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Guideline Methodology for Assessing Component and Cleaning Materials Compatibility

An international standard developed by IPC

Association Connecting Electronics Industries

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- Show relationship to Design for Manufacturability (DFM) and Design for the Environment (DFE)
- 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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- Increase cycle time
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Guideline Methodology for Assessing Component and Cleaning Materials Compatibility

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.

Contact:

IPC
3000 Lakeside Drive, Suite 105N
Bannockburn, Illinois
60015-1249
Tel 847 615.7100
Fax 847 615.7105

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Cleaning and Coating Committee

Chair
Debora L. Obitz
Electronics Protection Chemistries Group

Vice Chair
Jason M. Keeping
Celestica

Cleaning Compatibility Task Group

Chair
Eddie Hofer
Rockwell Collins

Vice Chair
Mike Bixenman
Kyzen Corporation

Technical Liaison of the IPC Board of Directors

Bob Neves
Microtek (Changzhou) Laboratories

Cleaning Compatibility Task Group

David C. Adams, Rockwell Collins
William Adams, Motorola Solutions
Jamie Albin, Lockheed Martin Space Systems
Greg Alexander, Ascentech LLC
Norman Armendariz, Raytheon Company
Gustavo Arredondo, Para Tech Coating Inc.
Rajat S. Basu, Honeywell
Frederick P. Beltran, L-3 Communications
Mike Bixenman, Kyzen Corporation
Lance Brack, Raytheon Missile Systems
Casimir Budzinski, Safari Circuits Inc.
Eric Camden, Foresite, Inc.
Giovanni Casanova, Schweitzer Engineering Laboratories, Inc.
Wendy Casker, Johns Hopkins University
Calette Chambless, U.S. Army Aviation & Missile Command
Beverly Christian, HDP User Group
Thomas Cleere, BAE Systems
Kantesh Doss, Fast Technology Associates
Caroline Ehlinger, Rockwell Collins
Gerd Fischer, NASA Goddard Space Flight Center
Rigo Garcia, NASA Goddard Space Flight Center
Andrew Glendening, NASA Goddard Space Flight Center
Constantino J. Gonzalez, ACME Training & Consulting
Nate Grinvalds, Rockwell Collins
Emmanuel Guene, Inventec Performance Chemicals
Ben Gumpert, Lockheed Martin Missile & Fire Control
Lothar Henneken, Robert Bosch GmbH
Gaston Hidalgo, Samsung Electronics America
Eddie Hofer, Rockwell Collins
Scott S. Homan, IEC Electronics - Albuquerque
Bruce Huefer
Josh Huether, Plexus Corp.
Sharissa Johns, Lockheed Martin Missile & Fire Control
Barbara Kanegsberg, BFK Solutions LLC
Edward Kanegsberg, Edward, BFK Solutions LLC
Russell Kidd, Practical Components Inc.
Richard E. Kraszewski, Plexus Corp.
Vijay Kumar, Lockheed Martin Missile & Fire Control
Kevin S. Laphen, Practical Components
David Lober, Kyzen Corporation
John Mastorides, Honeywell Aerospace
Scott Meyer, UTC Aerospace Systems
Ricardo Moncaglieri, INVAP S.E.
Michael Moore, U.S. Army Aviation & Missile C
Stefan Moser, Robert Bosch GmbH
Graham K. Naisbitt, Gen3 Systems Limited
Timothy O'Neill, AIM Solder
Ravi Parthasarathy, ZESTRON Americas
Douglas O. Pauls, Rockwell Collins
Mark Reimer, Rockwell Collins
Edward Rios, Motorola Solutions
Dan Romani, Vantage Specialties, Inc.
Richard Rumas, Honeywell Canada
Mary Lou Sachenik, Moog Inc.

Douglas R. Schueller, AbelConn, LLC

Kevin Schuld, Kontron

Greg Simpson, Schweitzer Engineering Laboratories, Inc.

Carlyn Smith-Harris, Harris Corporation

Sal Sparacino, ZESTRON Americas

Amy Taylor, Rockwell Collins

Karen A. Tellefsen, Alpha Assembly Solutions

Bradley E. Toone, L-3 Communications

Umut Tosun, ZESTRON Americas

Kirk Van Dreel, Plexus Corp.

Greg Vorhis, Coastal Technical Services, LL

Bill R. Vuono, Qorvo

Michael Wolverton, Raytheon Systems Company

Linda Woody, LWC Consulting

Curtis Wray, Hewlett-Packard Company

Lamar Young, Specialty Coating Systems Inc.

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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 several 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 IPC[1]

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 Manual[2]

2.3.42 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)