

Specification for Nickel-Alloy Flux Cored and Metal Cored Welding Electrodes



AWS A5.34/A5.34M:2020
An American National Standard

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Specification for Nickel-Alloy Flux Cored and Metal Cored Welding Electrodes

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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 requirements for the classification of flux cored and metal cored nickel-alloy electrodes. For flux cored electrodes, testing determines the chemical composition, mechanical properties, soundness of the weld metal, and the welding position usability characteristics of the electrode using the specified shielding gas. For metal cored electrodes, testing determines the chemical composition, using the chemical compositions specified in AWS A5.14/A5.14M. This specification includes those compositions in which the nickel content exceeds that of any other element, but excludes nickel-base alloy compositions intended for the joining of cast irons. 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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Foreword

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

This specification now permits the classification of metal cored electrodes. Metal cored electrodes are classified based on chemical composition, as found in AWS A5.14/A5.14M, *Specification for Nickel and Nickel-Alloy Bare Welding Electrodes and Rods*.

NOTE: 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.

Substantive change in this edition is moving one sentence from A7.3.5 to A7.3.2 which is shown in *Italic* font.

Document Development

The evolution of this specification took place as follows:

AWS A5.34/A5.34M:2007, *Specification for Nickel-Alloy Electrodes for Flux Cored Arc Welding*

AWS A5.34/A5.34M:2013, *Specification for Nickel-Alloy Electrodes for Flux Cored Arc Welding*

AWS A5.34/A5.34M:2018, *Specification for Nickel-Alloy Flux Cored and Metal Cored Welding Electrodes*

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, 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 Nickel-Alloy Flux Cored and Metal Cored Electrodes

1. Scope

1.1 This specification prescribes requirements for the classification of nickel-alloy flux cored electrodes for flux cored arc welding *and the classification of nickel-alloy metal cored electrodes which may be used with various welding processes. See AWS A3.0M/A3.0 for the definitions of both types of electrodes.* It includes alloy compositions in which the nickel content exceeds that of any other element, but excludes nickel-base alloy compositions intended for the joining of cast irons.

1.2 This specification makes use of both U.S. Customary Units and the International System of Units (SI), according to the guidelines in AWS A1.1. 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. SI units 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 the A5.34 or A5.34M specification.

1.3 *Safety and health issues and concerns are beyond the scope of this standard; some safety and health information is provided, but such issues are not fully addressed herein. Some safety and health information can be found in Annex Clauses A5 and A10.*

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*
- (3) *Other safety and health information on AWS website*

Material or Equipment Manufacturers:

- (1) *Safety Data Sheets supplied by 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 documents listed below are referenced within this publication and are mandatory to the extent specified herein. For undated references, the latest edition of the referenced standard shall apply. For dated references, subsequent amendments to, or revisions of any of these publication do not apply.