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

GB/T 19518.1-2024

Replacing GB/T 19518.1-2017

**Explosive atmospheres - Electrical resistance traces heating -
Part 1: General and testing requirements**

爆炸性环境 电阻式伴热器 第1部分：通用和试验要求

(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 1 of GB/T 19518 "Resistance Tracer Heaters for Explosive Atmospheres". GB/T 19518 has been published for the following part.

--- Part 1: General and test requirements;

--- Part 2: Design, installation and maintenance guidelines.

This document replaces GB/T 19518.1-2017 "Resistive trace heaters for explosive atmospheres Part 1: General and test requirements" Compared with GB/T 19518.1-2017, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

--- Added a table of applicability of GB/T 3836.1-2021 clauses (see Table 1);

--- Changed the requirements for steady-state design (see 4.5.2, 4.4.2 of the 2017 edition);

- Changed the requirements for controlled design (see 4.5.3, 4.5.3 of the 2017 edition);
- Added requirements for combustion test burners and fuels (see 5.1.4);
- Added the minimum temperature shock test (see 5.1.5.2);
- Added the requirements for winding samples on the mandrel in the thermal stability test of electrical insulating materials (see 5.1.11);
- Added thermal performance test (see 5.1.12);
- Changed the system method for determining the maximum sheath temperature (see 5.1.13.3, 5.1.13.4, 5.1.13.2 of the 2017 edition);
- Added outdoor exposure test (see 5.1.16);
- Changed the marking requirements (see Chapter 6, Chapter 6 of the 2017 edition);
- Added document requirements (see Chapter 7);
- Added an appendix on the design verification method for heater products (see Appendix A).

This document is modified to adopt IEC/IEEE60079-30-1.2015 "Explosive atmospheres Part 30-1.General and Test requirements".

This document has made the following structural adjustments compared to IEC/IEEE60079-30-1.2015.

- Appendix A corresponds to Appendix C of IEC/IEEE60079-30-1.2015;
- Appendix B corresponds to Appendix A of IEC/IEEE60079-30-1.2015;
- Appendix C corresponds to Appendix B of IEC/IEEE60079-30-1.2015.

The technical differences between this document and IEC/IEEE60079-30-1.2015 and their reasons are as follows.

- The clauses in Table 1 have been changed to be consistent with GB/T 3836.1-2021;
- IEC 60050-426 (see Chapter 3) has been replaced by the normative reference GB/T 2900.35 to adapt to my country's technical conditions, Increase operability;
- IEC 60050-151 (see Chapter 3) has been replaced by the normative reference GB/T 2900.83 to adapt to my country's technical conditions, Increase operability;
- Replaced IEC 60079-0 with the normative reference GB/T 3836.1-2021 (see Chapter 3, 4.1, 4.3, 5.1.1, 6.1, 6.2) to adapt to my country's technical conditions and increase operability;
- Replaced IEC 60079-7 (see Chapter 3) with the normative reference GB/T 3836.3 to adapt to my country's technical conditions and increase Operability;

--- The normative reference GB/T 5169.15 replaces IEC 60695-11-3 (see 5.1.4) to adapt to my country's technical conditions and increase Increase operability;

--- ISO 4582 (see 5.1.16) has been replaced by the normative reference GB/T 15596 to adapt to my country's technical conditions and increase operability.

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--- Replaced ISO 4892-1 (see 5.1.16) with the normative reference GB/T 16422.1 to adapt to my country's technical conditions and increase Operability;

--- Replaced ISO 4892-2 (see 5.1.16) with the normative reference GB/T 16422.2 to adapt to my country's technical conditions and increase Operability;

--- Deleted Appendix D on the requirements for heating systems for Section 1 and Section 2 locations to align with my country's classification method for explosive atmosphere locations Consistent.

The following editorial changes were made to this document.

--- In order to coordinate with the existing standard series, the standard name is changed to "Resistive Heaters for Explosive Atmospheres Part 1: General and Test Inspection Requirements;

--- Deleted the note on the standard clause number in Table 1;

--- Added information about the addresses of ISO and IEC terminology databases in the terms and definitions;

--- The note on the definition of "heating device" in 3.41 was deleted in the terms and definitions;

--- Information about the professional field and source of terms has been deleted from terms and definitions;

--- Deleted Appendix E on the type test of heating in sections 1 and 2;

--- Replace the international documents cited for informational purposes with Chinese documents.

Introduction

GB/T 19518 "Resistance Tracer Heaters for Explosive Atmospheres" aims to establish the basic requirements for resistance trace heaters for explosive atmospheres and provide Provides application guidance in the form of a partial standard, including the following parts.

--- Part 1: General and test requirements;

--- Part 2: Design, installation and maintenance guidelines.