



*The Institute for
Interconnecting
and Packaging
Electronic Circuits*

IPC-FC-241C

Flexible Metal-Clad Dielectrics for Use in Fabrication of Flexible Printed Wiring

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Table of Contents

<p>1.0 GENERAL 1</p> <p>1.1 Scope..... 1</p> <p>1.2 Classification System..... 1</p> <p>1.3 Quality Classifications..... 2</p> <p>2.0 APPLICABLE DOCUMENTS 3</p> <p>2.1 IPC 3</p> <p>2.2 Military Standards 3</p> <p>2.3 American Society for Testing and Materials (ASTM) 3</p> <p>2.4 Underwriters Laboratories Standards..... 3</p> <p>3.0 REQUIREMENTS 4</p> <p>3.1 Terms and Definitions 4</p> <p>3.2 Specification Sheets 4</p> <p>3.3 Conflict..... 4</p> <p>3.4 Qualification..... 4</p> <p>3.5 Materials 4</p> <p>3.6 General Requirements—Acceptability 4</p> <p>3.7 Physical Requirements 6</p> <p>3.8 Chemical Requirements 6</p> <p>3.9 Electrical Requirements 6</p> <p>3.10 Environmental Requirements 7</p> <p>3.11 Workmanship 7</p>	<p>4.0 QUALITY ASSURANCE PROVISIONS 7</p> <p>4.1 Quality Conformance Evaluations 7</p> <p>4.2 Statistical Process Control (SPC)..... 10</p> <p>4.3 Group D Properties..... 11</p> <p>5.0 PREPARATION FOR DELIVERY 11</p> <p>5.1 Packaging 11</p> <p>6.0 NOTES 11</p> <p>6.1 Ordering Data 11</p> <p>6.2 Chemical Resistance..... 12</p> <p>6.3 References 12</p>
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Figures	
Figure 1	Control Plan 13
Figure 2	Process Flow and Control/Inspection Points Chart..... 14
Figure 3	Parameter to Process Correlation Chart..... 15
Figure 4	Quality Conformance Test Reduction Chart..... 16

Tables	
Table 1	Test Method Frequency..... 8
Table 2	Small Lot Inspection Plan..... 9

Flexible Metal-Clad Dielectrics for Use in Fabrication of Flexible Printed Wiring

1.0 GENERAL

1.1 Scope This document establishes the requirement for flexible metal-clad dielectrics to be used for the fabrication of flexible printed wiring.

1.2 Classification System The following system identifies flexible dielectrics, adhesive types, and metal cladding on one or both sides.

1.2.1 Specific Designation The specific designation **shall** be in the following form and is intended for use on purchase orders (6.1). The specific designation **shall** not be used by designers on master drawings to indicate their material selection. Master drawings **shall** indicate the material design by the non-specific designation (1.2.1.1) supplemented in notes with the material specifications details as defined by the specific designation. This procedure is necessary because the specific designation is normally lengthy and will not fit the field for most computer cataloging.

Example:

<u>IPC-FC-241C/S</u>	<u>-G</u>	<u>1</u>	<u>E</u>	<u>3</u>
Where S is specification sheet number (see 1.2.1.1)	Base Material Thickness (see 1.2.1.2)	Reinforcement Method (see 1.2.1.3)	Reinforcement Type (see 1.2.1.4)	Base Material Thickness (see 1.2.1.5)
<u>P</u>	<u>I/I</u>	<u>CF-EI</u>	<u>IP/IP</u>	<u>2</u>
Adhesive Type (see 1.2.1.6.1)	Adhesive Thickness (see 1.2.1.6.2)	Metal Cladding (see 1.2.1.7)	Nominal Metal Cladding Weight and Treatment (see 1.2.1.8)	Quality Classification (see 1.3)

Note: The letter “X” **shall** be entered into the designation where an item is not specified (e.g., adhesive thickness).

1.2.1.1 Non-Specific Designation The non-specific designation is intended for use by designers on master drawings to designate their material choice. Further specification details may be indicated by using the specific designation (1.2.1) in drawing notes and purchase documents. At the end of this document is a series of material specification sheets designated by individual non-specific designators. Each sheet outlines engineering and performance data for a flexible metal-clad dielectric indicating base material type, adhesive type, and method of reinforcement. The sheets are provided with number for ordering purpose. For example, if a user wished to order from specification sheet number 1, the number “1” would be substituted

for the “S” in the above designation example (IPC-FC-241/1).

The flexible metal-clad dielectrics contained in this standard represent known materials. As new materials become available, they will be added to future revisions. Users and material developers are encouraged to supply information on new flexible materials for review by the IPC Flexible Printed Wiring Committee. Users who wish to invoke this specification for flexible materials not listed **shall** list a zero (O) for the specification sheet number (IPC-FC-241/O).

New or revised specification sheets may become approved by the committee independent from revision of the document text. When this occurs, the new or revised specification sheet **shall** be printed and made available through IPC-FC-FLX, specification sheets for IPC-FC-231, IPC-FC-232 and IPC-FC-241. The effective date of the new or revised sheet **shall** be clearly indicated on the individual sheet. Specification sheets **shall** be transferred from IPC-FC-FLX to the appropriate parent document whenever that document is revised. Per paragraph 6.1, the specification sheet revision date **shall** be specified in the order.

1.2.1.2 Base Material Type The type of dielectric material **shall** be specified as follows:

- A. Polyvinylfluoride (PVF)
- B. Polyethylene Terephthalate Polyester (PET)
- C. Fluorinated Ethylene-Propylene Copolymer (FEP)
- D. Polytetrafluoroethylene (PTFE)
- E. Polyimide
- F. Aramid
- G. Polyamide-imide
- H. Epoxy
- I. Polyetherimide
- K. Polysulfone
- L. Polyethylene Naphthalate (PEN)

1.2.1.3 Reinforcement Method The reinforcement method shall be as follows:

- 1. Nonreinforced
- 2. Nonwoven reinforcement
- 3. Woven reinforcement
- 4. Combination woven and nonwoven reinforcement

1.2.1.4 Reinforcement Type The reinforcement type shall be specified as follows:

- A. Glass
- B. Polyester