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

GB/T 803-2026

Replacing GB/T 803-2008

Determination of explosion indices of combustible gases in air

空气中可燃气体爆炸指数测定方法

(English Translation)

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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 replaces GB/T 803-2008 "Determination of the Explosive Index of Combustible Gases in Air". Compared with GB/T 803-2008, except for the following.

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) The requirements for the test apparatus have been changed (see Chapter 4, 4.2 of the 2008 edition);
- b) Added "Safety Protection" requirements (see Chapter 5);
- c) Increased requirements for test samples (see Chapter 6);

- d) The experimental procedures were modified (see Chapter 7, 4.3 of the 2008 edition);
- e) Added the requirement for "determination of test results" (see Chapter 8);
- f) Added device verification requirements (see Chapter 9).

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 National Fire and Rescue Administration.

This document is under the jurisdiction of the National Fire Protection Standardization Technical Committee (SAC/TC113).

Introduction

0.1 Evaluation and calculation of the explosion hazard protection for a mixture of combustible gas and air (hereinafter referred to as "mixture") requires prior determination of this...

The explosive index of a gas mixture. Verifying the effectiveness of an explosion protection system also requires testing with explosions of known strength.

The explosive potential of a flammable gas-air mixture is related to the following factors.

- a) Chemical properties of combustible gases;
- b) Volume fraction of combustible gas in the gas mixture;
- c) Temperature and pressure of the gas mixture;
- d) Homogeneity and turbulence of the gas mixture;
- e) The type, energy, and location of the ignition source;
- f) The geometry and volume of the container.

0.2 The explosion index was determined according to the method given in this document, and its relationship with the explosion at the scene was analyzed, especially the effect of turbulence on the explosion hazard.

The impact will be explained by relevant experts.

There are two common extreme turbulence conditions in industry.

- a) The gas is at rest inside the container;
- b) The gas is in a highly turbulent state in the exhaust zone.

Turbulence can be generated in two ways.

- a) Under normal working conditions in the workshop, airflow creates gas turbulence;

b) The gas that expanded due to the explosion inside the device was obstructed, causing turbulence.

Methods for determining the explosive index of combustible gases in air Warning. If the mixture is not ignited during the test conducted according to this document, it does not mean that the mixture will not explode.

1 Scope

This document describes a test method for determining the explosion index of a mixture of combustible gas and air in a closed container, including the test apparatus.

The setup, safety protection, test samples, test procedures, device verification, and test reports.

This document is applicable to determining the explosion index of a gas mixture ignited in a confined space.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 34525 Safety Regulations for Handling, Loading, Unloading, Storage and Use of Gas Cylinders

3 Terms and Definitions

The following terms and definitions apply to this document.

Within a closed or nearly closed container, a combustible gas (vapor) or its mixture instantaneously forms a high pressure in the air, usually accompanied by a strong odor.

Chemical reactions that produce heat, light, and sound.

[Source. GB/T 5907.1-2014, 2.38, with modifications] 3.2 Explosion pressure p_m the highest pressure (absolute pressure) value generated during an explosion test of a certain concentration of the mixed gas inside the explosion reaction vessel.

Note: Figure 1 shows a typical explosion pressure-time curve.