AWS A5.8M/A5.8:2026
An American National Standard

Specification for Filler Metals for Brazing and Braze Welding

American Welding Society®

Approved American National Standard
ANSI

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Approved by the
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Specification for Filler Metals for Brazing and Braze Welding

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Prepared by the
American Welding Society (AWS) A5 Committee on Filler Metals and Allied Materials

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This specification prescribes the requirements for the classification of brazing filler metals for brazing and braze welding. The chemical composition, physical form, and packaging of more than 120 brazing filler metals are specified. The brazing filler metal groups described include aluminum, cobalt, copper, gold, magnesium, nickel, palladium, silver, titanium, and brazing filler metals for vacuum service. Information is provided concerning the liquidus, the solidus, the brazing temperature range, and general areas of application recommended for each brazing filler metal. Additional requirements are included for manufacture, sizes, lengths, and packaging. A guide is appended to the specification as a source of information concerning the classification system employed and the intended use of the brazing filler metals for brazing and braze welding.

This specification makes use of both the International System of Units (SI) and U.S. Customary Units. Since these are not equivalent, each must be used independently of the other.



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Foreword

This foreword is not part of this standard but is included for informational purposes only.

This document makes use of both the International System of Units (SI) and U.S. Customary Units. The measurements are not exact equivalents; therefore, each system must be used independently of the other without combining values in any way. In selecting rational metric units, AWS A1.1, *Metric Practice Guide for the Welding Industry,* and International Standard ISO 544, *Welding consumables-Technical delivery conditions for filler materials and fluxes – Type of product, dimensions, tolerances and markings,* are used where suitable. Tables and figures make use of both SI Units and U.S. Customary Units, which with the application of the specified tolerances provides for interchangeability of products in both the SI Units and U.S. Customary Units.

The current document is the 12th edition of the initial joint ASTM/AWS document issued in 1952. The practice of issuing filler metal specifications as joint AWS/ASTM documents was discontinued shortly after the original version of this specification was issued. The 1969 revision and all subsequent versions, developed and published by AWS, have been certified by the American National Standards Institute (ANSI). The evolution of AWS A5.8M/A5.8, *Specification for Filler Metals for Brazing and Braze Welding*, is shown below:

ASTM B260-52T, AWS A5.8-52T *Tentative Specification for Brazing Filler Metal*

ASTM B260-56T, AWS A5.8-56T *Tentative Specification for Brazing Filler Metal*

AWS A5.8-62T, ASTM B260-62T *Tentative Specification for Brazing Filler Metal*

AWS A5.8-69, *Specification for Brazing Filler Metal*

ANSI/AWS A5.8-76, *Specification for Brazing Filler Metal*

ANSI/AWS A5.8-81, *Specification for Brazing Filler Metal*

ANSI/AWS A5.8-89, *Specification for Filler Metals for Brazing*

ANSI/AWS A5.8-92, *Specification for Filler Metals for Brazing and Braze Welding*

AWS A5.8/A5.8M:2004, *Specification for Filler Metals for Brazing and Braze Welding*

AWS A5.8M/A5.8:2011, *Specification for Filler Metals for Brazing and Braze Welding*

AWS A5.8M/A5.8:2011-AMD 1, *Specification for Filler Metals for Brazing and Braze Welding*

AWS A5.8M/A5.8:2019*, Specification for Filler Metals for Brazing and Braze Welding*

Substantive changes in this edition include:

(1) the addition of the BAu-0 and BVAu-0 classifications,

(2) a revision to Table 8, to include particle size distribution for Powder Mesh Designation 45 (C) / 325 C mesh,

(3) revision to the spatter test in Clause 12,

(4) a revision to Table 9 to include added thicknesses or diameters for BAlSi and BMg-1 Classifications, and

(5) a revision to Tables 10 and 11 for clarity

All substantive updates within this document are shown in Italic font. A vertical line in the margin indicates a revision of that item from the previous edition.

The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to the validity of any such claim(s) or of any patent rights in connection therewith. If a patent holder has filed a statement of willingness to grant a license under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, then details may be obtained from the standards developer.

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, AWS A5 Committee on Filler Metals and Allied Materials, American Welding Society, 8669 NW 36 St, #130, Miami, FL 33166.

