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

GB/T 44165.2-2024

**Determination of key chemicals in consumer products-Part
2:Migration of styrene**

消费品中重点化学物质检测方法 第2部分：苯乙烯迁移量

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Table of Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Principle

5 Reagents or materials

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.

This document is Part 2 of GB/T 44165 "Detection Methods for Key Chemical Substances in Consumer Products". GB/T 44165 has been published. The following parts.

- Part 1: Short-chain chlorinated paraffins;
- Part 2: Migration of styrene;
- Part 3: Ethyl chloride;
- Part 4.1,4-Dichlorobenzene;
- Part 5: Phenol;
- Part 6: Acrylamide.

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 Consumer Product Safety Standardization (SAC/TC508).

This document was drafted by: Nanjing Product Quality Supervision and Inspection Institute (Nanjing Quality Development and Advanced Technology Application Research Institute), China Standards Chemical Research Institute, Zhonghang Monitoring Technology Research Institute Co., Ltd., Zhejiang Mingfeng Industrial Co., Ltd., Xiamen Quanxinshun New Materials Technology Co., Ltd.

Zhejiang Paison Intelligent Furniture Co., Ltd., Zhejiang Fangyuan Testing Group Co., Ltd.,

China Textile Standard Inspection and Certification Co., Ltd., Hebei Product Quality Supervision and Inspection Institute, Beijing Giant Technology Service Co., Ltd., Beijing Product Quality Supervision and Inspection Institute, Green Chengnongke Testing Technology Co., Ltd., China Institute of Inspection and Quarantine, Beijing Institute of Standardization, Shenzhen Metrology Quality Inspection Research Institute, Taizhou Yiku New Energy Technology Co., Ltd.

The main drafters of this document are: Liu Xia, Tang Wen, Pei Hua, Li Changyu, Li Ning, Wang Kunran, Xu Lidan, Shen Zhongming, Zheng Shengshun, Lü Senqiang, Chen Qianwen, Qiu Zhijuan, Sun Yana, Chen Bin, Lü Qing, Zhang Hui, Fang Xiangjing, Li Kehong, Wu Li, Zhou Dawei, Bao Guojun, Jiang Zhou, Wang Xinyan, Zhang Ning, Peng Yanyan, Yan Tao, Huo Juyuan, Wu Fang, Zhao Yan, Li Xianghua, Ning Xiuli, Su Xueyan, Zhang Liping, Peng Bin, Qiu Yiman.

Introduction

GB/T 44165 "Detection Methods for Key Chemical Substances in Consumer Products" is a revision of GB/T 39498 "Control Methods for Use of Key Chemical Substances in Consumer Products".

The relevant chemical substances in the Guidelines provide detection methods.

GB/T 44165 is a unified or supplementary method standard for the detection of chemical substances in consumer products. It is intended to provide a unified or supplementary method standard for the detection of chemical substances in consumer products.

The project provides technical support for the supervision of relevant chemical substances in consumer products and is planned to consist of 9 parts.

- Part 1: Short-chain chlorinated paraffins;
- Part 2: Migration of styrene;
- Part 3: Ethyl chloride;
- Part 4.1,4-Dichlorobenzene;
- Part 5: Phenol;
- Part 6: Acrylamide;
- Part 7: Polychlorinated naphthalenes;
- Part 8: Perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA);
- Part 9: Hexabromocyclododecane.

Detection methods for key chemical substances in consumer products Part 2: Migration of styrene Warning---People who use this document should have practical experience in

formal laboratory work. This document does not 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

This document describes a method for the determination of styrene migration from consumer products by headspace-gas chromatography-mass spectrometry.

This document is applicable to the determination of styrene migration in consumer products made of polymer materials such as plastics and rubber, and consumer products made of other materials.

After the product has been verified, it shall be measured in accordance with this document.

2 Normative references

GB/T 6682

3 Terms and definitions

There are no terms or definitions that require definition in this document.

4 Principle

After the sample is prepared, it is extracted by water migration, and the migration solution is placed in a headspace bottle to achieve dynamic equilibrium at a specific temperature.

The samples were separated and detected by spectroscopy-mass spectrometry and quantified by external standard method.

5 Reagents or materials

Unless otherwise specified, only analytical grade reagents shall be used and the water shall be grade 1 water as specified in GB/T 6682.

5.1 Methanol. chromatographic grade. 5.2 Sodium chloride.

5.3 Styrene standard. purity $\geq 99\%$, see Table A.1 in Appendix A.

5.4 Styrene standard stock solution. Accurately weigh an appropriate amount of styrene standard (5.3) and prepare it with methanol (5.1) to a mass concentration of 1000 mg/L standard stock solution, stored at 0°C~4°C away from light, valid for 3 months.

5.5 Styrene intermediate standard solution. Accurately pipette an appropriate amount of styrene standard stock solution (5.4) and prepare it with methanol (5.1) to a mass

concentration of 100 mg/L intermediate standard solution, stored at 0°C~4°C away from light, valid for 1 month.

5.6 Styrene series standard working solution. Take appropriate amount of styrene intermediate standard solution (5.5) and dilute with water to prepare mass concentration A series of standard working solutions with concentrations of 0.005mg/L, 0.01mg/L, 0.02mg/L, 0.05mg/L, 0.1mg/L, and 0.2mg/L. The standard working solution must be prepared and used immediately.