
**Base materials for printed circuits - Part 2: Specifications - Specification No.19:
Thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad
laminated sheet of defined flammability for use in the fabrication of multilayer
printed boards (IEC 249-2-19:1992)**

Base materials for printed circuits -- Part 2: Specifications -- Specification No. 19: Thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad laminated sheet of defined flammability for use in the fabrication of multilayer printed boards

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Basismaterialien für gedruckte Schaltungen -- Teil 2: Einzelbestimmungen -- Einzelbestimmung Nr. 19: Dünne kupferkaschierte mit Bismaleinimid/Triazin modifizierte Epoxid-Glashartgewebetafeln definierter Brennbarkeit zur Herstellung gedruckter Mehrlagenleiterplatten

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Matériaux de base pour circuits imprimés -- Partie 2: Spécifications -- Spécification n° 19: Feuille de stratifié mince en tissu de verre époxyde avec bismaléimide/triazine recouverte de cuivre, d'inflammabilité définie, destinée à la fabrication de cartes imprimées multicouches

Ta slovenski standard je istoveten z: EN 60249-2-19:1993

ICS:

13.220.40	Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju	Ignitability and burning behaviour of materials and products
31.180	Tiskana vezja (TIV) in tiskane plošče	Printed circuits and boards

SIST EN 60249-2-19:1997**en**

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EUROPEAN STANDARD

EN 60249-2-19

NORME EUROPEENNE

EUROPÄISCHE NORM

July 1993

UDC 621.3.049.75:678.686-419:620.1

Descriptors: Printed circuits, base materials, laminated sheet, woven glass fabric, bismaleimide/triazine, multilayer

ENGLISH VERSION

Base materials for printed circuits
Part 2: Specifications
Specification No. 19: Thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad laminated sheet of defined flammability for use in the fabrication of multilayer printed boards
(IEC 249-2-19:1992)

Matériaux de base pour circuits imprimés	Basismaterialien für gedruckte Schaltungen
Partie 2: Spécifications	Teil 2: Einzelbestimmungen
Spécification no. 19: Feuille de stratifié mince en tissu de verre époxyde avec bismaléimide/triazine recouverte de cuivre, d'inflammabilité définie, destinée à la fabrication des cartes imprimées multicouches (IEC 249-2-19:1992)	Einzelbestimmung Nr. 19: Dünne kupferkaschierte mit Bismaleinimid/Triazin modifizierte Epoxid-Glashartgewebetafeln definierter Brennbarkeit zur Herstellung gedruckter Mehrlagenleiterplatten (IEC 249-2-19:1992)

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This European Standard was approved by CENELEC on 1993-07-06. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

FOREWORD

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 249-2-19:1992 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60249-2-19 on 6 July 1993.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-08-01
- latest date of withdrawal of conflicting national standards (dow) 1994-08-01

Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

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The text of the International Standard IEC 249-2-19:1992 was approved by CENELEC as a European Standard without any modification.

<https://standards.iteh.ai/en/standards/iec/259382-468448781>
58259d02ef1f/sist-en-60249-2-19-1997

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
249-1	1982	Base materials for printed circuits		
A1	1984	Part 1: Test methods		
A2	1989			
A3	1991		EN 60249-1	1993
249-3A	1976	Part 3: Special materials used in connection with printed circuits First supplement: Specification No. 2: Specification for copper foil for use in the manufacture of copper-clad base materials	-	-

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NORME
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CEI
IEC
249-2-19

Première édition
First edition
1992-02

Matériaux de base pour circuits imprimés

Partie 2: Spécifications

Spécification n° 19: Feuille de stratifié mince en tissu de verre époxyde avec bismaléimide/triazine recouverte de cuivre, d'inflammabilité définie, destinée à la fabrication des cartes imprimées multicouches

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Base materials for printed circuits

Part 2: Specifications

Specification No. 19: Thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad laminated sheet of defined flammability for use in the fabrication of multilayer printed boards

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International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

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For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

BASE MATERIALS FOR PRINTED CIRCUITS

Part 2: Specifications

**Specification No. 19: Thin bismaleimide/triazine modified epoxide
woven glass fabric copper-clad laminated sheet
of defined flammability for use in the fabrication
of multilayer printed boards**

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

This specification of International Standard IEC 249-2 has been prepared by IEC Technical Committee No. 52: Printed circuits.

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

DIS	Report on Voting
52(CO)359	52(CO)372

Full information on the voting for the approval of this specification can be found in the Voting Report indicated in the above table.

BASE MATERIALS FOR PRINTED CIRCUITS

Part 2: Specifications

Specification No. 19: Thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad laminated sheet of defined flammability for use in the fabrication of multilayer printed boards

1 Scope

This specification of IEC 249-2 gives requirements for properties of thin bismaleimide/triazine modified epoxide woven glass fabric copper-clad laminated sheet of defined flammability for use in the fabrication of multilayer printed boards.

Laminated sheets covered by this specification have thicknesses (of the base laminate, excluding the copper foil) not greater than 0,8 mm (0,031 in). Although primarily intended for multilayer boards, the materials may be used for single-sided or double-sided printed boards.

NOTE - To designate this material, the reference: 249-2-19-FV1-IEC-BTE-GC-Cu* may be used; if there is no risk of confusion, the type designation may be abbreviated to read IEC-249-2-19-FV1*.

2 Normative references

[SIST EN 60249-2-19:1997](https://standards.iteh.ai/catalog/standards/sist/ee259282-468e-4083-8b14-58259d02ef1f/sist-en-60249-2-19-1997)

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The following standards contain provisions which, through reference in this text, constitute provisions for this specification of IEC 249-2. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this specification of IEC 249-2 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of the IEC and ISO maintain registers of currently valid international standards.

IEC 249-1: 1982, *Base materials for printed circuits - Part 1: Test methods. Amendment No. 3* (1991).

IEC 249-3A: 1976, *Base materials for printed circuits - Part 3: Special materials used in connection with printed circuits - First supplement: Specification No. 2: Specification for copper foil used in the manufacture of copper-clad base materials.*

* The addition of FV1 only if applicable (see 7.3).

3 Materials and construction

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

3.1 *Insulating base*

Bismaleimide and/or triazine modified epoxide resin bonded woven glass fabric laminate. Its flame resistance is defined in terms of the flammability requirements of 7.3.

3.2 *Metal foil*

Copper as specified in IEC 249-3A.

The preferred foils are type A (electro-deposited copper) of standard or high ductility.

4 Internal marking

Not specified.

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