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

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NATIONAL FOREWORD

See Eesti standard EVS-EN 62321-3-2:2014 sisaldab Euroopa standardi EN 62321-3-2:2014 inglisekeelset teksti.	This Estonian standard EVS-EN 62321-3-2:2014 consists of the English text of the European standard EN 62321-3-2:2014.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 25.04.2014.	Date of Availability of the European standard is 25.04.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.020, 43.040.10

EUROPEAN STANDARD

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EN 62321-3-2

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ICS 13.020; 43.040.10

Supersedes EN 62321:2009 (partially)

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 - Gesamtbrom in Polymeren und Elektronik durch Verbrennungsaufschluss - Ionen-Chromatographie
(IEC 62321-3-2:2013)

CENELEC

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

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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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

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).

CONTENTS

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**		
		ABS	EMC	PE
Concentration or concentration range tested		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*[1]

IEC 62321-2, *Determination of certain substances in electrotechnical products – Part 2: Disassembly, disjointment and mechanical sample preparation*[1]

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1 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*[2]

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*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62321-1 as well as the following, apply.

3.1.1
accuracy
closeness of agreement between a test result and an accepted reference value

Note 1 to entry: The term accuracy, when applied to a set of test results, involves a combination of random components and a common systematic error or bias component.

[ISO 5725-1:1995, definition 3.6] [1]

3.1.2
laboratory control sample
a known matrix spiked with compound(s) representative of the target analytes, used to document laboratory performance

[Based on US EPA SW-846] [2]

3.1.3
repeatability limit
value less than or equal to which the absolute difference between two test results obtained under repeatability conditions may be expected to be with a probability of 95 %

Note 1 to entry: The symbol used is r.

[ISO 5725-1:1994, definition 3.16]

3.1.4
reproducibility limit
value less than or equal to which the absolute difference between two test results obtained under reproducibility conditions may be expected to be with a probability of 95 %

Note 1 to entry: The symbol used is R.

[ISO 5725-1:1994, definition 3.20]

2 To be published.