



NSAI
Standards

Irish Standard
I.S. EN 61249-2-42:2010

Materials for printed boards and other interconnecting structures -- Part 2-42: Reinforced base materials clad and unclad - Brominated epoxide non-woven / woven E-glass reinforced laminate sheets of defined flammability (vertical burning test), copper-clad for lead-free assembly (IEC 61249-2-42:2010 (EQV))

I.S. EN 61249-2-42:2010

Incorporating amendments/corrigenda issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

<i>This document replaces:</i>	<i>This document is based on:</i> EN 61249-2-42:2010	<i>Published:</i> 7 May, 2010
This document was published under the authority of the NSAI and comes into effect on: 11 May, 2010		ICS number: 31.180
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Údarás um Chaighdeán Náisiúnta na hÉireann		

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61249-2-42

May 2010

ICS 31.180

English version

**Materials for printed boards and other interconnecting structures -
Part 2-42: Reinforced base materials clad and unclad -
Brominated epoxide non-woven / woven E-glass reinforced laminate
sheets of defined flammability (vertical burning test),
copper-clad for lead-free assembly
(IEC 61249-2-42:2010)**

Matériaux pour circuits imprimés et autres structures d'interconnexion -
Partie 2-42: Matériaux de base renforcés, plaqués et non plaqués -
Feuilles stratifiées renforcées en verre de type E époxyde bromé, tissé/non-tissé, d'inflammabilité définie (essai de combustion verticale), plaquées cuivre pour les assemblages sans plomb (CEI 61249-2-42:2010)

Materialien für Leiterplatten und andere Verbindungsstrukturen -
Teil 2-42: Kaschierte und unkaschierte verstärkte Basismaterialien -
Kupferkaschierte mit E-Glaswirrfaser-Innenlagen und E-Glasgewebe-Außenlagen verstärkte Laminattafeln auf der Basis von bromhaltigem Epoxidharz mit definierter Brennbarkeit (Brennprüfung mit vertikaler Prüflingslage) für bleifreie Bestückungstechnik (IEC 61249-2-42:2010)

This European Standard was approved by CENELEC on 2010-05-01. 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, Croatia, 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 91/912/FDIS, future edition 1 of IEC 61249-2-42, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61249-2-42 on 2010-05-01.

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

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) | 2011-02-01 |
| – latest date by which the national standards conflicting
with the EN have to be withdrawn | (dow) | 2013-05-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61249-2-42:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60194:2006	NOTE	Harmonized as EN 60194:2006 (not modified).
----------------	------	---

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61189-2	2006	Test methods for electrical materials, printed boards and other interconnection structures and assemblies - Part 2: Test methods for materials for interconnection structures	EN 61189-2	2006
IEC 61249-5-1	-	Materials for interconnection structures - Part 5: Sectional specification set for conductive foils and films with or without coatings - Section 1: Copper foils (for the manufacture of copper-clad base materials)	EN 61249-5-1	-
ISO 9000	-	Quality management systems - Fundamentals and vocabulary	EN ISO 9000	-
ISO 11014-1	-	Safety data sheet for chemical products - Part 1: Content and order of sections	-	-
ISO 14001	-	Environmental management systems - Requirements with guidance for use	EN ISO 14001	-

This page is intentionally left BLANK.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references.....	6
3 Materials and construction	6
3.1 Resin system	6
3.2 Metal foil	7
3.3 Reinforcement	7
4 Internal marking.....	7
5 Electrical properties	7
6 Non-electrical properties of the copper-clad laminate	7
6.1 Appearance of the copper-clad sheet	7
6.1.1 Indentations (pits and dents)	8
6.1.2 Wrinkles	8
6.1.3 Scratches	8
6.1.4 Raised areas	8
6.1.5 Surface waviness.....	9
6.2 Appearance of the unclad face.....	9
6.3 Laminate thickness.....	9
6.4 Bow and twist	9
6.5 Properties related to the copper foil bond	10
6.6 Punching and machining	10
6.7 Dimensional stability.....	11
6.8 Sheet sizes.....	11
6.8.1 Typical sheet sizes	11
6.8.2 Tolerances for sheet sizes	11
6.9 Cut panels	11
6.9.1 Cut panel sizes	11
6.9.2 Size tolerances for cut panels	12
6.9.3 Rectangularity of cut panels	12
7 Non-electrical properties of the base material after complete removal of the copper foil.....	12
7.1 Appearance of the dielectric base material	12
7.2 Flexural strength.....	13
7.3 Flammability	13
7.4 Water absorption	14
7.5 Measling.....	14
7.6 Glass transition temperature and cure factor	14
7.7 Decomposition temperature	14
7.8 Time to delamination (TMA).....	15
8 Quality assurance	15
8.1 Quality system	15
8.2 Responsibility for inspection.....	15
8.3 Qualification inspection.....	15
8.4 Quality conformance inspection	15
8.5 Certificate of conformance	16
8.6 Safety data sheet.....	16

