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

GB/T 44165.12-2026

**Determination of key chemicals in consumer products - Part 12:
Thiourea and its derivatives**

消费品中重点化学物质检测方法 第12部分：硫脲及其衍生物

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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 is Part 12 of GB/T 44165, "Test Methods for Key Chemical Substances in Consumer Products". GB/T 44165 has been published. The following section.

1. Short-chain chlorinated paraffins;

2. Styrene Migration;

3. Ethyl chloride;

---Part 4.1, 4-Dichlorobenzene;

7. Polychlorinated Naphthalenes;

8. Perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA);

9. Hexabromocyclododecane;

12. Thiourea and its derivatives. 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 Consumer Product Safety (SAC/TC508). This document was drafted by: China Light Industry Paper Products Inspection and Certification Co., Ltd., China National Institute of Standardization, and Hangzhou Qianzhiya Hygiene Products Co., Ltd. Guangxi Zhuang Autonomous Region Institute of Standards and Technology, Hangzhou Haoyue Nursing Products Co., Ltd., Jiangxi Provincial Institute of Quality and Standardization, Hangzhou Reliable Nursing Products Co., Ltd., Chongqing Baiya Hygiene Products Co., Ltd., Beijing Institute of Product Quality Supervision and Inspection, Nanjing Nanjing Municipal Institute of Product Quality

Supervision and Inspection (Nanjing Municipal Institute of Quality Development and Advanced Technology Application), Hangzhou Municipal Institute of Quality and Metrology, and Huacejian. Testing & Certification Group Co., Ltd., China Pulp & Paper Research Institute Co., Ltd., Beijing University of Technology, China Light Industry (Jinjiang) Hygiene Products Research Institute Limited Liability Company, China Light Industry Inspection and Certification Co., Ltd. The main drafters of this document are. Zhang Jingfan, Wang Kun, Lin Cuixia, Wen Xiaodong, Xu Lidan, Zhang Qingwen, Liu Chunhui, Zhang Ruibin, Liu Junjie, and Chen Qianwen. Zheng Qingtao, Li Ning, Lu Xiaowei, Wang Xiayan, Wei Zhenzhen, Wei Biao, Qin Xin, Liu Jianjun, Liu Na, Liu Hongyi, Wen Jianyu, Liang Jiyu, Chen Chang, Wu Yue Shao Yu, Yu Huan, Xu Bin, Ren Yong, Hu Zhaojun, Huang Xinyue, Yuan Taojing, Zhu Yong, Liu Yang, Shi Ji, Shen Zhenhuang, Wang Feixuan.

In recent years, with the widespread application of new materials and processes in the consumer goods sector, the safety issues of potential chemical substances in these products have gradually become more prominent. This has clearly attracted widespread attention both domestically and internationally. my country has formulated a series of standards to address the need for control over chemical substances in consumer products, and at the same time... The key to controlling chemical substances lies in the scientific, efficient, and accurate detection methods that accompany this. GB/T 44165, "Test Methods for Key Chemical Substances in Consumer Products," aims to provide standardized testing methods for high-risk chemical substances in consumer products. The testing method is proposed to consist of 12 parts.

- 1.Short-chain chlorinated paraffins. The purpose is to provide a method for determining the content of short-chain chlorinated paraffins in consumer products.
- 2.Styrene Migration. The purpose is to provide a method for determining styrene migration in consumer products.
- 3.Ethyl chloride. The purpose is to provide a method for determining the content of ethyl chloride in consumer products.

1 Scope

GB/T 44165.12-2026 is the Chinese national standard covering thiourea and its derivatives in consumer goods - used as a reducing and antioxidant agent in textiles, leather and plastics, and restricted because of their reproductive and thyroid toxicity. Part 12 of the series, first edition of this part, issued and in force on 28 January 2026. It was issued on 28 January 2026 and has been in force since 28 January 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes the determination of thiourea and its derivatives in consumer products using high-performance liquid chromatography (HPLC) and high-performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS). method. This document applies to sulfur in consumer products such as paper products, textiles, plastic products, rubber products, leather products, and detergents (excluding soaps). Determination of the content of urea and its derivatives (ethylene thiourea, N,N'-diethylthiourea and 1-naphthiourea). For other consumer products made of different materials, the above four substances shall be determined in accordance with this document after the method has been verified.

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 6682 Specifications and test methods for water used in analytical laboratories

GB/T 39364 Sampling sites for chemical, physical, mechanical and color fastness testing of leather
QB/T 2716 Preparation of samples for chemical testing of leather

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4 High Performance Liquid Chromatography

4.1 Principle After the sample was prepared by crushing and grinding, methanol was added for ultrasonic extraction. The extract was then filtered through a membrane filter, reconstituted by nitrogen blowing, and filtered again. Subsequently, high-performance liquid chromatography (HPLC) equipped with a diode array detector or ultraviolet detector was used for detection, and external standard method was used for quantification.

4.2 Reagents or Materials

4.2.1 Water. GB/T 6682, Grade I.

4.2.2 Methanol (CH₃OH). chromatographic grade. 4.2.3 5% methanol aqueous solution. Transfer 50 mL of methanol (4.2.2) and dilute to 1000 mL with water (4.2.1).

4.2.4 Standard. Thiourea (CH₄N₂S, CAS. 62-56-6), purity greater than 99.0%.

4.2.5 Standard. Ethylene thiourea (C₃H₆N₂S, CAS. 96-45-7), purity greater than 99.0%.

12 Thiourea and its derivatives Warning

---Personnel using this document should have practical experience working in a formal laboratory. This document does not address all possible safety issues. Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national regulations.

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