
**Materiali za plošče tiskanih vezij in druge povezovalne strukture - 2-30. del:
Pokovinjeni in nepokovinjeni ojačeni osnovni materiali - S stekleno tkanino ojačen
laminat z določeno gorljivostjo (navpični preskus gorljivosti), obdelan z
modificirano, cianat ester nehalogenirano epoksidno smolo, pobakren**

Materials for printed boards and other interconnecting structures - Part 2-30: Reinforced
base materials clad and unclad - Non-halogenated epoxide modified cyanate ester
woven glass laminate sheets of defined flammability (vertical burning test), copper-clad

iTeh STANDARD PREVIEW

(standard.iTeh.si)
Materialien für Leiterplatten und andere Verbindungsstrukturen - Teil 2-30: Kaschierte
und unkaschierte verstärkte Basismaterialien - Kupferkaschierte mit E-Glasgewebe
verstärkte Laminattafeln auf der Basis von Cyanatester-Harz, modifiziert mit
halogenfreiem Epoxidharz, mit definierter Brennbarkeit (Brennprüfung mit vertikaler
Prüflingslage)

Matériaux pour circuits imprimés et autres structures d'interconnexion - Partie 2-30:
Matériaux de base renforcés, plaqués et non plaqués - Feuille stratifiée en tissu de verre
époxyde non halogéné modifié et ester de cyanate, d'inflammabilité définie (essai de
combustion verticale), plaquées cuivre

Ta slovenski standard je istoveten z: EN 61249-2-30:2013

ICS:

31.180 Tiskana vezja (TIV) in tiskane Printed circuits and boards
plošče

SIST EN 61249-2-30:2013

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61249-2-30:2013](https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013)

<https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61249-2-30

March 2013

ICS 31.180

English version

**Materials for printed boards and other interconnecting structures -
Part 2-30: Reinforced base materials clad and unclad -
Non-halogenated epoxide modified cyanate ester woven glass laminate of
defined flammability (vertical burning test), copper-clad
(IEC 61249-2-30:2012)**

Matériaux pour circuits imprimés et autres structures d'interconnexion -
Partie 2-30: Matériaux de base renforcés, plaqués et non plaqués -
Feuille stratifiée en tissu de verre époxyde non halogéné modifié et ester de cyanate, d'inflammabilité définie (essai de combustion verticale) plaqués cuivre
(CEI 61249-2-30:2012)

Materialien für Leiterplatten und andere Verbindungsstrukturen -
Teil 2-30: Kaschierte und unkaschierte verstärkte Basismaterialien -
Kupferkaschierte mit E-Glasgewebe verstärkte Laminattafeln auf der Basis von Cyanatester-Harz, modifiziert mit halogenfreiem Epoxidharz, mit definierter Brennbarkeit (Brennprüfung mit vertikaler Prüflingslage)
(IEC 61249-2-30:2012)

SIST EN 61249-2-30:2013

This European Standard was approved by CENELEC on 2013-01-03. 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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 91/1051/FDIS, future edition 1 of IEC 61249-2-30, prepared by IEC TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61249-2-30:2013.

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) 2013-10-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-01-03

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.

iTeh STANDARD PREVIEW Endorsement notice (standards.iteh.ai)

The text of the International Standard IEC 61249-2-30:2012 was approved by CENELEC as a European Standard without any modification.

[SIST EN 61249-2-30:2013](#)

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

IEC 60194:2006	NOTE	Harmonized as EN 60194:2006 (not modified).
ISO 9000:2005	NOTE	Harmonized as EN ISO 9000:2005 (not modified).
ISO 14001:2004	NOTE	Harmonized as EN ISO 14001:2004 (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 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	1995	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	1996
IEC/PAS 61249-6-3	2011	Specification for finished fabric woven from "E" glass for printed boards	-	-
ISO 11014	2009	Safety data sheet for chemical products - Content and order of sections	-	-

[SIST EN 61249-2-30:2013](https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013)

<https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61249-2-30:2013](https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013)

<https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013>



IEC 61249-2-30

Edition 1.0 2012-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Materials for printed boards and other interconnecting structures –
Part 2-30: Reinforced base materials clad and unclad – Non-halogenated epoxide
modified cyanate ester woven glass laminate of defined flammability (vertical
burning test), copper-clad**

[SIST EN 61249-2-30:2013](https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-2b1465b5e9a2-en-61249-2-30)

[https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-](https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-2b1465b5e9a2-en-61249-2-30)

**Matériaux pour circuits imprimés et autres structures d'interconnexion –
Partie 2-30: Matériaux de base renforcés, plaqués et non plaqués – Feuille
stratifiée en tissu de verre époxyde non halogéné modifié et ester de cyanate,
d'inflammabilité définie (essai de combustion verticale), plaquée cuivre**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

S

ICS 31.180

ISBN 978-2-83220-496-2

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references.....	6
3 Materials and construction.....	6
3.1 General.....	6
3.2 Resin system.....	6
3.3 Reinforcement.....	7
3.4 Metal foil.....	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 General.....	7
6.1.2 Indentations (pits and dents).....	8
6.1.3 Wrinkles.....	8
6.1.4 Scratches.....	8
6.1.5 Raised areas.....	8
6.1.6 Surface waviness.....	9
6.2 Appearance of the unclad face.....	9
6.3 Laminate thickness.....	9
6.4 Bow and twist.....	10
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.....	11
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.....	13
7.5 Measling.....	14
7.6 Glass transition temperature and cure factor.....	14
8 Quality assurance.....	14
8.1 Quality system.....	14
8.2 Responsibility for inspection.....	15
8.3 Qualification inspection.....	15
8.4 Quality conformance inspection.....	15
8.5 Certificate of conformance.....	15
8.6 Safety data sheet.....	15

8.7 Packaging and marking	15
9 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 – Indentations	8
Table 3 – Nominal thickness and tolerance of metal-clad laminate	9
Table 4 – Bow and twist	10
Table 5 – Pull-off and peel strength	10
Table 6 – Dimensional stability	11
Table 7 – Size tolerance for cut panels	12
Table 8 – Rectangularity of cut panels	12
Table 9 – Flexural strength	13
Table 10 – Flammability	13
Table 11 – Water absorption	14
Table 12 – Measling	14
Table 13 – Glass transition temperature and cure factor	14
Table B.1 – Thickness	19
Table C.1 – Qualification and conformance testing	20

iTech STANDARD PREVIEW
 (standards.iteh.ai)

SIST EN 61249-2-30:2013
<https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MATERIALS FOR PRINTED BOARDS
AND OTHER INTERCONNECTING STRUCTURES –**
**Part 2-30: Reinforced base materials clad and unclad –
Non-halogenated epoxide modified cyanate ester woven glass laminate
of defined flammability (vertical burning test), copper-clad**

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 61249-2-30 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
91/1051/FDIS	91/1064/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 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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 61249-2-30:2013](https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013)

<https://standards.iteh.ai/catalog/standards/sist/7756a32d-da16-46cb-8442-fdd3ed96cb83/sist-en-61249-2-30-2013>