



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

GB/T 39560.10-2024

**Determination of certain substances in electrical and electronic products - Part
10: Polycyclic aromatic hydrocarbons (PAHs) in polymers and electronics by gas
chromatography-mass spectrometry (GC-MS)**

(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	
6 Equipment and Materials	
7 Sample Preparation	
8 Procedure	
8.1 General instructions	
8.2 Sample preparation	
8.3 Instrument parameters	
8.4 Calibrators	
8.5 Calibration	
9 PAHs concentration calculation	
9.1 General	
9.2 Calculation	
10 Precision	
11 Quality Assurance and Control	13
11.1 Procedure	
11.2 Limit of Detection (LOD) or Method Detection Limit (MDL) and Limit of Quantitation (LOQ)	
12 Test report	
Appendix A (Informative) Other GC-MS Conditions	
A.1 GC-MS instrument parameters	
A.2 Examples of suitable chromatographic columns for PAHs and their separation results	
Appendix B (Informative) Results of the International Interlaboratory Study on PAHs (IIS10-PAHs)	
Appendix C (Informative) Laboratory Equipment Cleaning Procedures for PAHs Testing	
C.1 High temperature baking cleaning (only for non-volume calibration glassware)	

C.2 Acid immersion cleaning (glassware and plasticware)

C.3 Assessment of cleanliness of internal areas of volumetric glassware

Reference

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 10 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 oligomers in polymers by gas chromatography-mass spectrometry with pyrolysis/thermal desorption (Py/TD-GC-MS) benzene, 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 anti-corrosion 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) 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 62321-10:2020 "Determination of certain substances in electrical products Part 10: Gas chromatography-mass spectrometry Determination of Polycyclic Aromatic Hydrocarbons (PAHs) in Polymers and Electronic Components by GC-MS.

The following minimal editorial changes were made to this document.

--- In order to be consistent with the existing standard series in my country, the name of the standard is changed to "Determination of Certain Substances in Electrical and Electronic Products Part 10 "Determination of polycyclic aromatic hydrocarbons (PAHs) in polymers and electronic components 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 gas products.

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

The detection method for restricted substances is a basic and universal standard for the control of hazardous substances in electronic and electrical products.

It consists of 19 parts.

--- Part 1: Introduction and overview. The purpose is to standardize the general process and method of testing restricted substances in electronic and electrical products.

Technical 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 of lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry. The purpose is to standardize the X-ray fluorescence

spectrometry 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.Combustion-ion chromatography (C-IC) screening of fluorine, chlorine and bromine in polymers and electronic components.

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

--- Part 3-3.Screening of polybrominated oligomers in polymers by gas chromatography-mass spectrometry with pyrolysis/thermal desorption (Py/TD-GC-MS) the purpose is to standardize the use of Py/T D-GC-MS to screen for polybrominated diphenyl ethers and phthalates 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 thermal desorption HPLC the purpose is to standardize the use of HPLC-UV, TLC and Methods and procedures for TD-MS screening of 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. Purpose Aims 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, etc.

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

It is used to 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.Determination of hexavalent chromium [Cr(VI)] in polymers and electronic components by hexavalent chromium colorimetry.

Methods and procedures for quantitative detection of hexavalent chromium in samples of