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

GB/T 12474-2008

Replacing GB/T 12474-1990

Method of test for explosion limits of combustible gases in air

空气中可燃气体爆炸极限测定方法

(English Translation)

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Foreword

This corresponds to the standard ISO 10156:1996 "Gases and gas mixtures cylinder valve port selecting fire potential and oxidizing ability measured Given "second edition (in English), non-equivalent, the main differences are as follows.

- Remove the calculation method of "air of flammable gases and gas mixtures" in;
- Delete the words "oxidation gases and gas mixtures" experiment and calculation;
- Remove the appendix;
- This standard can be the entire device is heated to a maximum of 50 °C test.

This standard replaces GB/T 12474-1990 "Determination of explosion limits of combustible gases in the air." This standard and GB/T 12474-the main changes compared to 1990 are as follows.

- Increasing the "Introduction";
- Added "normative references";
- Increase the terms of entry;
- Increasing the test principle;
- Valve added other ways;
- Increasing the explosions of judgment;
- Standard text format press on GB/T 1.1-2000 made editorial changes.

Please note that some of the content of this standard may involve proprietary content. The standard release mechanism should not bear the identification of these patents

responsibility.

The standard proposed by the People's Republic of China Ministry of Public Security.

This standard by the National Standardization Technical Committee on Fire First Technical Committee (SAC/TC113/SC1) centralized.

Introduction

Explosive limit combustible gases used in hazard classification. There are explosive process equipment allowable concentration of combustible gases, explosive Computing environment gas ventilation and heating systems, hot work safety when concentrations are determined with the explosion limit of the parameters.

The method according to this standard is not formed flame spread and ignited flammable gas-air mixture, not fully consider the mixed gas is not Explode.

Explosive limit combustible gas and air mixture to the following factors.

- a) the type of combustible gas and chemical properties;
- b) the purity of the combustible gas;
- c) the uniformity of combustible gas and air mixture;
- d) in the form of an ignition source, energy and ignition position;
- e) explosive containment vessel geometry and dimensions;
- f) the temperature of the combustible gas and air mixture, pressure and humidity.

Explosive limit combustible gases in air Determination

1 Scope

This standard specifies the method for determination of explosion limits of combustible gases in the air.

This standard applies to the determination of the limits of combustible gas explosion at atmospheric pressure in air.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 5907-1986 fire first part basic terms

3 Terms and Definitions

GB/T 5907-1986 and established the following terms and definitions apply to this standard.

Combustible gas and air mixture consisting of fire source that can explode lowest concentration of combustible gases.

Combustible gas and air mixture consisting of fire source that can explode the highest concentration of combustible gases.

Test Method 4

4.1 Test principle

The combustible gas and air mixing by a certain percentage, then conduct spark ignited combustible gas concentration change can occur until the measured Lowest explosion, the highest concentration.

4.2 Test device

Explosion limit measuring device consists of the reaction tube, an ignition device, a stirring device, a vacuum pump, a pressure gauge, solenoid valves, etc., shown in Figure 1. anti-should be made of hard glass tubes, tube length $1400\text{mm} \pm 50\text{mm}$, inner diameter $60\text{mm} \pm 5\text{mm}$, the wall thickness not less than 2mm, the bottom of the tube Equipped with pressure relief valve diameter not less than 25mm of. The device can be placed in a warmed to 50°C incubator. Incubator before and after each double door, Tempered glass layer, a layer of plexiglass to observe the test and play a protective role.

The minimum ignition of combustible gas and air mixture use spark ignition, spark energy should be greater than the mixed gas can. Discharge electrode distance Bottom of the reaction tube is not less than 100mm, and in the center of the tube cross-section, electrode spacing of $3\text{mm} \sim 4\text{mm}$.

Note: can be used as the ignition voltage transformer 300VA power supply, a voltage is 10kV (RMS), the spark duration is preferably 0.5s.

4.3.1 Check tightness test apparatus

The apparatus was evacuated to not more than 667Pa (5mmHg) degree of vacuum, and then stop the pump. 5min after the pressure drop is less than the pressure gauge 267Pa (2mmHg), tightness is considered to meet the requirements.

4.3.2 Preparation of mixed gas

Preparation of mixed gas partial pressure method can also be used with other gas accurate manner.