specifies designations for filler materials for brazing on the basis of their chemical composition. The designation includes their solidus/liquidus temperatures. This document applies to the metallic part of filler materials used in brazing products, for example foils, wires, rods, pastes, flux-coated rods or wires and flux-cored rods or wires.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Symbols and requirements

4.1 General

The designation is divided into three parts. In each case, the parts are separated by a dash.

4.2 First part

The first part shall consist of the letter “B”.

4.3 Second part

4.3.1 The second part consists of a group of symbols, in accordance with the classification given in 4.3.2 to 4.3.5, indicating the various metals or metalloids making up the filler metal.

4.3.2 The chemical symbol of the major element in the filler metal is placed first. This is followed by the nominal mass percentage of the element concerned. This value shall be expressed as a whole number with an accuracy of ±1.

When a range is specified for an element in the alloy, the nominal value to be used in the designation should be the mean of the range, rounded to the nearest whole number, or rounded to the nearest even number if the mean is halfway between two whole numbers. When only a minimum value is specified, however, the rounded-off minimum percentage should be used as the nominal value in the designation.

4.3.3 The chemical symbols of the other metals or metalloids specified in the alloy are given in decreasing order of their nominal percentage. If two or more elements have the same nominal mass percentage, they shall be classified in order of decreasing atomic number.

4.3.4 Metals or metalloids with a nominal specified value (see 4.3.2) less than 1 % by mass shall not be indicated in the designation unless these elements are functional components of the alloy, in which case they shall be indicated by their chemical symbols enclosed in parentheses.

4.3.5 Only the chemical symbols of the first six constituents shall be indicated.

4.4 Third part

The third part indicates the temperatures, expressed in degrees Celsius, at the beginning and end of solidification. The solidus temperature shall be placed first, followed by the liquidus temperature. The temperatures shall be separated by an oblique stroke (slash).

5 Examples

5.1 A binary eutectic filler metal with mass fractions of 72 % silver and 28 % copper, with a melting temperature of 780 °C, shall be designated as follows:

B-Ag72Cu-780

A similar alloy, but containing lithium (mass fraction of less than 1 %) as a functional element, shall be designated as follows:

B-Ag72Cu(Li)-780

5.2 A nickel-base filler metal (mass fraction of 63 % nickel) with mass fractions of 16 % tungsten, 10 % chromium, 3,8 % iron, 3,2 % silicon, 2,5 % boron, 0,5 % carbon, 0,6 % phosphorus, 0,1 % manganese and 0,2 % cobalt, with a solidus/liquidus temperature of S 970 °C–L 1 105 °C, shall be designated as follows:

B-Ni63WCrFeSiB-970/1 105

5.3 A copper-base alloy (mass fraction of 59 % copper) with mass fractions of 40 % zinc, 0,5 % tin, 0,2 % silicon, 0,2 % manganese and 0,1 % nickel, with a solidus/liquidus temperature of S 850 °C–L 885 °C, shall be designated as follows:

B-Cu59Zn-850/885