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Specification for Filler Metals for Brazing and Braze Welding

1. General Requirements

1.1 Scope. This specification prescribes requirements for the classification of filler metals for brazing and braze welding. It includes brazing filler metals for brazing with or without a flux and in all protective atmospheres for various applications, including those for vacuum service.[1] In the case of composite products—flux cored wire or rods, flux-coated rods, transfer tape, or paste—this standard covers only the filler metal that forms part of such products.

1.2 Units of Measurement. This specification makes use of both the International System of Units (SI) and U.S. Customary Units. The measurements are not exact equivalents; therefore, each system must be used independently of the other without combining in any way when referring to material properties. The specification with the designation A5.8M uses the International System of Units. The specification A5.8 uses U.S. Customary Units. The latter are shown within brackets ([ ]) or in appropriate columns in tables and figures. Standard dimensions based on either system may be used for the sizing or packaging of brazing filler metal, or both, under A5.8M or A5.8 specifications.

1.3 Safety. Safety issues and concerns are addressed in this standard, although health issues and concerns are beyond the scope of this standard. Some safety and health information can be found in non-mandatory Annex B, clauses B5 and B11.

Safety and Health information is available from the following sources:

American Welding Society:

(1) ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*

(2) AWS Safety and Health Fact Sheets (see Annex B, clause B11)

(3) Other safety and health information on the AWS website

Material or Equipment Manufacturers:

(1) Safety Data Sheets supplied by the materials manufacturers

(2) Operating Manuals supplied by equipment manufacturers

Applicable Regulatory Agencies

Work performed in accordance with this standard may involve the use of materials that have been deemed hazardous, and may involve operations or equipment that may cause injury or death. This standard does not purport to address all safety and health risks that may be encountered. The user of this standard should establish an appropriate safety program to address such risks as well as to meet applicable regulatory requirements. ANSI Z49.1 should be considered when developing the safety program.

2. Normative References

The standards listed below contain provisions that, through reference in this text, constitute mandatory provisions of this AWS standard. For undated references, the latest edition of the referenced standard shall apply. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.

[1] Filler metals for vacuum service are for devices operating in vacuum service, regardless of the atmosphere used in making the joint.

American Welding Society (AWS) standards:

AWS A3.0M/A3.0, *Standard Welding Terms and Definitions, Including Terms for Additive Manufacturing, Adhesive Bonding, Brazing, Soldering, Thermal Cutting, Thermal Spraying, and Nondestructive Examination*.

AWS A5.01M/A5.01 (ISO 14344 MOD), *Welding Consumables—Procurement of Filler Metals and Fluxes*.

American National Standards Institute (ANSI) standard:

ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*.

ASTM International standards:

ASTM B214, *Standard Test Method for Sieve Analysis of Metal Powders*

ASTM B215*, Standard Practices for Sampling Metal Powders*

ASTM E11, *Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves*

ASTM E29, *Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications*

Annual Book of ASTM Standards, Volume 03.05 – Analytical Chemistry for Metals, Ores, and Related Materials

ASTM International/SAE International standard:

ASTM DS-56/SAE HS-1086, *Metals & Alloys in the Unified Numbering System*

International Organization for Standardization (ISO) standard:

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

3. Classification

3.1 The brazing filler metals covered by the A5.8M/A5.8 specification are classified using a system that is independent of the International System of Units (SI) and U.S. Customary Units. Their classification is according to the chemical composition as specified in Tables 1 through 7.

3.2 Brazing filler metal classified under one classification shall not be classified under any other classification in this specification. However, material may be classified under both A5.8M and A5.8 specifications. An explanation of the method of classification of the filler metals is included in Annex B, clause B2.

4. Acceptance

Acceptance of the brazing filler metal shall be in accordance with the provisions of AWS A5.01M/A5.01. Refer to Annex B, clause B3 for further information concerning acceptance, testing of the material shipped, and AWS A5.01M/A5.01 (ISO 14344 MOD).

5. Certification

By affixing the AWS specification and classification designations to the packaging, or the classification to the product, the manufacturer certifies that the product meets the requirements of this specification. Refer to Annex B, clause B4 for further information concerning certification and the testing called for to meet this requirement.

6. Rounding Procedure

For purposes of determining compliance with the requirements of this standard, the actual test values shall be subjected to the rounding rules of ASTM E29, *Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications,* or Rule A in Clause B.3 of ISO 80000-1, *Quantities and units — Part 1: General* (the results are the