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

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**Gas monitors and alarms for workplace - General technical
requirements**

(English Translation)

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1 Scope

This Standard specifies the terminology, classification, technical requirements, test methods, inspection rules, and identification of gas monitors and alarms for workplaces (hereinafter referred to as "monitors and alarms").

This Standard is applicable to the production and use of monitors and alarms for flammable gas, toxic gas and oxygen in workplaces within the territory of the People's

Republic of China. The monitors and alarms used in other special places shall also be implemented this Standard in addition to otherwise specified in the relevant standards.

2 Normative References

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 2421 Environmental Testing for Electric and Electronic Products - Part 1.

General and Guidance

GB 3836.1 Explosive Atmospheres - Part 1.Equipment - General Requirements

GB 3836.2 Electrical Apparatus for Explosive Atmosphere - Part 2.Flameproof

Electrical Apparatus d

GB 3836.4 Explosive Atmospheres - Part 4.Equipment Protection by Intrinsic

Safety i

GB/T 4798.10 Environmental Conditions Existing in the Application of Electric and

Electronic Products - Guidance

GB/T 4857.5 Packaging - Transport Packages - Vertical Impact Test Method by

Dropping

GB 15322-2003 (all parts) Combustible Gas Detectors

5.1 General

The technical requirements and test methods of gas alarm instrument and gas detection and alarm instrument shall implement this Standard. Firstly, meet the technical requirements of this Clause; and then test according to the provisions of

Clause 6; and meet the test requirements.

5.2.1 Gas alarm (hereinafter referred to as "alarm instrument" or "detection and alarm

instrument") shall be composed of two parts. detection parts and alarm parts; gas detection and alarm instrument shall be composed of three parts. detection parts, indicator parts and alarm parts.

5.2.2 The portable alarm instrument shall be small in size, light in weight, and easy to carry or move.

5.2.3 The detection parts of the stationary alarm instrument shall have a weather-proof, sand-proof and insect-proof structure, and be easy to install; the alarm parts shall be easy to install, operate and monitor.

5.2.4 The instrument shall be made of corrosion-resistant materials or be treated with anti-corrosion on the surface of the instrument, and its coating and colouring shall not fall off easily.

5.2.5 The alarm instrument shall be easy to identify when it is in working condition.

5.2.6 The alarm instrument shall be easy to calibrate.

5.2.7 When the alarm instrument is used in a place with flammable and explosive gas, it shall have explosion-proof performance, comply with GB 3836.1, GB 3836.2 and GB

3836.4; and obtain an explosion-proof inspection certificate.

5.2.8 Alarm instrument, detection and alarm instrument shall have effective alarm devices.

5.3 Performance requirements

5.3.1

The detection and alarm instrument shall have the following functions.

5.3.1.1

The detection and alarm instrument shall be equipped with manual self- inspection function for the sound and light alarm devices.

5.3.1.2 For the detection and alarm instrument with output control function, when the

detection and alarm instrument sends out an alarm signal, it shall be able to start the is $\pm 5\%$.

6.1.5 The detection and alarm instrument (hereinafter referred to as "specimen") shall be inspected for appearance and structure according to 5.2 before the test, and the test can be carried out only when it meets the requirements.

6.1.6 When the specimen enters the working state and the specified stabilization time

has passed, the test can be started. When calibrating the instrument, use zero gas and standard gas. The standard gas shall be that produced by a nationally recognized standard gas manufacturer. Different concentrations of standard gas can be prepared with a gas dilution device that has passed the measurement certification, but the gas concentration must meet the uncertainty of $\leq 2.0\%$.

6.2.1 Purpose

Inspect the function of the specimen.

6.2.2 Requirements

The function of the specimen shall meet the requirements of 5.3.1.

6.2.3 Methods

Operate the self-inspection mechanism of the sample; observe and record the sound and light alarm conditions of the specimen.

6.3.1 Purpose

Inspect the battery performance of the specimen.

6.3.2 Requirements

The battery performance of the specimen shall meet the requirements of 5.3.2.

6.3.3 Methods

6.3.3.1

Inspect the setting of the low battery indicator function of the specimen battery.

6.3.3.2 For a portable detection and alarm instrument, make the specimen work

continuously until the battery indicates low and then work for another 15min. Then, according to methods in 6.4.3 and 6.5.3 to check the detection error and alarm error of the specimen. Then put a battery with sufficient power into the continuously working specimen make it in the normal monitoring state. After 8h, check the working condition of the specimen.

6.5.3.3 When inspecting the toxic gas alarm instrument, calibrate the instrument or

device according to the manufacturer's provisions. Inject the tested gas below the setting alarm content into the detection parts; and then the content of the test gas shall be gradually increased until an alarm occurs. Calculate the error between the test gas content and the alarm setting value at this time.

6.6.1 Purpose

Inspect the consistency of multiple alarms issued from the single detection and alarm instrument.

6.6.2 Requirements

The repeatability of the specimen shall meet the requirements of 5.3.5.

6.6.3 Methods

Calibrate the instrument or device according to the manufacturer's provisions. Perform 6 consecutive tests on any orientation and content of the specimen's normal working position; and use at least one content to calculate its error.