

<b>STN</b>	<b>Stanovenie obsahu určených látok v elektrotechnických výrobkoch Časť 12: Simultánne stanovenie polybrómovaných bifenylov, polybrómovaných difenyléterov a ftalátov v polyméroch plynovou chromatografiou s hmotnostnou spektrometriou</b>	<b>STN EN IEC 62321-12</b>  34 6705
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Determination of certain substances in electrotechnical products - Part 12: Simultaneous determination - Polybrominated biphenyls, polybrominated diphenyl ethers and phthalates in polymers by gas chromatography-mass spectrometry

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/23

Obsahuje: EN IEC 62321-12:2023, IEC 62321-12:2023

**136980**

EUROPEAN STANDARD

**EN IEC 62321-12**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2023

ICS 13.020.01; 29.100.01; 01.110

English Version

Determination of certain substances in electrotechnical products  
- Part 12: Simultaneous determination - Polybrominated  
biphenyls, polybrominated diphenyl ethers and phthalates in  
polymers by gas chromatography-mass spectrometry  
(IEC 62321-12:2023)

Détermination de certaines substances dans les produits  
électroniques - Partie 12: Détermination simultanée -  
Biphényles polybromés, diphenyléthers polybromés et  
phthalates dans les polymères par chromatographie en  
phase gazeuse-spectrométrie de masse  
(IEC 62321-12:2023)

Verfahren zur Bestimmung von bestimmten Substanzen in  
Produkten der Elektrotechnik - Teil 12: Gleichzeitige  
Bestimmung - Polybromierte Biphenyle, polybromierte  
Diphenylether und Phthalate in Polymeren durch  
Gaschromatographie-Massenspektrometrie  
(IEC 62321-12:2023)

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 62321-12:2023 (E)****European foreword**

The text of document 111/689/FDIS, future edition 1 of IEC 62321-12, prepared by IEC/TC 111 "Environmental standardization for electrical and electronic products and systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62321-12:2023.

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IEC 62321-6:2015 NOTE Approved as EN 62321-6:2015 (not modified)

IEC 62321-8:2017 NOTE Approved as EN 62321-8:2017 (not modified)

## Annex ZA (normative)

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62321-1	2013	Determination of certain substances in electrotechnical products - Part 1: Introduction and overview	EN 62321-1	2013
IEC 62321-2	-	Determination of certain substances in electrotechnical products - Part 2: Disassembly, disjointment and mechanical sample preparation	EN IEC 62321-2	-



IEC 62321-12

Edition 1.0 2023-03

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

HORIZONTAL PUBLICATION  
PUBLICATION HORIZONTALE

**Determination of certain substances in electrotechnical products –  
Part 12: Simultaneous determination – Polybrominated biphenyls,  
polybrominated diphenyl ethers and phthalates in polymers by gas  
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polybromés et phtalates dans les polymères par chromatographie en phase  
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IEC 62321-12

Edition 1.0 2023-03

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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 01.110; 13.020.01; 29.100.01

ISBN 978-2-8322-6539-0

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DETERMINATION OF CERTAIN SUBSTANCES  
IN ELECTROTECHNICAL PRODUCTS –****Part 12: Simultaneous determination – Polybrominated biphenyls,  
polybrominated diphenyl ethers and phthalates in polymers by  
gas chromatography-mass spectrometry**

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

Draft	Report on voting
111/689/FDIS	111/696/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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 [webstore.iec.ch](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 around the world it has been a contributing factor in adapting regulations that affect wastes, substances and energy use of electrotechnical products.

The use of certain substances (e.g. lead (Pb), cadmium (Cd), polybrominated diphenyl ethers (PBDEs) and specific phthalates) 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 62321-12 introduces a new part in the IEC 62321 series.

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## DETERMINATION OF CERTAIN SUBSTANCES IN ELECTROTECHNICAL PRODUCTS –

### Part 12: Simultaneous determination – Polybrominated biphenyls, polybrominated diphenyl ethers and phthalates in polymers by gas chromatography-mass spectrometry

#### 1 Scope

This part of IEC 62321 specifies a reference test method for the simultaneous determination of polybrominated biphenyls, polybrominated diphenyl ethers, and four phthalates: di-isobutyl phthalate (DIBP), di-n-butyl phthalate (DBP), benzylbutyl phthalate (BBP), di-(2-ethylhexyl) phthalate (DEHP) in polymers of electrotechnical products.

The extraction technique described in this document is the ultrasonic-assisted extraction used for simultaneous extraction for sample preparation.

Gas chromatography-mass spectrometry (GC-MS) is considered as the reference technique for the measurement of the simultaneous determination of analytes in the range of 25 mg/kg to 2 000 mg/kg.

The test method using ultrasonic-assisted extraction followed by GC-MS detection has been evaluated by the tests of polypropylene (PP), polyvinylchloride (PVC), acrylonitrile butadiene styrene (ABS), acrylate rubber (ACM), polystyrene (PS), polyurethane (PU) and polyethylene (PE) materials.

This document has the status of a horizontal standard in accordance with IEC Guide 108.

#### 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*

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