# Electrotechnical products - Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

| | |
|---|---|
| Käesolev Eesti standard EVS-EN 62321:2009 sisaldab Euroopa standardi EN 62321:2009 ingliskeelset teksti. | This Estonian standard EVS-EN 62321:2009 consists of the English text of the European standard EN 62321:2009. |
| Standard on kinnitatud Eesti Standardikeskuse 29.05.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas. | This standard is ratified with the order of Estonian Centre for Standardisation dated 29.05.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation. |
| Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 03.04.2009. | Date of Availability of the European standard text 03.04.2009. |
| Standard on kättesaadav Eesti standardiorganisatsioonist. | The standard is available from Estonian standardisation organisation. |



**ICS** 13.020, 43.040.10

**Võtmesõnad:**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 62321

April 2009

ICS 13.020; 43.040.10

English version

# Electrotechnical products - Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)

(IEC 62321:2008)

Produits électrotechniques - Détermination des niveaux de six substances réglementées (plomb, mercure, cadmium, chrome hexavalent, diphényles polybromés, diphényléthers polybromés) (CEI 62321:2008)

Produkte in der Elektrotechnik - Bestimmung von Bestandteilen der sechs Inhaltsstoffe (Blei, Quecksilber, Cadmium, sechswertiges Chrom, polybromiertes Biphenyl, polybromierter Diphenylether), die einer Beschränkung unterworfen sind (IEC 62321:2008)



This European Standard was approved by CENELEC on 2009-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

**Central Secretariat: avenue Marnix 17, B - 1000 Brussels**



Ref. No. EN 62321:2009 E

## Foreword

The text of document 111/116/FDIS, future edition 1 of IEC 62321, prepared by IEC TC 111, Environmental standardization for electrical and electronic products and systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62321 on 2009-03-01.

The following dates were fixed:

| | | |
|---|---|---|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2009-12-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2012-03-01 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62321:2008 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 60730-1 | NOTE | Harmonized as EN 60730-1:2000 (modified). |
| ISO 3613 | NOTE | Harmonized as EN ISO 3613:2001 (not modified). |
| ISO 17294-1 | NOTE | Harmonized as EN ISO 17294-1:2006 (not modified). |

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## Annex ZA
(normative)

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

The following referenced documents are indispensable for the application of this document. 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.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| ISO/IEC Guide 98 | 1995 | Guide to the expression of uncertainty in measurement (GUM) | - | - |
| ISO/IEC 17025 | - [1)] | General requirements for the competence of testing and calibration laboratories | EN ISO/IEC 17025 | 2005 [2)] |
| ISO 3696 | - [1)] | Water for analytical laboratory use - Specification and test methods | EN ISO 3696 | 1995 [2)] |
| ISO 5961 | - [1)] | Water quality - Determination of cadmium by atomic absorption spectrometry | EN ISO 5961 | 1995 [2)] |



[1)] Undated reference.

[2)] Valid edition at date of issue.

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 such as lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr(VI)) contained in inorganic and organic compounds, and two types of brominated flame retardants, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) in electrotechnical products, is regulated in current and proposed regional legislation.

The purpose of IEC 62321 is therefore to provide test methods that will allow the electrotechnical industry to determine the levels of regulated substances Pb, Hg, Cd, Cr(VI) and their compounds, as well as PBB and PBDE in electrotechnical products on a consistent global basis.

# ELECTROTECHNICAL PRODUCTS – DETERMINATION OF LEVELS OF SIX REGULATED SUBSTANCES (LEAD, MERCURY, CADMIUM, HEXAVALENT CHROMIUM, POLYBROMINATED BIPHENYLS, POLYBROMINATED DIPHENYL ETHERS)



## 1 Scope

IEC 62321, which is an International Standard, specifies the determination of the levels of lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr(VI)) contained in inorganic and organic compounds, and two types of brominated flame retardants, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) contained in electrotechnical products.

This standard refers to the sample as the object to be processed and measured. The nature of the sample and the manner in which it is acquired is defined by the entity carrying out the tests and not by this standard.

NOTE 1 Further guidance on obtaining representative samples from finished electronic products to be tested for levels of regulated substances may be found in the future IEC Publicly Available Specification (PAS) for sampling disjointment[1].

It is noted that the selection of the sample may affect the interpretation of the test results.

This standard does not determine:

- the definition of a “unit” or “homogenous material” as the sample;
- the disassembly procedure employed for obtaining a sample;
- assessment procedures.

NOTE 2 Further guidance on assessment procedures may be found in the future IEC Technical Specification IEC/TS 62476[1][2].

## 2 Normative references

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

ISO/IEC Guide 98:1995, *ISO Guide to the expression of uncertainty in measurement (GUM*)

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

ISO 5961, *Water quality – Determination of cadmium by atomic absorption spectrometry*

ISO 17025, *General requirements for the competence of testing and calibration laboratories*

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1 Under consideration, no number yet assigned.

2 Figures in square brackets refer to the bibliography.