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Qualification and Performance of Electrical Insulating Compound for Printed Wiring Assemblies

Supersedes IPC-CC-830B - Amendment 1
September 2008

An international standard developed by IPC

Association Connecting Electronics Industries

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

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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.

It is important to understand that this specification is for materials qualification and conformance only and not for materials application or performance in the end use environment.

1.3 Classification

1.3.1 Types Conformal coatings with a target thickness of 12.5 µm [0.49 mil] or less, **shall** be defined as Type UT independent of chemical composition. Other conformal coatings **shall** be categorized into types by the cured chemistry of the coating. The type for hybrid 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
Type UT – Ultra-Thin Coatings
Type SC – Styrene Block Co-Polymer

Additional coating classifications may be added to this specification. See Appendix D for the process to propose new coating classes to this document. New coating classes **shall** be included in Amendments to this specification.

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 non-mandatory provisions. ''Will'' is used to express a declaration of purpose.

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