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

GB/T 45237-2025

**Dangerous goods - Test method of vent sizing for vessels of
self-reactive substances and organic peroxides**

危险货物 自反应物质和有机过氧化物容器排气孔尺寸确定的试验方法

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed and coordinated by the National Technical Committee for Hazardous Chemicals Management Standardization (SAC/TC251). This document was drafted by: Nanjing University of Science and Technology, Changzhou University, Anhui University of Science and Technology, Xi'an Institute of Modern Chemistry, North University of China, Xiangtan University Institute of Petroleum and Chemical Industry, China Petroleum and Chemical Industry Federation, Jiangsu Qiangsheng Functional Chemicals Co., Ltd., and Changshu Nissan Chemical Co., Ltd. The main drafters of this document are: Han Zhiwei, Gao Qiang, Lei Kang, Peng Yong, Wang Hao, Chen Liping, Zhang Yu, An Sensen, Fang Mingkun, Chen Yuan, Xu Sen, Xu Feiyang, Zhang Lei, Li Yuyan, Tan Liu, Cao Weiguo, Jiang Xibo, Cao Mengran, Chen Yiwen, Ying Li, Bai Gang. Dangerous Goods Self-reactive substances and organic peroxides Test method for determining the size of vent holes in containers Warning. People who use this document should have practical experience in regular laboratory work. Special attention should be paid to the test process involving explosion The use of explosives requires relevant qualifications and site conditions or entrusting an organization with relevant conditions to operate. This document does not specify all possible The user is responsible for taking appropriate safety and health measures and ensuring that the laboratory complies with relevant national laws and regulations. condition.

1 Scope

GB/T 45237-2025 gives the test method for sizing the emergency vents of vessels holding self-reactive substances and organic peroxides. The hazard is specific: these substances

decompose exothermically and the decomposition accelerates with temperature, so a drum or tank heated in a fire will run away, and whether it bursts or vents depends entirely on whether the relief area is large enough for the rate of gas generation at that point. The standard sets the principle and the test procedure by which that rate is measured, the apparatus, the sample and its quantity and confinement, the heating regime that represents the fire exposure, the measurement of the pressure, temperature and gas evolution, the treatment of the results and the scaling from the test vessel to the actual package or tank, the calculation of the required vent area, and the safety requirements for conducting the test. It takes effect on 1 May 2025.

This document describes the test principles, equipment and materials for determining the sizing of vent holes in transport containers for Type F self-reactive substances and Type F organic peroxides. Materials, test procedures and test results. This document applies to substances that have been identified as Type F self-reactive substances and Type F organic peroxides, which are stored in intermediate bulk containers or tanks. When transporting, determine the size of the emergency vent of the transport container.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 567.1-2012 Bursting disc safety devices Part

3 Terms and definitions

Terms defined in GB/T 567.1-2012, GB 30000.9-2013, GB 30000.16-2013 and GB/T 30429 and the following and definitions apply to this document.

3.1 bursting disc A pressure sensitive element that operates rapidly due to overpressure.
[Source: GB/T 567.1-2012, 3.3, modified]

3.2 Organic peroxide Liquid containing a divalent -OO- structure, which can be regarded as a derivative of hydrogen peroxide in which one or two hydrogen atoms have been replaced by organic groups solid or organic matter.

Note. This includes organic peroxide preparations (mixtures). Organic peroxides are thermally unstable substances or mixtures that can undergo exothermic self-accelerating decomposition. [Source: GB 30000.16-2013, 3.1, modified]

7 Stainless steel and heat-resistant steel

GB 30000.9-2013 Chemical Classification and Labelling Specification Part

9 Self-reactive substances and mixtures

GB 30000.16-2013 Chemical Classification and Labelling Specification Part

16 Organic Peroxides

GB/T 30429 Industrial Thermocouple

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