

<b>STN</b>	<b>Stanovenie obsahu určených látok v elektrotechnických výrobkoch. Časť 3-2: Preverovanie celkového obsahu brómu v elektrických a elektronických výrobkoch pomocou spaľovacej iónovej chromatografie (C-IC).</b>	<b>STN EN 62321-3-2</b>  34 6705
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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. 09/14

Táto norma od 15.11.2016 čiastočne nahrádza STN EN 62321 z decembra 2009.

Obsahuje: EN 62321-3-2:2014, IEC 62321-3-2:2013

**119450**

English version

**Determination of certain substances in electrotechnical products -  
Part 3-2: Screening -  
Total bromine in polymers and electronics  
by Combustion - Ion Chromatography  
(IEC 62321-3-2:2013)**

Détermination de certaines substances  
dans les produits électrotechniques -  
Partie 3-2: Méthodes d'essai -  
Brome total dans les polymères et les  
produits électriques par Combustion -  
Chromatographie d'ionisation  
(CEI 62321-3-2:2013)

Verfahren zur Bestimmung von  
bestimmten Substanzen in Produkten der  
Elektrotechnik -  
Teil 3-2: Screening -  
Gesamt Brom in Polymeren und Elektronik  
durch Verbrennungsaufschluss -  
Ionen-Chromatographie  
(IEC 62321-3-2:2013)

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 111/300/FDIS, future edition 1 of IEC 62321-3-2, 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 62321-3-2:2014.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2014-10-25
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-11-15

EN 62321-3-2:2014 is a partial replacement of EN 62321:2009, introduces a new clause in the IEC 62321 series.

Future parts in the EN 62321 series will gradually replace the corresponding clauses in EN 62321:2009. Until such time as all parts are published, however, EN 62321:2009 remains valid for those clauses not yet re-published as a separate part.

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The text of the International Standard IEC 62321-3-2:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60754-2	NOTE	Harmonised as EN 60754-2 (not modified).
ISO 5667-1	NOTE	Harmonised as EN ISO 5667-1 (not modified).

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60754-1	2011	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	EN 60754-1	2013
IEC 62321-1	-	Determination of certain substances in electrotechnical products - Part 1: Introduction and overview	EN 62321-1	-
IEC 62321-2	-	Determination of certain substances in electrotechnical products - Part 2: Disassembly, disjunction and mechanical sample preparation	EN 62321-2	-
IEC 62321-3-1	-	Determination of certain substances in electrotechnical products - Part 3-1: Screening electrotechnical products for lead, mercury, cadmium, total chromium and total bromine using X-ray Fluorescence Spectrometry	EN 62321-3-1	-
ISO 3696	-	Water for analytical laboratory use - Specification and test methods	EN ISO 3696	-
ISO 8466-1	-	Water quality - Calibration and evaluation of analytical methods and estimation of performance characteristics - Part 1: Statistical evaluation of the linear calibration function	-	-
ISO 10304-1	2006	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulphate	EN ISO 10304-1	-



# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Determination of certain substances in electrotechnical products –  
Part 3-2: Screening – Total bromine in polymers and electronics by Combustion  
– Ion Chromatography**

**Détermination de certaines substances dans les produits électrotechniques –  
Partie 3-2: Méthodes d'essai – Brome total dans les polymères et les produits  
électriques par Combustion – Chromatographie d'Ionisation**



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IEC Central Office  
 3, rue de Varembe  
 CH-1211 Geneva 20  
 Switzerland

Tel.: +41 22 919 02 11  
 Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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Part 3-2: Screening – Total bromine in polymers and electronics by Combustion  
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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## **DETERMINATION OF CERTAIN SUBSTANCES IN ELECTROTECHNICAL PRODUCTS –**

### **Part 3-2: Screening – Total bromine in polymers and electronics by Combustion – Ion Chromatography**

#### FOREWORD

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International Standard IEC 62321-3-2 has been prepared by IEC technical committee 111: Environmental standardization for electrical and electronic products and systems.

The first edition of IEC 62321:2008 was a 'stand alone' standard that included an introduction, an overview of test methods, a mechanical sample preparation as well as various test method clauses.

This first edition of IEC 62321-3-2 introduces a new clause in the IEC 62321 series.

Future parts in the IEC 62321 series will gradually replace the corresponding clauses in IEC 62321:2008. Until such time as all parts are published, however, IEC 62321:2008 remains valid for those clauses not yet re-published as a separate part.

The text of this standard is based on the following documents:

FDIS	Report on voting
111/300/FDIS	111/310/RVD

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

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

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

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication 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 all over the world this has resulted in the adaptation 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 (PBDE's)) 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.

**WARNING – Persons using this International Standard should be familiar with normal laboratory practice. This standard 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 3-2: Screening – Total bromine in polymers and electronics by Combustion – Ion Chromatography

#### 1 Scope

Part 3-2 of IEC 62321 specifies the screening analysis of the total bromine (Br) in homogeneous materials found in polymers and electronics by using the analytical technique of combustion ion chromatography (C-IC).

This test method has been evaluated for ABS (acrylonitrile butadiene styrene), EMC (epoxy molding compound), and PE (polyethylene) within the concentration ranges as specified in Table 1.

The use of this method for other types of materials or concentration ranges outside those specified below has not been evaluated.

**Table 1 – Tested concentration ranges for bromine by C-IC in various materials**

Substance/element	Bromine			
Parameter	Unit of measure mg/kg	Medium/material tested		
Concentration or concentration range tested		ABS	EMC	PE
		124 to 890	195 to 976	96

This standard 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 standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60754-1:2011, *Test on gases evolved during combustion of materials from cables – Part 1: Determination of the halogen acid gas content*

IEC 62321-1, *Determination of certain substances in electrotechnical products – Part 1: Introduction and overview*<sup>1</sup>

IEC 62321-2, *Determination of certain substances in electrotechnical products – Part 2: Disassembly, disjointment and mechanical sample preparation*<sup>1</sup>

<sup>1</sup> To be published.

IEC 62321-3-1, *Determination of certain substances in electrotechnical products – Part 3-1: Screening –Lead, mercury, cadmium, total chromium and total bromine in electrotechnical products using X-ray fluorescence spectrometry*<sup>2</sup>

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

ISO 8466-1, *Water quality – Calibration and evaluation of analytical methods and estimation of performance characteristics – Part 1: Statistical evaluation of the linear calibration function*

ISO/DIS 10304-1:2006, *Water quality – Determination of dissolved anions by liquid chromatography of ions – Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*

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<sup>2</sup> To be published.