

# IPC-4202C

2022 - January

## Specification for Flexible Base Dielectrics for Use in Flexible Printed Boards

Supersedes IPC-4202B  
December 2016

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# Specification for Flexible Base Dielectrics for Use in Flexible Printed Boards

Developed by the Flexible Circuits Base Materials Subcommittee (D-13)  
of the Flexible Circuits Committee (D-10) of IPC

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# Table of Contents

<b>1</b>	<b>SCOPE</b> . . . . .	1	3.4.4	Voids/Holes . . . . .	5
1.1	Nomenclature Designation System . . . . .	1	3.5	Dimensional Requirements . . . . .	5
1.1.1	Nonspecific Designation . . . . .	1	3.5.1	Sheet Width and Length . . . . .	5
1.1.2	Specific Designation . . . . .	1	3.5.2	Roll Width . . . . .	5
1.1.2.1	Base Dielectric Material Type . . . . .	1	3.5.3	Roll Length . . . . .	5
1.1.2.2	Reinforcement Method . . . . .	2	3.5.4	Thickness . . . . .	5
1.1.2.3	Reinforcement Type . . . . .	2	3.6	Physical Dimensions . . . . .	6
1.1.2.4	Base Dielectric Material Thickness . . . . .	2	3.6.1	Dimensional Stability . . . . .	6
1.2	Qualification . . . . .	3	3.6.2	Tensile Strength and Elongation . . . . .	6
1.3	Quality Conformance . . . . .	3	3.6.3	Initiation Tear Strength . . . . .	6
1.4	Material Characteristics . . . . .	3	3.6.4	Propagation Tear Strength . . . . .	6
1.5	New Materials . . . . .	3	3.7	Chemical Requirements . . . . .	6
1.6	Measurement Units . . . . .	3	3.7.1	Chemical Resistance . . . . .	6
1.7	Definition of Requirements . . . . .		3.8	Electrical Requirements . . . . .	6
1.8	Process Control Requirements . . . . .	3	3.8.1	Permittivity (Dielectric Constant) . . . . .	6
1.9	Order of Precedence . . . . .	3	3.8.2	Loss Tangent (Dissipation Factor) . . . . .	6
1.9.1	Conflict . . . . .	3	3.8.3	Volume Resistivity (Damp Heat) . . . . .	6
1.9.2	Clause References . . . . .	3	3.8.4	Surface Resistance (Damp Heat) . . . . .	6
1.9.3	Appendices . . . . .	3	3.8.5	Dielectric Strength . . . . .	6
1.9.3.1	Appendix A . . . . .	4	3.9	Environmental Requirements . . . . .	6
1.10	Use of “Lead” . . . . .	4	3.9.1	Fungus Resistance . . . . .	6
1.11	Abbreviations and Acronyms . . . . .	4	3.9.2	Moisture Absorption . . . . .	6
1.12	Terms and Definitions . . . . .	4	3.9.3	Flammability . . . . .	6
<b>2</b>	<b>APPLICABLE DOCUMENTS</b> . . . . .	4	3.9.4	Relative Thermal Index (RTI) . . . . .	7
2.1	IPC . . . . .	4	3.10	Workmanship Requirements . . . . .	7
2.2	American Society for Testing and Materials (ASTM) . . . . .	4	<b>4</b>	<b>QUALITY ASSURANCE PROVISIONS</b> . . . . .	7
2.3	Underwriters Laboratories Standards . . . . .	4	4.1	Responsibility for Inspection . . . . .	7
2.4	NCSL International . . . . .	4	4.2	Test Equipment and Inspection Facilities . . . . .	7
2.5	ISO . . . . .	4	4.3	Preparation of Samples . . . . .	7
<b>3</b>	<b>REQUIREMENTS</b> . . . . .	5	4.4	Standard Laboratory Conditions . . . . .	7
3.1	Terms and Definitions . . . . .	5	4.5	Tolerances . . . . .	7
3.2	Specification Sheets . . . . .	5	4.6	Classification of Inspections . . . . .	7
3.3	Materials Requirements . . . . .	5	4.7	Materials Inspection . . . . .	7
3.3.1	Sheet Material . . . . .	5	4.8	Qualification Inspection . . . . .	7
3.3.2	Roll Material . . . . .	5	4.8.1	Characterization Testing . . . . .	7
3.4	Visual Requirements . . . . .	5	4.8.2	Qualification . . . . .	8
3.4.1	Marking . . . . .	5	4.9	Quality Conformance Inspection . . . . .	8
3.4.2	Streaks and Scratches . . . . .	5	4.9.1	Inspection of Product for Delivery . . . . .	8
3.4.3	Inclusions . . . . .	5	4.9.2	Sample Unit . . . . .	8
			4.9.3	Group A Inspection . . . . .	8

