

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Détermination de certaines substances dans les produits électrotechniques –
Partie 10: Hydrocarbures aromatiques polycycliques (HAP) dans les polymères
et les produits électroniques par chromatographie en phase gazeuse-
spectrométrie de masse (GC MS)**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DETERMINATION OF CERTAIN SUBSTANCES
IN ELECTROTECHNICAL PRODUCTS –**
**Part 10: Polycyclic aromatic hydrocarbons (PAHs) in polymers and
electronics by gas chromatography-mass spectrometry (GC-MS)**

FOREWORD

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The text of this International Standard is based on the following documents:

FDIS	Report on voting
111/575/FDIS	111/580/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62321 series published under the general title *Determination of certain substances in electrotechnical products* can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

The widespread use of electrotechnical products has drawn increased attention to their impact on the environment. In many countries this has resulted in the adoption of regulations affecting wastes, substances and energy use of electrotechnical products.

The use of certain substances (e.g. lead (Pb), cadmium (Cd) and polybrominated diphenyl ethers (PBDEs)) in electrotechnical products is a source of concern in current and proposed regional legislation.

The purpose of the IEC 62321 series is therefore to provide test methods that will allow the electrotechnical industry to determine the levels of certain substances of concern in electrotechnical products on a consistent global basis.

This first edition of IEC 62321-10 introduces a new subject covering polycyclic aromatic hydrocarbons (PAHs) in the IEC 62321 series.

WARNING – Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

DETERMINATION OF CERTAIN SUBSTANCES IN ELECTROTECHNICAL PRODUCTS –

Part 10: Polycyclic aromatic hydrocarbons (PAHs) in polymers and electronics by gas chromatography-mass spectrometry (GC-MS)

1 Scope

This part of IEC 62321 specifies one normative technique for the determination of polycyclic aromatic hydrocarbons (PAHs) in polymers of electrotechnical products. These PAHs can especially be found in the plastic and rubber parts of a wide range of consumer articles. They are present as impurities in some of the raw materials used in the production of such articles, in particular in extender oils and in carbon black. They are not added intentionally to the articles and do not perform any specific function as constituents of the plastic or rubber parts.

The gas chromatography-mass spectrometry (GC-MS) test method is suitable for the determination of polycyclic aromatic hydrocarbons (PAHs).

These test methods have been evaluated for use with plastics and rubbers. These test methods have been evaluated for use with ABS (acrylonitrile butadiene styrene) containing individual PAHs ranging from 37,2 mg/kg to 119 mg/kg and rubbers containing individual PAHs ranging from 1 mg/kg to 221,2 mg/kg.

WARNING – This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

This horizontal standard is primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 108.

One of the responsibilities of a technical committee is, wherever applicable, to make use of horizontal standards in the preparation of its publications. The contents of this horizontal standard will not apply unless specifically referred to or included in the relevant publications.

2 Normative references

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IEC 62321-1:2013, *Determination of certain substances in electrotechnical products – Part 1: Introduction and overview*

IEC 62321-2, *Determination of certain substances in electrotechnical products – Part 2: Disassembly, disjointment and mechanical sample preparation*

ISO 3696, *Water for analytical laboratory use – Specification and test methods*