

AWS A5.32M/A5.32:2011  
(ISO 14175:2008 MOD)  
An American National Standard



# Welding Consumables— Gases and Gas Mixtures for Fusion Welding and Allied Processes



**American Welding Society**



**AWS A5.32M/A5.32:2011 (ISO 14175:2008 MOD)  
An American National Standard**

**Approved by the  
American National Standards Institute  
January 11, 2011**

# **Welding Consumables—Gases and Gas Mixtures for Fusion Welding and Allied Processes**

**2nd Edition**

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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 standard prescribes the requirement for the classification of gases and gas mixtures for fusion welding and allied processes. Classification is based on composition of the more popular single and multi-component gases. Additional requirements are included for purity and moisture of individual gas components, testing, retesting, packaging, and cylinder or container labeling. An annex is appended to the standard as a source of information concerning the classification system and the intended use of the gases and gas mixtures.

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.



**American Welding Society**

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## Foreword

This foreword is not part of AWS A5.32M/A5.32:2011 (ISO 14175:2008 MOD), *Welding Consumables — Gases and Gas Mixtures for Fusion Welding and Allied Processes*, but is included for informational purposes only.

This is the first edition of this specification with modified adoption of ISO 14175: 2008, *Welding Consumables — Gases and Gas Mixtures for Fusion Welding and Allied Processes*.

This document 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 values in any way. In selecting rational metric units, ANSI/AWS A1.1, *Metric Practice Guide for the Welding Industry*, is used where suitable. Tables and figures make use of both U.S. Customary and SI units, which with the application of the specified tolerances provide for interchangeability of products in both the U.S. Customary and SI Units.

*ISO uses comma (,) for decimal, but AWS uses period (.) for decimal. Decimal commas have been changed to decimal periods.*

This specification developed as below:

ANSI/AWS A5.32/A5.32M-97     *Specification for Welding Shielding Gases*

ANSI/AWS A5.32/A5.32M-97R     *Specification for Welding Shielding Gases*

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# Welding Consumables—Gases and Gas Mixtures for Fusion Welding and Allied Processes

## 1. Scope

This Standard specifies requirements for the classification of gases and gas mixtures used in fusion welding and allied processes including, but not limited to:

- gas tungsten arc welding — *GTAW*;
- gas metal arc welding — *GMAW*;
- *flux cored arc welding* — *FCAW*;
- plasma arc welding — *PAW*;
- plasma arc cutting — *PAC*;
- laser *beam* welding — *LBW*;
- laser *beam* cutting — *LBC*;
- arc braze welding — *ABW*;
- *electrogas welding* — *EGW*.

The purpose of this Standard is to classify and designate these gases and gas mixtures in accordance with their chemical properties and metallurgical behavior as the basis for correct selection by the user and to simplify the possible qualification procedures. *The modes of application for gas shielded welding processes include, but are not limited to: manual, semiautomatic, mechanized, and automatic weld methods.*

Gas purities and mixing tolerances are specified as delivered by the supplier (manufacturer) and not at the point of use.

Gases or gas mixtures may be supplied in either liquid or gaseous form, but when used for welding and allied processes, the gases are always used in the gaseous form.

Fuel gases, such as acetylene, natural gas, propane, etc., and resonator gases, as used in gas lasers, are not covered by this Standard.

Transportation and handling of gases and containers shall be in accordance with local, national, and regional standards and regulations as required.

*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 annex clause A5. Safety and health information is available from other sources, including, but not limited to: Safety and Health Fact Sheets listed in A8.3, ANSI Z49.1 Safety in Welding, Cutting and Allied Processes<sup>1</sup>, and applicable federal and state regulations.*

*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 A5.32M uses SI Units. The specification with the designation A5.32 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 packaging or both under A5.32M or A5.32 specifications.*

<sup>1</sup> ANSI Z49.1 is published by the American Welding Society, 550 NW LeJeune Rd, Miami, FL 33126.