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

GB/T 44165.4-2024

**Determination of key chemicals in consumer products-Part 4: 1,
4 - dichlorobenzene**

消费品中重点化学物质检测方法 第4部分：1,4-二氯苯

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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.

This document is part 4 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).

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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 4.1,4-Dichlorobenzene 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 1,4-dichlorobenzene in consumer products using headspace gas chromatography-mass spectrometry.

This document applies to consumer products (except furniture) containing liquid materials such as air cleaners, deodorants, insecticides, and mildew inhibitors.

Determination of dichlorobenzene. Consumer products made of other materials shall be determined in accordance with this document after verification.

2 Normative references

This document has no normative references.

3 Terms and definitions

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

4 Principle

Under certain temperature conditions, the volatile components in the sample in the headspace bottle evaporate to the space above the liquid, generating vapor pressure.

Thermodynamic dynamic equilibrium. Volatile organic compounds in the gas phase enter the gas chromatographic separation and are detected by mass spectrometer.

Relative abundance ratio and retention time of chromatographic peak were used for qualitative analysis, and external standard method was used for quantitative analysis.

5 Reagents or materials

Unless otherwise stated, all reagents were of analytical grade.

5.1 Methanol. chromatographic grade. 5.2 Grade 1 water.

5.3 Sodium chloride (NaCl). high-grade pure. Burn in a muffle furnace at 400°C for 4h, cool to room temperature in a desiccator, and transfer to a ground glass bottle. Save in.

5.4 Carrier gas. high purity helium, not less than 99.999%.

5.5 Standard. 1,4-dichlorobenzene (C₆H₄Cl₂, CAS No.. 106-46-7). purity greater than 99.5%.

5.6 Standard stock solution. Weigh a certain amount of standard substance (5.5) and prepare a standard stock solution with a mass concentration of 1000 µg/mL using methanol (5.1). Prepare the solution.

5.7 Standard intermediate solution. Take 0.1 mL of the standard stock solution (5.6) and dilute to 100 mL with methanol (5.1) to prepare a mass concentration of 1µg/mL standard intermediate solution.

5.8 Standard working solution. Take 0.025mL, 0.05mL, 0.1mL, 0.2mL, 0.5mL and 1.0mL of the standard intermediate solution (5.7) respectively.

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