SVENSK STANDARD SS-EN 62321-8

Fastställd	Utgåva	Sida	Ansvarig kommitté
2017-11-23	1	1 (1+74)	SEK TK 111

Bestämning av vissa ämnen i elektriska och elektroniska produkter – Del 8: Ftalater i polymerer genom gaskromatografi-masspektrometri (GC-MS), gaskromatografi-masspektrometri med utrustning för pyrolys/termisk desorption (Py-TD-GC-MS)

Determination of certain substances in electrotechnical products – Part 8: Phthalates in polymers by gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory (Py-TD-GC-MS)

Som svensk standard gäller europastandarden EN 62321-8:2017. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62321-8:2017.

Nationellt förord

Europastandarden EN 62321-8:2017

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC

– **IEC 62321-8, First edition, 2017 - Determination of certain substances in electrotechnical products - Part 8: Phthalates in polymers by gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory (Py-TD-GC-MS)**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 31.020.00; 71.040.50

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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62321-8

June 2017

ICS 31.020; 71.040.50

English Version

Determination of certain substances in electrotechnical products - Part 8: Phthalates in polymers by gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory (Py/TD-GC-MS) (IEC 62321-8:2017)

Détermination de certaines substances dans les produits électrotechniques - Partie 8: Analyse des phtalates dans les polymères par chromatographie en phase gazeuse-spectrométrie de masse (GC-MS), chromatographie en phase gazeuse-spectrométrie de masse par pyrolyse/thermodésorption (Py/TD-GC-MS) (IEC 62321-8:2017)

Verfahren zur Bestimmung von bestimmten Substanzen in Produkten der Elektrotechnik - Teil 8: Phthalate in Polymeren mit Pyrolyse-Gaschromatographie-Massenspektrometrie (Py-GC-MS), Ionen-Anlagerungs-Massenspektrometrie (IAMS), Gaschromatographie-Massenspektrometrie (GC-MS) und Flüssigchromatographie-Massenspektrometrie (LC-MS) (IEC 62321-8:2017)

This European Standard was approved by CENELEC on 2017-05-02. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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

Ref. No. EN 62321-8:2017 E

SEK Svensk Elstandard

European foreword

The text of document 111/416/CDV, future edition 1 of IEC 62321-8, 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 62321-8:2017.

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)	2018-02-02
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-05-02

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

Endorsement notice

The text of the International Standard IEC 62321-8.2017 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:

ISO 3696	NOTE	Harmonized as EN ISO 3696.
ISO/IEC 17025	NOTE	Harmonized as EN ISO/IEC 17025.
IEC 62321-2:2013	NOTE	Harmonized as EN 62321-2:2014.
IEC 62321-6:2015	NOTE	Harmonized as EN62321-6:2016

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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 62321-1	2013	Determination of certain substances in electrotechnical products -- Part 1: Introduction and overview	EN 62321-1	2013

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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DETERMINATION OF CERTAIN SUBSTANCES IN ELECTROTECHNICAL PRODUCTS –

Part 8: Phthalates in polymers by gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory (Py/TD-GC-MS)

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62321-8 has been prepared by IEC technical committee 111: Environmental standardization for electrical and electronic products and systems.

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

CDV	Report on voting
111/416/CDV	111/430/RVC

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 publication will remain unchanged until the stability date indicated on the IEC website 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), 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 62321-8 introduces a new part 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 8: Phthalates in polymers by gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory (Py/TD-GC-MS)

1 Scope

This part of IEC 62321 specifies two normative and two informative techniques for the determination of di-isobutyl phthalate (DIBP), di-n-butyl phthalate (DBP), benzylbutyl phthalate (BBP), di-(2-ethylhexyl) phthalate (DEHP), di-n-octyl phthalate (DNOP), di-isononyl phthalate (DINP) and di-iso-decyl phthalate (DIDP) in polymers of electrotechnical products.

Gas chromatography-mass spectrometry (GC-MS) and gas chromatography-mass spectrometry (Py/TD-GC-MS) techniques are described in the normative part of this document.

The GC-MS method is considered the referee technique for the quantitative determination of DIBP, DBP, BBP, DEHP, DNOP, DINP and DIDP in the range of 50 mg/kg to 2 000 mg/kg.

The GC-MS coupled with a pyrolyzer/thermal desorption (TD) accessory is suitable for screening and semi-quantitative analysis of DIBP, DBP, BBP, DEHP, DNOP, DINP, and DIDP in polymers that are used as parts of the electrotechnical products in the range of 100 mg/kg to 2 000 mg/kg.

The IAMS technique is suitable for screening and semi-quantitative analysis of DIBP, DBP, BBP, DEHP, DNOP, DINP, and DIDP. Determination of DBP and DIBP, DEHP and DNOP by IAMS has not been established due to peak and mass spectral resolution limitations.

The LC-MS technique is limited to the determination of of BBP, DEHP, DNOP, DINP, and DIDP. Determination of DBP and DIBP by LC-MS has not been established due to peak and mass spectral resolution limitations.

A flow chart depicting how the normative Py/TD-GC-MS and GC-MS methods and informative methods using ion attachment mass spectrometry (IAMS) coupled with direct injection probe (DIP) and liquid chromatography-mass spectrometry (LC-MS) can be used are provided in annexes of this document.

These four test methods have been evaluated by the test of PE (polyethylene) and PVC (polyvinyl chloride) materials containing individual phthalates between ~450 mg/kg to 30 000 mg/kg as depicted in the normative and informative parts of this document. The use of the four methods described in this document for other polymer types, phthalate compounds or concentration ranges other than those specified above has not been specifically evaluated.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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