AWS A5.8M/A5.8:2011-AMD 1
An American National Standard

Specification for Filler Metals for Brazing and Braze Welding

American Welding Society®

Approved American National Standard
ANSI

second printing, January 2013

AWS A5.8M/A5.8:2011-AMD 1
An American National Standard

Approved by the
American National Standards Institute
June 17, 2011
Amendment: November 30, 2012

Specification for Filler Metals for Brazing and Braze Welding

10th Edition

Supersedes AWS A5.8/A5.8M:2004

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, 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.

American Welding Society®

International Standard Book Number: 978-0-87171-790-0
American Welding Society
8669 Doral Blvd., Suite 130, Doral, FL 33126

Printed in the United States of America
Amendment: 2nd Printing, January 2013

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Foreword

This foreword is not part of AWS A5.8M/A5.8:2011-AMD 1, *Specification for Filler Metals for Brazing and Braze Welding*, but is included for informational purposes only.

This document is the second of the AWS A5.8 specification revisions that makes use of both the International Systems of Units (SI) and the 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 Welding Filler Materials—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 tenth revision 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; and*
AWS A5.8/A5.8M:2004, *Specification for Filler Metals for Brazing and Braze Welding.*

The present edition, which supersedes AWS A5.8/A5.8M:2004, includes the following updates:

(1) *Seven new brazing filler metals: BTi-1, BTi-2, BTi-3, BTi-4, BTi-5, BCuP-10, and BNi-14*

(2) *The chemical composition range of zinc (Zn) for brazing filler metal BAg-33 is now 26.5–28.5*

(3) *The International System of Units (SI) is used as the primary unit of measurement*

(4) *All substantive updates within this document are italicized.*

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 Doral Blvd., Suite 130, Doral, FL 33166.

Amendment

The following Amendment has been identified and is incorporated in this reprint.

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

Amendment #: 1

Subject: Table 5 – Chemical Composition Requirements for Nickel and Cobalt Brazing Filler Metals

AWS classifications BNi-5a and BNi-5b; Boron weight percentage:

Replace:

AWS Classification	B
BNi-5a	1.3 – 1.6
BNi-5b	1.3 – 1.6

With previous information from AWS A5.8/A5.8M:2004:

AWS Classification	B
BNi-5a	1.0 – 1.5
BNi-5b	1.1 – 1.6

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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 brazing 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] The prefix "RB" indicates that the brazing filler metal is suitable for use both as brazing rod for braze welding and as a brazing filler metal.

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 nonmandatory Annex Clauses B5 and B10.

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 Clause B10)

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

Material or Equipment Manufacturers:

(1) Material 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.

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