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# Cleanliness Requirements for Unpopulated Printed Boards

## 1 SCOPE

**1.1 Statement of Scope** This document defines the recommended general requirements for the cleanliness of unpopulated (bare) single, double-sided or multilayer printed boards.

Printed board quality encompasses many different parameters, cleanliness being only one important parameter. This document should be used in conjunction with a larger printed board fabricator qualification matrix/effort.

**1.2 Post Analysis Considerations** The testing described herein is considered non-destructive for most surface finishes, but will impact printed boards coated with organic solderability preservatives (OSPs).

It is recommended that the tested printed boards be baked to remove moisture following the ion chromatography extractions.

**1.3 Terms and Definitions** The definition of all terms used herein **shall** be in accordance with IPC-T-50 and as defined in 1.3.1.

**1.3.1 As Agreed Between User and Supplier (AABUS)** Indicates additional or alternate requirements to be decided between the user and the supplier in the procurement documentation. Examples include contractual requirements, modifications to purchase documentation and information on the drawing. Agreements can be used to define test methods, conditions, frequencies, categories or acceptance criteria within a test, if not already established.

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

## 2 APPLICABLE DOCUMENTS

The following specifications of the revision in effect at the time of order form a part of this document to the extent specified herein.

In the event of a conflict of requirements of this document and the requirements in the applicable Contract, Purchase Order and Drawing, the requirements that exist in the Contract, Purchase Order and Drawing **shall** take precedence. In the event of a conflict with a referenced specification, the requirement in this document **shall** take precedence. The precedence, in which requirements **shall** govern, in descending order, is as follows:

- a) Contract
- b) Purchase Order
- c) Drawing
- d) This document
- e) Other referenced specifications

### 2.1 REFERENCES

**IPC-150** Terms and Definitions for Interconnecting and Packaging Electronic Circuits

**IPC-6012** Qualification and Performance Specification for Rigid Printed Boards

**IPC-TM-650** Test Methods Manual<sup>2</sup>

1. www.ipc.org

2. Current and revised IPC Test Methods are available on the IPC Web site (www.ipc.org/html/testmethods.htm)