

ANSI/AWS A5.32/A5.32M-97 (R2007)
An American National Standard

Specification for Welding Shielding Gases



American Welding Society

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Specification for

Welding Shielding Gases

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

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This specification for welding shielding gases specifies minimum requirements for the composition and purity of the most popular single-component shielding gases. Classification designators for both single and multicomponent gases are introduced. Other topics include testing procedures, package marking, and general application guidelines.

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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Specification for Welding Shielding Gases

1. Scope

This specification prescribes requirements for the classification of shielding gases. Gases may be supplied in either gaseous or liquid form, but when used in welding, the shielding is always in the gaseous form. Gas shielded arc welding processes include, but are not limited to: manual, semiautomatic, mechanized, and automatic gas tungsten arc welding (GTAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), electrogas welding (EGW), and plasma arc welding (PAW).

Part A *General Requirements*

2. Normative References

2.1 ASTM Standards¹

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

E260, *Standard Practice for Packed Column Gas Chromatography*

2.2 CGA Publications²

G-4.3, *Commodity Specification for Oxygen*

G-5.3, *Commodity Specification for Hydrogen*

G-6.2, *Commodity Specification for Carbon Dioxide*

G-9.1, *Commodity Specification for Helium*
G-10.1, *Commodity Specification for Nitrogen*
G-11.1, *Commodity Specification for Argon*
P-15, *Filling of Industrial and Medical Nonflammable Compressed Gas Cylinders*

3. Classification

3.1 The shielding gases covered by the A5.32/A5.32M specification are classified using a system that is independent of U.S. Customary Units and the International System of Units (SI). Classification is according to chemical composition of the shielding gas as specified in 13.1.

3.2 Gases classified under one classification shall not be classified under any other classification in this specification. Individual gases shall meet or exceed the requirements of Table 1.

3.3 The gases classified under this specification are intended for use with the gas shielded arc welding processes listed in the Scope. This does not prohibit their use with any other process for which they are found suitable.

4. Acceptance

Acceptance³ of the gases by the user shall be in accordance with the tests and requirements of Parts B and C of this specification.

¹ ASTM standards are published by the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

² CGA publications are published by the Compressed Gas Association, Inc., 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102.

³ See Section A3 (in the Annex) for more information.