

SLOVENSKI STANDARD

SIST EN 60249-2-3:1997/A2:1997

01-avgust-1997

**Base materials for printed circuits - Part 2: Specifications - Specification No.3:
Epoxide cellulose paper copper-clad laminated sheet of defined flammability
(vertical burning test) - Amendment A2 (IEC 249-2-3:1987/A2:1993) - Amendment 2**

Base materials for printed circuits -- Part 2: Specifications -- Specification No. 3: Epoxide cellulose paper copper-clad laminated sheet of defined flammability (vertical burning test)

Basismaterialien für gedruckte Schaltungen -- Teil 2: Einzelbestimmungen -- Einzelbestimmung Nr. 3: Kupferkaschierte Epoxidharz-Hartpapiertafeln definierter Brennbarkeit (Brennprüfung mit vertikaler Probenlage)

Matériaux de base pour circuits imprimés -- Partie 2: Specifications -- Spécification n° 3: Feuille de papier cellulose phénolique époxyde recouverte de cuivre, d'inflammabilité définie (essai de combustion verticale)

Ta slovenski standard je istoveten z: EN 60249-2-3:1994/A2:1994

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 60249-2-3:1997/A2:1997 en

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<https://standards.iteh.ai/catalog/standards/sist/e1877784-4a99-4952-973d-b780f5a403c3/sist-en-60249-2-3-1997-a2-1997>

EUROPEAN STANDARD

EN 60249-2-3/A2

NORME EUROPEENNE

EUROPÄISCHE NORM

February 1994

UDC 621.3.049.75-035.4

Descriptors: Printed circuit, composite materials, paper, copper,
flammability

Amendment A2 to the English version of EN 60249-2-3

Base materials for printed circuits
Part 2: Specifications
Specification No. 3: Epoxide cellulose paper
copper-clad laminated sheet of defined
flammability (vertical burning test)
(IEC 249-2-3:1987/A2:1993)

Matériaux de base pour circuits
imprimés
Partie 2: Spécifications
Spécification n° 3: Feuille de
papier cellulose époxyde
recouverte de cuivre,
d'inflammabilité définie (essai
de combustion verticale)

Basismaterialien für gedruckte
Schaltungen
Teil 2: Einzelbestimmungen
Einzelbestimmung Nr. 3:
Kupferkaschierte
Epoxidharz-Hartpapiertafeln
definierter Brennbarkeit
(Brennprüfung mit vertikaler
Probenlage)

(CEI 249-2-3:1987/A2:1993)

(IEC 249-2-3:1987/A2:1993)

This amendment A2 modifies the European Standard EN 60249-2-3:1994. It was approved by CENELEC on 1993-12-08. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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

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EN 60249-2-3:1994/A2:1994

FOREWORD

At the request of the 76th Technical Board of CENELEC, amendment 2:1993 to the International Standard IEC 249-2-3:1987 was submitted to the CENELEC members for formal vote.

The text of the International Standard was approved by CENELEC as amendment A2 to EN 60249-2-3 on 8 December 1993.

The following dates were fixed:

- latest date of publication of
an identical national standard (dop) 1995-03-15
- latest date of withdrawal of
conflicting national standards (dow) 1995-03-15

ENDORSEMENT NOTICE

The text of amendment 2:1993 to the International Standard IEC 249-2-3:1987 was approved by CENELEC as an amendment to the European Standard without any modification.

SIST EN 60249-2-3:1997/A2:1997

<https://standards.iteh.ai/catalog/standards/sist/61877784-4a99-4952-973d-b780f5a403c3/sist-en-60249-2-3-1997-a2-1997>



**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
249-2-3**

1987

**AMENDEMENT 2
AMENDMENT 2**

1993-05

Comprenant la modification 1 (1989)
Incorporating Amendment 1 (1989)

Amendement 2

Matériaux de base pour circuits imprimés

Partie 2: Spécifications

Spécification n° 3: Feuille de papier cellulose
époxyde recouverte de cuivre, d'inflammabilité
définie (essai de combustion verticale)

[SIST EN 60249-2-3:1997/A2:1997](https://standards.iteh.ai/catalog/standards/sist/e1877784-4a99-4952-973d-b780f5a403c3/sist-en-60249-2-3-1997-a2-1997)

<https://standards.iteh.ai/catalog/standards/sist/e1877784-4a99-4952-973d-b780f5a403c3/sist-en-60249-2-3-1997-a2-1997>

Amendment 2

Base materials for printed circuits

Part 2: Specifications

Specification No. 3: Epoxide cellulose paper
copper-clad laminated sheet of defined
flammability (vertical burning test)

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

**CODE PRIX
PRICE CODE**

D

Pour prix, voir catalogue en vigueur
For price, see current catalogue

FOREWORD

This amendment has been prepared by IEC technical committee 52: Printed circuits.

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

Amendments	Six Months' Rule/DIS	Reports on Voting
2	52(CO)378	52(CO)387
	52(CO)379	52(CO)388
	52(CO)380	52(CO)389
	52(CO)391	52(CO)395
1	52(CO)319	52(CO)330

Full information on the voting for the approval of this amendment can be found in the reports on voting indicated in the above table.

The text of Amendment 2 is indicated by a vertical line in the margin.

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4 Electrical properties

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Replace, in table I, the present property designation by:

Surface resistance after damp heat while in the humidity chamber (optional)

Surface resistance after damp heat and recovery

Volume resistivity after damp heat while in the humidity chamber (optional)

Volume resistivity after damp heat and recovery

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Table VI, column 1

Delete "1,1,1 – trichloroethane" and replace "Solvents other than trichloroethane" by "Solvents as agreed upon between purchaser and supplier".

Column 3:

Delete the sentence "As agreed upon between purchaser and supplier".

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5.6 Solderability

Delete the title and text of this subclause.

5.7 Dimensional stability

Replace the present table VIII by the following new table VIII:

Table VIII

Property	Test method (subclause of IEC 249-1)	Requirement
Dimensional stability	3.11 $T = (150 \pm 2) ^\circ\text{C}$	2,0 mm/m max.

5.8 Size tolerances

5.8.1 Size tolerances for sheets

The size of the sheets as delivered by the supplier shall not deviate from the nominal size by more than $+10_0$ mm.

5.8.2 Size tolerances for cut panels

For panels cut to size according to the purchaser's specification, the following tolerances for length and width shall apply:

Panel size (mm)	Tolerance ± (mm)	
	Normal	Close
Up to 300	2	0,5
Over 300 to 600		0,8
Over 600		1,6
NOTE - The specified tolerances include all deviations caused by cutting the panels.		

5.9 Rectangularity of cut panels

Property	Test method (subclause of IEC 249-1)	Requirements	
		Coarse (mm/m)	Normal (mm/m)
Rectangularity of cut panels	3.15	3	2

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6.2 Flexural strength

Replace, in table IX, third column, "N/cm²" by "N/mm²".

6.3 Flammability

Replace the existing table X by the following table X (new layout):

Property	Test method (subclause of IEC 249-1)	Requirement	
		Designation	
		FV0	FV1
Flammability (vertical burning test)	4.3.4		
Flaming combustion time after each application of the test flame for each test specimen		≤ 10 s	≤ 30 s
Total flaming combustion time for the 10 flame applications for each set of live specimens		≤ 50 s	≤ 250 s
Glowing combustion time after the second removal of the test flame		≤ 30 s	≤ 60 s
Flaming or glowing combustion up to the holding clamp		None	None
Dripping flaming particles that ignite the tissue paper		None	None

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7 Packaging and marking

Replace in the second paragraph: "as in the relevant specification" by "as in this specification".