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

GB/T 46692.1-2025

**Gas detectors for workplace atmospheres - Part 1: Performance
requirements of detectors for toxic gases**

工作场所环境用气体探测器 第1部分：有毒气体探测器性能要求

(English Translation)

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References

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 1 of GB/T 46692 "Gas Detectors for Workplace Atmospheres". GB/T 46692 has the following publications.

part.

---Part 1: Performance Requirements for Toxic Gas Detectors;

---Part 2: Selection, installation, use and maintenance of toxic gas detectors.

This document is modified to adopt IEC 62990-1:2019 "Workplace environment - Part 1: Performance of gas detectors for toxic gases".

Require".

The technical differences between this document and IEC 62990-1:2019, and the reasons therefor, are as follows.

---IEC 60079-0 (see 4.3) has been replaced with the normatively referenced GB/T 3836.1 to adapt to my country's technical conditions and add [something related to compliance/restrictions].

Operability;

---IEC 60068-2-6 (see 5.4.4.1.1 and 5.4.4.1.2) has been replaced with the normatively referenced GB/T 2423.10 to adapt to my country's national standards.

Technical conditions, increasing operability;

---IEC 61000-6-3 (see 5.4.7.3.1 and 5.4.7.3.2) has been replaced with the normatively referenced GB 17799.3 to accommodate my country's national standards.

Technical conditions, increasing operability;

---IEC 61000-6-4 (see 5.4.7.3.1 and 5.4.7.3.2) has been replaced with the normatively referenced GB 17799.4 to accommodate my country's national standards.

Technical conditions, increasing operability;

---IEC 61326-1 and IEC 61326-1:2012 have been replaced by the normatively referenced

GB/T 18268.1 (see 5.4.7.3.1).

(5.4.7.3.2, 5.4.7.3.3), to adapt to my country's technical conditions and increase operability;

---IEC 61000-4-29 (see 5.4.7.3.3) has been replaced with the normatively referenced GB/T 17626.29 to adapt to my country's technical requirements.

Add components and increase operability;

---IEC 60529 has been replaced with the normatively referenced GB/T 4208 (see 5.4.11) to adapt to my country's technical conditions and increase operability.

Acting.

The following editorial changes have been made to this document.

---To align with existing standards, this document has been renamed "Gas Detectors for Workplace Environments - Part 1: Toxic Gases" Gas Detector Performance Requirements;

---A note regarding GB/T 2900.35 has been added to Chapter 3;

---The source information for terms 3.1.11 "reference period", 3.7.1 "expanded uncertainty", and 3.7.2 "measurand" has been removed;

---In section 5.3.5, the unit for temperature difference has been changed from "K" to "°C";

---The serial number labels in Figure B.3 have been deleted;

---Includes technical errata from IEC 62990-1:2019/COR1.2019, with the relevant clauses located in the outer margin.

It was marked with a vertical double line (||);

---The cited international documents have been replaced with Chinese documents, and the references have been modified.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Electrical Equipment Industry Association.

This document is under the jurisdiction of the National Technical Committee on Standardization of Explosion-proof Electrical Equipment (SAC/TC9).

Introduction

Toxic gases may be used when the accumulation of a mixture of toxic gases or vapors could pose a hazard or adverse effect on life or health.

Gas detectors reduce danger by detecting the presence of toxic gases or vapors and issuing appropriate audible and visual alarms. Gas detectors can also be used for starting...

Active preventative measures (such as equipment shutdown and personnel evacuation) are necessary. However, in areas where toxic gases or vapors may be present, relying solely on detector performance is insufficient.

It can ensure the safety of life and property. This includes the correct selection, installation, calibration, and regular maintenance of the detector, as well as understanding the limitations of the detection technology.

The solution has a significant impact on the required level of safety. Only through comprehensive and reliable management can the goal of safety be achieved.

GB/T 46692 aims to establish performance requirements for various toxic gas detectors and provide application guidelines, adopting a section-based approach.

The form includes the following two parts.

---Part 1: Performance Requirements for Toxic Gas Detectors. The purpose is to specify the general requirements and test methods for toxic gas detectors.

---Part 2: Selection, Installation, Use, and Maintenance of Toxic Gas Detectors. The purpose is to provide guidance on the selection, installation, use, and maintenance of toxic gas detectors.

Guidelines for installation, use, and maintenance.

Regarding gas detector standards, the IEC has successively formulated IEC 60079-29 "Explosive Atmospheres" for combustible gas detectors.

The document references IEC 62990, "Gas Detectors in the Workplace Ambient," and IEC 60079-29, which pertains to toxic gas detectors.

This is converted into GB/T 20936 (all parts). The GB/T 46692 standard developed this time converts IEC 62990 into a Chinese national standard.

Gas detectors for workplace environments - Part 1.

Toxic gas detector performance requirements

1 Scope

This document specifies the use of portable, mobile, and stationary toxic gases or vapors in workplace environments and other industrial and commercial applications.

General requirements and test methods for the design, function and performance of detectors or concentration measurement devices.

This document applies to continuous sensing detectors with indication, alarm, and/or other output functions, indicating the presence of toxic gases or vapors in the environment.

The presence of gas (its sensor generates an electrical signal when gas is present) triggers