4.9.3.1	Sampling Plan . . . . .	8
4.9.3.2	Failures . . . . .	9
4.9.3.3	User Sampling Plan . . . . .	9
4.9.3.4	Rejected Lots . . . . .	9
4.9.4	Group B Inspection . . . . .	9
4.9.5	Group C Inspection . . . . .	9
4.9.5.1	Sampling Plan . . . . .	9
4.9.5.2	Failures . . . . .	9
4.9.5.3	Noncompliance of Material . . . . .	9
4.10	Statistical Process Control (SPC) . . . . .	9
4.10.1	Reduction of Quality Conformance Testing . . . . .	10
<b>5</b>	<b>PREPARATION FOR DELIVERY</b> . . . . .	<b>10</b>
5.1	Packaging . . . . .	10
<b>6</b>	<b>NOTES</b> . . . . .	<b>10</b>
6.1	Ordering Data . . . . .	10
6.2	Chemical Resistance . . . . .	10
<b>Appendix A</b>	. . . . .	<b>25</b>

## Tables

Table 1-1	Base Dielectric Type Designation . . . . .	1
Table 1-2	Reinforcement Method Designation . . . . .	2
Table 1-3	Reinforcement Type Designation . . . . .	2
Table 1-4	Nominal Dielectric Thickness Designation . . . . .	2
Table 3-1	Allowable Deviation from Nominal Thickness . . . . .	6
Table 4-1	Test Method Frequency . . . . .	8
Table 4-2	Sampling Plan for Group A Inspection for Sheet Goods . . . . .	9
Table 4-3	Lot Sampling Plan for Group A Inspection for Roll Goods . . . . .	9

# Specification for Flexible Base Dielectrics for Use in Flexible Printed Boards

## 1 SCOPE

This standard establishes the classification system, the qualification and quality conformance requirements for flexible base dielectric materials to be used for the fabrication of flexible printed boards.

**1.1 Nomenclature Designation System** The system described in 1.1.1 through 1.1.2.4 identifies flexible base dielectrics.

**1.1.1 Nonspecific Designation** A nonspecific designation is intended for use by **designers** on master drawings to designate their material choice. At the end of this standard is a series of material specification sheets identified by specification sheet numbers. Each sheet outlines engineering and performance data for a flexible base dielectric, indicating base material type and method of reinforcement.

Example of nonspecific designation: **IPC-4202/1**, Where “1” refers to the specification sheet detailing unsupported polyimide flexible base dielectrics.

If further material specification details (such as dielectric thickness) are required, they should be highlighted in cross sectional views or notes on the master drawing.

**1.1.2 Specific Designation** The specific designation should be in the form shown in the following example, and is intended for use on material purchase orders by printed board manufacturers (see 6.1). The specific designation should not be used by designers on master drawings to indicate their material selection. Master drawings **shall** indicate the material design by designers on master drawings to indicate their material selection, as the designation is lengthy and requires fabricator level knowledge in making the detailed selections.

Example of specific designation:

**IPC-4202/1 – E1E2**

Where:

**IPC-4202/1** – Nonspecific Designation (see 1.1.1), for unsupported polyimide flexible base dielectrics.

**E** – Base Dielectric Material Type Designation (see 1.1.2.1), specifying polyimide.

**1** – Reinforcement Method Designation (see 1.1.2.2), specifying nonreinforced.

**E** – Reinforcement Type Designation (see 1.1.2.3), specifying nonreinforced film.

**2** – Base Dielectric Material Thickness Designation (see 1.1.2.4), specifying 50  $\mu\text{m}$  [1970  $\mu\text{in}$ ] thickness.

### 1.1.2.1 Base Dielectric Material Type

The type of dielectric material **shall** be designated per Table 1-1.

**Table 1-1 Base Dielectric Type Designation**

Designation	Base Dielectric Type
A	Polyvinyl fluoride (PVF)
B	Polyethylene Terephthalate Polyester (PET)
C	Fluorinated Ethylene-Propylene Copolymer (FEP)
D	Polytetrafluoroethylene (PTFE)
E	Polyimide
F	Aramid
G	Polyamide-imide
H	Epoxy
J	Polyetherimide
K	Polysulfone
L	Polyethylene Naphthalate (PEN)
M	Thermotropic Liquid Crystal Polymer