IPC-CC-830B
with Amendment 1

Qualification and Performance of Electrical Insulating Compound for Printed Wiring Assemblies

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A standard developed by IPC

Association Connecting Electronics Industries

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- Minimize time to market
- Contain simple (simplified) language
- Just include spec information
- Focus on end product performance
- Include a feedback system on use and problems for future improvement

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Qualification and Performance of Electrical Insulating Compound for Printed Wiring Assemblies

Developed by the Conformal Coating Task Group (5-33a) of the Cleaning and Coating Committee (5-30)

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Users of this publication are encouraged to participate in the development of future revisions.

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Acknowledgment

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Qualification and Performance of Electrical Insulating Compound for Printed Wiring Assemblies

1 SCOPE

1.1 Scope This standard establishes qualification and conformance requirements for electrical insulating compounds (conformal coatings). It has been designed and constructed with the intent of obtaining maximum confidence in the materials with minimum test redundancy. This standard covers:

- The qualification and qualification retention of the conformal coating material (Table 3-1, Column A and B).
- The quality conformance of conformal coating material properties (Table 3-1, Column C).

For the purpose of this standard, the term conformal coating is used herein when referring to a type of protective coating for use on printed wiring assemblies. The conformal coating is intended to provide protection from moisture and contamination and provide electrical insulation; not as a sole source of mechanical support.

For the purpose of this standard, inspections are performed on standardized test vehicles instead of real production assemblies. A standardized test vehicle refers to the test vehicle specified per test method indicated, coated with the conformal coating under inspection.

1.2 Purpose With standardized testing on standardized test vehicles under test conditions specified in test methods listed herein, this standard enables a manufacturer to qualify his conformal coating product and express the qualification it possesses. This standard also enables the manufacturer to attest the conformance of the quality of production to the qualification of each product.

1.3 Classification

1.3.1 Types Conformal coatings **shall** be categorized into types by the cured chemistry of the coating. The type for multifunctional materials **shall** be based on the chemistry type which is the highest percentage by weight.

Conformal coatings **shall** be of the following types:

Type AR — Acrylic
Type ER — Epoxy
Type SR — Silicone
Type UR — Polyurethane
Type XY — Paraxylylene

1.3.2 Classes Although previous versions of IPC-CC-830 made reference to Class A and Class B coating classifications, these classifications have been removed. To be qualified to this specification, a coating must be hydrolytically stable (formerly Class B). Non-hydrolytically stable coatings (formerly Class A) no longer meet the requirements of this specification and usage will only be As Agreed Between User and Supplier (AABUS). Coatings that meet the requirements of Class B coatings in previous document revisions meet the requirements of this revision.

Note: Earlier versions of this specification, as well as other IPC documents, made reference to "Class 1," "Class 2," and "Class 3" inspection and testing requirements for these classes that were not directly correlated to the previous Class A and B requirements.

1.4 Interpretation "**Shall**," the imperative form of the verb, is used throughout this standard whenever a requirement is intended to express a provision that is mandatory. Deviation from a "**shall**" requirement may be considered if sufficient data is supplied to justify the exception.

The words "should" and "may" are used whenever it is necessary to express nonmandatory provisions. "Will" is used to express a declaration of purpose.

To assist the reader, the word "**shall**" is presented in bold characters.

2 APPLICABLE DOCUMENTS

The following documents of the issue currently in effect form a part of this standard to the extent specified herein.

2.1 IPC[1]

IPC-B-25A Multipurpose Test Board

IPC-T-50 Terms and Definitions for Interconnecting and Packaging Electronic Circuits

IPC-TM-650 Test Methods Manual[2]

2.4.5.1 Flexibility
2.5.7.1 Dielectric Withstanding Voltage - Polymeric Conformal Coating
2.6.1.1 Fungus Resistance - Conformal Coating
2.6.3.4 Moisture and Insulation Resistance - Conformal Coating

1. www.ipc.org
2. Current and revised IPC Test Methods are available through IPC-TM-650 subscription and on the IPC Web site (www.ipc.org/html/testmethods.htm).