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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 43917.2-2024

**Equipment for capture and separation of welding fume - Part 2:
Requirements for testing and marking of separation efficiency
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting:

This document is part 2 of GB/T 43917 "Welding fume capture and separation equipment": GB/T 43917 has been published for the following part:

- Part 1: General requirements;
- Part 2: Testing and marking requirements for separation efficiency;
- Part 3: Determination of the collection efficiency of smoke suction devices on welding

guns;

--- Part 4: Determination of minimum air volume of capture device:

This document is modified to adopt ISO 21904-2:2020 "Health and safety in welding and allied processes - Equipment for capturing and separating welding fumes" Part 2: Testing and marking requirements for separation efficiency:

The technical differences between this document and ISO 21904-2:2020 and their reasons are as follows:

--- Replaced ISO 21904-1:2020 (see Chapter 3, 6:3:3) with the normative reference GB/T 43917.1 to adapt to my country's technical requirements:

Technical conditions;

--- Replaced ISO 15011-1:2009 (see 6.3:1) with the normative reference GB/T 43905.1 to adapt to my country's technical conditions:

The following editorial changes were made to this document:

--- In order to coordinate with the existing standards, the name of the standard is changed to "Welding fume capture and separation equipment Part 2: Test for separation efficiency and marking requirements";

--- Change the additional information in the definition of "modular system" to "note" (see 3.2);

--- Deleted part of the method background introduction and modified statements in Chapter 4 (see ISO 21904-2:2020, Chapter 4 chapter);

--- Added titles to untitled items (see 5.1 to 5:3);

--- Added item numbers to the parallel paragraphs (5:4, 6:3:1~6:3:5);

--- Adjusted the order of Appendix A and Appendix B (see Appendix A, Appendix B);

--- Replace the welding wire material in the informative appendix from EN440G3Si1 to G49A4M21S6 (see Appendix A):

Introduction

The fumes and gases produced by welding and related processes can seriously affect human health: Therefore, it is necessary to control the fumes and gases produced by welding to minimize the risk of it is extremely important to minimize the exposure of welders and welding operators: The most effective control method is to prevent smoke and gas from entering welders and welding operators:

The welding fume is captured near the welding source before the welding breathing zone or the working environment: The capture effect of the equipment will directly affect the welder

and the welding operator:

Health at work:

GB/T 43917 "Welding fume capture and separation equipment" specifies the design and manufacturing requirements of welding fume capture and separation equipment, various related Component requirements and testing of three basic performance parameters: separation efficiency, capture efficiency of the smoke suction device on the welding gun and minimum air volume of the capture device Method, through the above provisions, ensure that the welding fume capture and separation equipment achieves the desired capture effect:

GB/T 43917 is intended to consist of four parts:

--- Part 1: General requirements: Aims to specify the requirements for collecting and separating materials produced by welding and related processes (such as arc welding and thermal cutting):

Overall design and manufacturing requirements for flue gas ventilation equipment:

--- Part 2: Test and marking requirements for separation efficiency: Aims to specify the test method for the separation efficiency of welding fume separation equipment and and marking requirements:

--- Part 3: Determination of the collection efficiency of the smoke suction device on the welding gun: Aims to specify the welding smoke collection efficiency of the welding gun suction system Laboratory measurement methods:

--- Part 4: Determination of the minimum air volume of the capture device: Aims to specify the test method for measuring the minimum air volume of welding fume capture and separation equipment:

Test method:

Welding fume capture and separation equipment Part 2: Testing and labeling requirements for separation efficiency

1 Scope

This document specifies the test method and marking requirements for the separation efficiency of welding fume separation equipment, including test principles, equipment and instruments, Test methods, measurement accuracy and test reports:

This document applies to the testing and marking of separation efficiency of welding fume capture and separation equipment and is not applicable to equipment not related to the intended use:

Filter element testing:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document:

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document:

GB/T 43905.1 Laboratory methods for sampling of fumes and gases during welding and allied processes Part 1: Fume emissions from arc welding Collection of smoke for determination of rate and analysis (GB/T 43905.1-2024, ISO 15011-1:2009, MOD) GB/T 43917.1 Welding fume capture and separation equipment Part 1: General requirements (GB/T 43917.1-2024, ISO 21904-1:2020,MOD) results-Estimation of the mean-Confidence interval)

3 Terms and definitions

The terms and definitions defined in GB/T 43917.1 and the following apply to this document:

Free-standing unit

Separating device with integrated fan:

Modular systemmodularsystem Separation plant consisting of scalable filter systems with identical filter elements and installation conditions:

NOTE: Modular systems are usually connected to one fan:

welding fume source the source of smoke generated during the welding process and discharged to the separation equipment for separation efficiency testing:

Emission rate the mass of particles emitted per unit time by a welding fume source:

Note: The unit of emission rate is milligrams per second (mg/s):