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Guideline Methodology for Assessing Component and Cleaning Materials Compatibility

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Association Connecting Electronics Industries



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Developed by the Cleaning Compatibility Task Group (5-31j) of the
Cleaning and Coating Committee (5-30) of IPC

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

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Acknowledgment

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Table of Contents

1 SCOPE	1	8 TEST METHODS	13
1.1 Purpose	1	8.1 Material Sets Affected by the Cleaning Process	13
1.2 Scope	1	8.2 Static Material Compatibility Method	13
2 APPLICABLE DOCUMENTS	1	8.2.1 Static Cleaning Compatibility – Alternative Method A	14
2.1 IPC	1	8.3 Procedure to Test Material Compatibility Long Term	14
3 BACKGROUND	2	8.4 Dynamic Cleaning Material Compatibility Method	15
3.1 Problem Statement	2	8.5 Alloy Compatibility with Cleaning Agent	16
3.2 Compatibility/Incompatibility	3	8.6 Labels/Ink Markings Testing Methodology	18
4 CURRENT INDUSTRY STANDARD TEST METHODS	4	8.6.1 Belt Speed/Chemical Exposure Time (Designed for Aqueous Inline Testing)	20
4.1 MIL-STD-202G: Method 215K	4	9 VALIDATION METHODS	21
4.1.1 Resistance to Solvents	4	APPENDIX A Case Studies	23
4.1.2 Purpose	4	Figures	
4.1.3 Formulation of Solvents	4	Figure 3-1 Depiction of Clearances Between PCB & Component	2
4.1.4 Materials	4	Figure 5-1 Material Compatibility Assessment	10
4.1.5 Vessel	4	Figure 8-1 LabRoller or Stirrer Hot Plate Used to Mix Multi-Phase Aqueous Cleaning Agents	13
4.1.6 Brush	4	Figure 8-2 Corrosion	17
4.1.7 Test Procedure	5	Figure 8-3 Corrosion Current	17
4.1.8 Optional Exposure Procedure for the Third Group	5	Figure 8-4 Label and Paper Material Compatibility Test Method	19
4.1.9 Immersion Test for Components With Marking Protected by a Sleeve Material	5	Figure 8-5 Example Test Board	19
4.1.10 Open Construction Parts and Parts not Intended for PCB Mounting	6	Figure 8-6 Common Evaluation Typical In-line Parameters	19
4.1.11 Examination and Measurements	6	Figure 8-7 Exposure Times – Recommended Example Settings for Testing	20
4.1.12 Summary	6	Figure 8-8 Fan vs. Coherent Nozzle Types	20
4.1.13 Limitations	6	Figure 8-9 Label Adherence Scoring Designations	20
4.2 IPC-TM-650, Method 2342	8	Figure 8-10 Ink Permanency Scoring Designations	21
4.2.1 Solder Mask Resistance to Solvents and Cleaning Agents	8	Figure A-1 Varnishing Peeling Off Component	24
5 MATERIAL COMPATIBILITY CAUSE AND EFFECT FLOW CHART	9	Figure A-2 Heat Exposure	24
5.1 Materials Compatibility	9	Figure A-3 Residue on Solder Mask	25
6 CLEANING EQUIPMENT COMPATIBILITY	11	Figure A-4 Bluing of Solder Joints	26
7 APPROACH	12	Figure A-5-1 Example Test Board	27
7.1 Testing	12	Figure A-5-2 Fan vs. Coherent Nozzle Types	27
		Figure A-6 Anodization Compatibility	28
		Figure A-7 Axial Leaded Part with Banding	28
		Figure A-8 Before and After Exposure to Inline Cleaning Chemistry	29

Figure A-9-1	Dry Film Solder Mask Printed Circuit Board	29
Figure A-9-2	Example of Solder Mask Swelling and Removal over the Copper Trace	29
Figure A-10	Thick Film Resistor Chipping Example	30
Figure A-11	Varnish Attack Example	30
Figure A-12	Wire Harness Entrapment under Insulation Example	31
Figure A-13	Inductor Bands Removed by Cleaning Process	31
Figure A-14	Example of a Non-Hermitically Sealed Component	32
Figure A-15	Connectors Can be a Rinse Challenge	33
Figure A-16-1	Tape Adhesive on Gold Pads Resulted in Poor Wire Bonding	34
Figure A-16-2	Stains on Metalized Surfaces Caused by Flux Attack	34
Figure A-17	Inhibited Versus Non-Inhibited Aqueous Cleaning Agent	35
Figure A-18	Processing Cleaning after Rework is Recommended	35

Tables

Table 3-1	Items Requiring Cleaning Process Compatibility	3
Table 3-2	Cleaning Process Classification	3
Table 3-3	Cleaning Process Incompatibility Considerations	3
Table 4-1	Summary Table for Resistance to Solvents	7
Table 4-2	Outline of IPC-TM-650, Method 2.3.42	8
Table 6-1	Commonly Compatible Materials	11

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1 SCOPE

1.1 Purpose This document establishes uniform methods for testing electronic and electrical component parts, including both static and dynamic cleaning exposure tests to determine resistance to deleterious effects from exposure to the cleaning agent and mechanical energy used to deliver the cleaning agent to the part. For this document, the term “component parts” includes such items as capacitors, resistors, switches, relays, transformers, inductors, and others.

This document develops and delineates the details of the test methodology (methods) for general electronic assembly cleaning chemistry type compatibility with electronic assembly materials. The “new” methods and procedures may be used in place of Mil-Std-202 method 215 which does not accurately represent modern cleaning chemistries used in electronic assembly manufacturing processes.

This document is designed to be used for proactive (compatibility) and reactive (incompatibility) test methods. Compatibility is the interaction between materials sets which do not negatively impact the end use product. This may include removal of flux while not interacting with the markings required for product use. Incompatibility is the interaction between materials sets which negatively impact the end use product. This may include removal of protective coatings and critical type markings.

1.2 Scope To specify suitable conditions obtainable in the laboratory that give test results equivalent to the actual service conditions existing in the field, and to obtain reproducibility of the results of tests. The tests described herein are not to be interpreted as an exact and conclusive representation of actual service operation in one geographic location, since the only true test for operation in a specific location is an actual service test at that point.

To describe in one scope (1) all the test methods of a similar character which appeared in the various joint or single-service electronic and electrical component parts specifications, (2) those test methods which are feasible for use in several specifications, and (3), the recognized extreme environments, particularly temperatures, barometric pressures, etc., at which component parts will be tested under some of the presently standardized testing procedures. By so consolidating, these methods may be kept uniform and thus result in conservation of equipment, man-hours, and testing facilities. In achieving these objectives, it is necessary to make each of the general tests adaptable to a broad range of electronic and electrical component parts.

The test methods described herein for environmental, physical, and electrical tests **shall** also apply, when applicable, to parts not covered by an approved military specification, military sheet form standard, specification sheet, or drawing.

2 APPLICABLE DOCUMENTS

2.1 IPC¹

IPC-B-25A Multi-purpose 1 & 2 sided test pattern

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

IPC-B-52 Standard Test Board

IPC-A-600 Acceptability of Printed Boards

IPC-A-610 Acceptability of Electronic Assemblies

IPC-TM-650 Test Methods Manual²

3.42 Solder Mask Resistance to Solvents and Cleaning Agents

Mil-Std 202G Method 215K Resistance to Solvents

1. www.ipc.org

2. Current and revised IPC Test Methods are available on the IPC Web site (www.ipc.org/test-methods.aspx)