I.S. EN 61249-2-42:2010

61249-2-42 © IEC:2010

– 3 –

9	Packaging and marking.....	16
10	Ordering information	16
	Annex A (informative) Engineering information	17
	Annex B (informative) Common laminate constructions.....	19
	Annex C (informative) Guideline for qualification and conformance inspection.....	20
	Bibliography	21
	Table 1 – Electrical properties	7
	Table 2 – Nominal thickness and tolerance of metal-clad laminate	9
	Table 3 – Bow and twist requirements	9
	Table 4 – Pull-off and peel strength requirements	10
	Table 5 – Dimensional stability	11
	Table 6 – Size tolerances for cut panels	12
	Table 7 – Rectangularity of cut panels	12
	Table 8 – Flexural strength requirements.....	13
	Table 9 – Flammability requirements	13
	Table 10 – Water absorption requirements	14
	Table 11 – Measling requirements	14
	Table 12 – Glass transition temperature and cure factor requirements	14
	Table 13 – Decomposition temperature requirements	14
	Table 14 – Time to delamination (TMA)	15
	Table C.1 – Qualification and conformance inspection	20

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MATERIALS FOR PRINTED BOARDS AND OTHER INTERCONNECTING STRUCTURES –

Part 2-42: Reinforced base materials clad and unclad – Brominated epoxide non-woven/woven E-glass reinforced laminate sheets of defined flammability (vertical burning test), copper-clad for lead-free assembly

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61249-2-42 has been prepared by IEC technical committee 91: Electronics assembly technology.

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

FDIS	Report on voting
91/912/FDIS	91/923/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.

I.S. EN 61249-2-42:2010

61249-2-42 © IEC:2010

– 5 –

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

A list of all parts of the IEC 61249 series, under the general title *Materials for printed boards and other interconnecting structures*, 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 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.

MATERIALS FOR PRINTED BOARDS AND OTHER INTERCONNECTING STRUCTURES –

Part 2-42: Reinforced base materials clad and unclad – Brominated epoxide non-woven/woven E-glass reinforced laminate sheets of defined flammability (vertical burning test), copper-clad for lead-free assembly

1 Scope

This part of IEC 61249 gives requirements for properties of brominated epoxide non-woven reinforced core/woven E-glass reinforced surface laminate sheets of defined flammability (vertical burning test), copper-clad for lead-free assembly in thicknesses of 0,60 mm up to 1,70 mm. The flammability rating is achieved through the use of brominated fire retardants reacted as part of the epoxide polymeric structure. The glass transition temperature is defined to be 105 °C minimum.

Some property requirements may have several classes of performance. The class desired should be specified on the purchase order, otherwise the default class of material will be supplied.

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.

IEC 61189-2:2006, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 2: Test methods for materials for interconnection structures*

IEC 61249-5-1, *Materials for interconnection structures – Part 5: Sectional specification set for conductive foils and films with and without coatings – Section 1: Copper foils (for the manufacture of copper-clad base materials)*

ISO 9000, *Quality management systems – Fundamentals and vocabulary*

ISO 11014, *Safety data sheet for chemical products – Content and order of sections*

ISO 14001, *Environmental management systems – Requirements with guidance for use*

3 Materials and construction

The sheet consists of an insulating base with metal-foil bonded to one side or both.

3.1 Resin system

Brominated epoxide, filled or unfilled, resulting in a laminate with a glass transition temperature of 105 °C minimum.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-