AWS A5.7/A5.7M:2007
An American National Standard

Specification for Copper and Copper-Alloy Bare Welding Rods and Electrodes

American Welding Society

Approved American National Standard
ANSI

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Specification for Copper and Copper-Alloy Bare Welding Rods and Electrodes

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

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This specification prescribes the requirements for classifications of copper and copper-alloy electrodes and rods for gas shielded metal arc, gas shielded tungsten arc, and plasma arc welding. Classification is based on chemical composition of the 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 intended use of the electrodes.

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

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1. Scope

1.1 This specification prescribes requirements for the classification of copper and copper-alloy bare welding rods and electrodes for plasma arc, gas metal arc, and gas tungsten arc welding. It includes compositions in which the copper content exceeds that of any other element.[1]

1.2 Safety and health issues and concerns are beyond the scope of this standard and, therefore, are not fully addressed herein. Some safety and health information can be found in the informative annex clauses A5 and A10. Safety and health information is available from other sources, including, but not limited to, ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, and applicable federal and state regulations.

1.3 This specification makes use of both U.S. Customary Units and the International System of Units (SI). 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 A5.7 uses U.S. Customary Units. The specification A5.7M uses SI 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 sizing of filler metal or packaging or both under A5.7 or A5.7M specification.

2. Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this AWS standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreement based on this AWS standard are encouraged to investigate the possibility of applying the most recent editions of the documents shown below. For undated references, the latest edition of the standard referred to applies.

2.2 The following AWS standard[2] is referenced in the normative clauses of this document:

(1) AWS A5.01, *Filler Metal Procurement Guidelines*.

2.3 The following ANSI standard[3] is referenced in the normative clauses of this document:

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

2.4 The following ASTM International standards[4] are referenced in the normative clauses of this document:

(1) ASTM E 29, *Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications*.

(2) ASTM E 75, *Test Methods for Chemical Analysis of Copper-Nickel and Copper-Nickel-Zinc Alloys*.

(3) ASTM E 478, *Standard Test Methods for Chemical Analysis of Copper Alloys*.

2.5 The following ISO standard[5] is referenced in the normative clauses of this document:

ISO 544: *Welding consumables — Technical delivery conditions for welding filler materials — Type of product, dimensions, tolerances and markings*.

[1] No attempt has been made to provide for classification of all grades of copper and copper-alloy filler metals; only the more commonly used have been included.

[2] AWS standards are published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

[3] This ANSI standard is published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

[4] ASTM International standards are published by the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

[5] ISO standards are published by the International Organization for Standardization, 1, rue de Varembé, Case postale 56, CH-1211 Geneva 20, Switzerland.