



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

GB/T 39560.9-2024

**Determination of certain substances in electrical and electronic
products - Part 9: Hexabromocyclododecane in polymers by
gas chromatography-mass spectrometry (GC-MS)**

电子电气产品中某些物质的测定 第9部分：气相色谱-质谱法（GC-MS）测定聚合
物中的六溴环十二烷

(English Translation)

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Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative references	
3 Terms, definitions and abbreviations	
3.1 Terms and Definitions	
3.2 Abbreviations	
4 Principle	
5 Reagents and Materials	
6 Devices	
7 Sample preparation	
8 Program	
8.1 General Principles	
8.2 Sample preparation	
8.3 Instrument conditions	
8.4 Standard stock solution	
8.5 Calibration	
9 Calculation	
9.1 General Principles	
9.2 Concentration Calculation	
10 Precision	
11 Quality Assurance and Quality Control	
11.1 Performance	
11.2 Internal Control Sample and Blank Sample	
11.3 Method detection limit (MDL) and limit of quantification (LOQ)	
12 Test Report	
Appendix A (Informative) Determination of Hexabromocyclododecane in Polymers by High Performance Liquid Chromatography-Mass Spectrometry (HPLC-MS)	
Appendix B (Informative) Chromatogram Examples under Recommended Conditions	
Appendix C (Informative) Results of the International Interlaboratory Study (IIS 9)	
References	

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.

This document is part 9 of GB/T 39560 "Determination of certain substances in electrical and electronic products". GB/T 39560 has been published the following parts.

Part 1: Introduction and Overview;-Part 2: Disassembly, and mechanical sample preparation; -Part 3-1.Screening of lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry; -Part 3-2.Screening of fluorine, chlorine and bromine in polymers and electronic components by combustion-ion chromatography (C-IC); -Part 3-3.Screening of Polybrominated Compounds in Polymers by Gas Chromatography-Mass Spectrometry with Pyrolysis/Thermal Desorption (Py/TD-GC-MS) biphenyls, polybrominated diphenyl ethers, and phthalates;

Part 4: Determination of mercury in polymers, metals and electronic components by CV-AAS, CV-AFS, ICP-OES and ICP-MS; -Part 5: Determination of cadmium, lead, chromium and metals in polymers and electronic components by AAS, AFS, ICP-OES and ICP-MS Cadmium and lead content;

Part 6: Determination of polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatography-mass spectrometry (GC-MS);

Part 7-1.Determination of hexavalent chromium [Cr(VI)] in colorless and colored anticorrosion coatings on metals by hexavalent chromium colorimetry;

Part 7-2.Determination of hexavalent chromium [Cr(VI)] in polymers and electronic components by hexavalent chromium colorimetry;

Part 8: Gas chromatography-mass spectrometry (GC-MS) and gas chromatography-mass spectrometry with pyrolysis/thermal desorption (Py/TD-GC-MS) determination of phthalates in polymers;

Part 9: Determination of hexabromocyclododecane in polymers by gas chromatography-mass spectrometry (GC-MS);

Part 10: Determination of polycyclic aromatic hydrocarbons (PAHs) in polymers and electronic components by gas chromatography-mass spectrometry (GC-MS);

Part 12: Simultaneous determination of polybrominated biphenyls, polybrominated diphenyl ethers and phthalates by gas chromatography-mass spectrometry (GC-MS).

This document is equivalent to IEC 62321-9:2021 "Determination of certain substances in electrical products Part 9: Gas chromatography-mass spectrometry (GC-MS) Determination of Hexabromocyclododecane in Polymers.

The following minimal editorial changes were made to this document.

In order to be consistent with the existing standards in my country, the name of the standard will be changed to "Determination of Certain Substances in Electrical and Electronic Products Part 9.

Determination of hexabromocyclododecane in polymers by gas chromatography-mass spectrometry (GC-MS).

Introduction

The widespread use of electronic and electrical products has made people more concerned about their impact on the environment. Therefore, many countries in the world have revised their Regulations regarding waste disposal, use of restricted substances and energy consumption related to your product.

GB/T 39560 "Determination of Certain Substances in Electrical and Electronic Products" series provides the electrical and electronic industry with a globally consistent set of standards for the determination of certain substances in electrical and electronic products.

GB/T 39560 is a basic and universal standard for the control of hazardous substances in electronic and electrical products.

Partial composition.

Part 1: Introduction and Overview. The purpose is to standardize the general process and method standard technology for the detection of restricted substances in electronic and electrical products Framework, etc.

Part 2: Disassembly, and mechanical sample preparation. The purpose is to standardize the disassembly and disassembly of samples in the detection of restricted substances in electronic and electrical products.

The principles, methods and processes of mechanical sample preparation.

Part 3-1.Screening for lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry. The purpose is to standardize the X-ray fluorescence spectrometry method Methods and procedures for screening and testing five substances, lead, mercury, cadmium, total chromium and total bromine, in electronic and electrical products.

Part 3-2.Screening of fluorine, chlorine and bromine in polymers and electronic components by combustion-ion chromatography (C-IC).

Methods and procedures for screening fluorine, chlorine and bromine in polymers and electronic components using C-IC.

Part 3-3.Screening of Polybrominated Compounds in Polymers by Gas

Chromatography-Mass Spectrometry with Pyrolysis/Thermal Desorption (Py/TD-GC-MS) Biphenyls, polybrominated diphenyl ethers and phthalates. The purpose is to standardize the use of Py/TD-GC-MS to screen and test polybrominated diphenyl ethers in polymers.

Methods and procedures for the determination of brominated biphenyls, polybrominated diphenyl ethers and phthalates.

Part 3-4.High Performance Liquid Chromatography with Ultraviolet Detection (HPLC-UV), Thin Layer Chromatography (TLC) and Pyrolysis the purpose is to standardize the use of HPLC-UV, TLC and TD-MS screening test methods and procedures for phthalates in polymers, etc.

Part 4: Determination of mercury in polymers, metals and electronic components by CV-AAS, CV-AFS, ICP-OES and ICP-MS.

The purpose of this regulation is to standardize the methods and procedures for determining the mercury content in electrical and electronic products.

Part 5: Determination of cadmium, lead, chromium and metals in polymers and electronic components by AAS, AFS, ICP-OES and ICP-MS Cadmium and lead content. The purpose is to standardize the methods and procedures for determining the content of cadmium, lead and chromium in electronic and electrical products.

Part 6: Determination of polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatography-mass spectrometry (GC-MS).

Methods and procedures for the determination of polybrominated biphenyls and polybrominated diphenyl ethers in polymers of electrical and electronic products using GC-MS.

Part 7-1.Hexavalent chromium Colorimetric determination of hexavalent chromium [Cr(VI)] in colorless and colored anticorrosion coatings on metals.

Standardize the methods and procedures for the qualitative determination of hexavalent chromium in colorless and colored anti-corrosion coatings on metal samples.

Part 7-2.Hexavalent chromium Colorimetric determination of hexavalent chromium [Cr(VI)] in polymers and electronic components.

Methods and procedures for quantitative detection of hexavalent chromium in electronic component samples, etc.

Part 8: Gas chromatography-mass spectrometry (GC-MS) and gas chromatography-mass spectrometry with pyrolysis/thermal desorption (Py/TD - GC - MS) Determination of phthalates in polymers. The purpose is to standardize the use of GC - MS and Py/TD-GC-MS method and procedure for determining phthalates in polymers, etc.

Part 9: Determination of hexabromocyclododecane in polymers by gas