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

GB/T 21859-2025

Replacing GB/T 21859-2008

Determination of the auto ignition temperature of gas and vapor

气体和蒸气自燃温度的测定方法

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 5 Instruments and Equipment

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 supersedes GB/T 21859-2008 "Determination of Ignition Temperature of Gases and Vapors" and is consistent with GB/T 21859-2008. Aside from structural adjustments and editorial changes, the main technical changes are as follows:

- The experimental container for sample loading and the observation scenario in the "Principles" section have been changed (see Chapter 4, Chapter 3 of the.2008 edition);
- The overall structural diagram, partial diagram, and diagrams of the bottom heating and neck heating devices for the experimental equipment in the "Equipment" section have been deleted (see.2008 edition). (Figures 1-5)
- Added requirements for conical flasks used in the testing equipment (see 5.1);
- The term "furnace" has been changed to "heating furnace," and the requirements for the location of the heating device in the test have been modified (see 5.3, 4.1 of the.2008 version);
- A new chapter on "Sample Addition" has been added (see Chapter 6);
- The term "Operating Procedures" has been changed to "Test Procedures," altering the sequence and requirements of the test process (see Chapter 7,.2008 edition). Chapter 5);
- The requirement regarding "reproducibility" in the test has been removed (see 7.2 in the.2008 version);
- Added requirements for recording test basis, sample information, and test results in the "Report" (see Chapter 9);
- Added the requirement for "test apparatus assembly" (see Appendix A). 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 and is under the jurisdiction of the National Technical Committee on Standardization of Hazardous Chemicals Management (SAC/TC251). This document was drafted by: Shanghai Customs Industrial Products and Raw Materials Testing Technology Center, Shanghai Chemical Industry Research Institute Testing Co., Ltd., and East China University of Science and Technology. School, Nanjing University of Science and Technology, Henan Haikel Instrument Co., Ltd., Shanghai Chemical Industry Research Institute Co., Ltd. The main drafters of this document are. Ma Tengzhou, He Yuan, Huang Yu, Wu Hao, Xiao Qiuping, Wu Ting, Xu Liang, Shang Zhaocong, Huang Yiliang, Wang Leiming, and Wu Yingying. Liu Chenyang, Nie Wenlei, Jiang Wei, Huang Zhiqing, Peng Guang, Xie Li, Xu Pengfei. The release history of this document and the document it replaces is as follows: ---First published in.2008 as GB/T 21859-2008.

1 Scope

GB/T 21859-2025 is the Chinese national standard on determination of the auto ignition temperature of gas and vapor, in the field of environment and health protection, safety. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 5 October 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 February 2026. Classification: ICS 13.300, CCS A80. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document establishes the principles and test procedures for determining the auto-ignition temperature of gases and vapors, and specifies the instruments, samples to be added, test results, and... Requirements for report content. This document applies to the determination of the auto-ignition temperature of gases and vapors. This document does not apply to explosive substances or substances that spontaneously combust upon contact with air at ambient temperature.

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 22362-2023 Laboratory Glassware Flasks

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 The lowest temperature at which a substance will burn when mixed with air under specified test conditions.

3.2 Ignition delay time The timer starts from when the test substance is completely injected into the conical flask and ends when the test substance is observed to begin burning.

4.Principles After heating the test container to a preset temperature, a certain amount of sample is added into the test container. The temperature of the container and the sample are then adjusted accordingly. The combustion characteristics of the sample are observed, and the lowest temperature of the test container when the sample starts to burn is recorded. This temperature is the auto-ignition temperature of the sample.

5 Instruments and Equipment

5.1 Conical flask The conical flask shall meet the requirements of GB/T 22362-2023 and shall be a wide-mouth conical flask with a capacity of.200 mL.

5.2 Thermocouples The measuring range is 0°C to 700°C or wider, and the measurement accuracy is less than or equal to 1.0°C.