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

GB/T 44184-2024

Stability tests for nitrocellulose mixtures

硝化纤维素混合物的稳定性测试方法

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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 is required. 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 on Hazardous Chemicals Management Standardization (SAC/TC 251). This document was drafted by: Shanghai Chemical Industry Research Institute Co., Ltd., Shanghai Chemical Industry Research Institute Co., Ltd., China Petroleum and Chemical Industry Federation Union. The main drafters of this document are. He Shaopeng, Dai Jikang, He Yuan, Wang Lu, Fan Bin, Qian Chenlong, Zhao Zhelong, Xie Ruijie, Zhao Libin, Zeng Weigang, Zhang Qinya, Zhang Zijun, Cao Mengran, Chen Yiwen, Hao Yuan. Stability test method for nitrocellulose mixture WARNING. Personnel using this document should have practical experience in formal laboratory work. This document does not purport to address all possible safety issues. The user is responsible for taking appropriate safety and health measures and ensuring compliance with the conditions stipulated in relevant national laws and regulations.

1 Scope

GB/T 44184-2024 gives the Chinese stability tests for nitrocellulose mixtures. Nitrocellulose decomposes autocatalytically: it liberates nitrogen oxides which attack the remaining material and accelerate the process, so a batch that is stable today may not be after storage, and the history of the industry is a history of fires that began in a store. Stabilisers are added to absorb those products, and a stability test is really a measurement of how much stabiliser life remains. The standard sets the test methods used for that purpose, with for each the principle, the apparatus, the sample preparation, the temperature and duration of the heating, the observation or measurement made, whether a colour change of a test paper, the pressure or gas evolved or the heat flow, the criteria by which a sample is judged

stable, and the safety precautions the testing itself requires, followed by the reporting. It takes effect on 1 November 2024.

This document specifies the method principle, reagents and materials, instruments and equipment, sample preparation, test steps, test results and classification. This document applies to the determination of the stability of nitrocellulose mixtures for cargo transport classification.

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. in this document.

GB/T 601 Chemical reagents - Preparation of standard titration solutions

GB/T 603 Chemical reagents - Preparation of preparations and products used in test methods

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 36526-2018 Test methods for industrial nitrocellulose WJ 1711 Technical Specifications for Methyl Violet Test Paper

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Nitrocellulose; NC The product of the esterification reaction between cellulose and nitric acid.

Note. Also known as cellulose nitrate, the molecular formula is $[C_6H_7O_2(OH)_3-m(ONO_2)_m]_n$.

4 Principles of the method

4.1 Overview The test methods specified in this document include the Beckmann-Jung method and the methyl violet paper method. The Beckmann-Jung method was chosen as the arbitration method because it allows reliable and reproducible quantitative assessment of the stability of nitrocellulose mixtures. Law.

4.2 Beckmann-Junker method The quantitative sample is placed in a Beckmann-Jung tube, heated under specified conditions, the released gas is absorbed by water, and the sample is labeled with sodium hydroxide. The volume of nitric oxide (NO) gas released per gram of nitrocellulose mixture is calculated and compared with the classification standard.

The stability of the nitrocellulose mixture was determined by comparison with the standard.

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