



ANSI/AWS A5.19-92 (R2006)
An American National Standard



Specification for Magnesium Alloy Welding Electrodes and Rods



American Welding Society



Key Words—Bare magnesium alloy, filler metal, gas metal arc welding, gas tungsten arc welding, magnesium electrodes, magnesium rods, oxyfuel gas welding, plasma arc welding

**ANSI/AWS A5.19-92 (R2006)
An American National Standard**

**Approved by the
American National Standards Institute
April 21, 1992**

Specification for Magnesium Alloy Welding Electrodes and Rods

Supersedes AWS A5.19-90

Prepared by the
American Welding Society (AWS) A5 Committee on Filler Metal

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 bare magnesium alloy welding electrodes and rods for use with the gas metal arc, gas tungsten arc, oxyfuel gas, and plasma arc welding processes. Classification is based upon chemical composition of the welding wire. Standard sizes, finish, winding requirements, package forms and weights, product information, and chemical composition limits are specified.



American Welding Society

550 N.W. LeJeune Road, Miami, FL 33126

Table of Contents

	Page No.
<i>Personnel</i>	v
<i>Foreword</i>	ix
<i>Table of Contents</i>	xi
<i>List of Tables</i>	xii
<i>List of Figures</i>	xii
1. Scope	1
Part A—General Requirements	1
2. Classification	1
3. Acceptance	1
4. Certification	1
5. Units of Measure and Rounding-Off Procedure	1
Part B—Tests, Procedures, and Requirements	3
6. Summary of Tests	3
7. Retest	3
8. Weld Test Assemblies	3
9. Chemical Analysis	5
10. Radiographic Test	5
11. Bead-on-Plate Test	5
Part C—Manufacture, Identification, and Packaging.....	5
12. Method of Manufacture	5
13. Standard Sizes	6
14. Finish and Uniformity	6
15. Standard Package Forms	6
16. Winding Requirements	8
17. Filler Metal Identification	8
18. Packaging	8
19. Marking of Packages	8
Appendix—Guide to AWS Specification for Magnesium Alloy Welding Electrodes and Rods	11
A1. Introduction.....	11
A2. Classification System.....	11
A3. Acceptance.....	11
A4. Certification	11
A5. Ventilation During Welding.....	12
A6. Welding Considerations.....	12
A7. Description and Use of Magnesium Alloy Electrodes and Rods.....	12
A8. Special Tests	13
A9. General Safety Considerations.....	13
AWS Filler Metal Specifications and Related Documents	19

List of Tables

Table		Page No.
1	Chemical Composition Requirements for Magnesium Alloy Electrodes and Rods	2
2	Required Tests.....	3
3	Base Metal for Test Assemblies.....	3
4	Standard Sizes	7
5	Standard Packages, Dimensions, and Weights	7
A1	Guide to the Choice of Filler Metal for General Purpose Welding	14

List of Figures

Figure		Page No.
1	Groove Weld Test Assembly for Radiographic Test	4
2	Radiographic Acceptance Standards for Test Assemblies—Overhead Welding Position.....	6
3	Radiographic Acceptance Standard for Test Assemblies—Flat Welding Position	7
4	Dimensions of 4 in. (100 mm) Diameter Spool	9
5	Dimensions of 8 and 12 in. (200 and 300 mm) Diameter Spools	9
6	Dimensions of 13-1/2 in. (340 mm) Diameter Spool.....	10

Specification for Magnesium Alloy Welding Electrodes and Rods

1. Scope

This specification prescribes requirements for the classification of bare magnesium alloy welding electrodes and rods for use with the gas metal arc, gas tungsten arc, oxyfuel gas, and plasma arc welding processes.

Part A *General Requirements*

2. Classification

2.1 The electrodes and rods covered by this specification are classified according to the chemical composition of the filler metal as specified in Table 1, and their usability as specified in Section 8, Weld Test Assemblies, and Table 2.

2.2 Electrode or rod classified under one classification shall not be classified under any other classification in this specification.

2.3 The electrodes and rods classified under this specification are intended for gas metal arc, gas tungsten arc, oxyfuel gas, and plasma arc welding, but that is not to prohibit their use with any other process for which they are found suitable.

3. Acceptance

Acceptance¹ of the electrode or rod shall be in accordance with the provisions of ANSI/AWS A5.01, *Filler Metal Procurement Guidelines*.²

1. See A3. Acceptance (in the Appendix) for further information concerning acceptance and testing of the material shipped.

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

4. 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.³

5. Units of Measure and Rounding-Off Procedure

5.1 U.S. customary units are the standard units of measure in this specification. The SI units are given as equivalent values to the U.S. customary units. The standard sizes and dimensions in the two systems are not identical, and for this reason, conversion from a standard size or dimension in one system will not always coincide with a standard size or dimension in the other. Suitable conversions, encompassing standard sizes of both, can be made, however, if appropriate tolerances are applied in each case.

5.2 For the purpose of determining conformance with this specification, an observed or calculated value shall be rounded to the "nearest unit" in the last right-hand place of figures used in expressing the limiting value in accordance with the rounding-off method given in ASTM E29, *Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications*.⁴

3. See A4. Certification (in the Appendix) for further information concerning certification and the testing called for to meet this requirement.

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