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Design, Critical Process and Acceptance Requirements for Polymeric Applications

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Developed by 5-24g Polymerics Standard Task Group

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

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Table of Contents

1	GENERAL REQUIREMENTS	1	2.7	National Aeronautics and Space Administration (NASA)	6
1.1	Scope	1	2.8	National Conference of Standards Laboratories (NCSL)	7
1.2	Purpose	1	2.9	SAE International	7
1.3	Applicability	2	2.10	U.S. Office of the Federal Register – Code of Federal Regulations (CFR)	7
1.4	Performance/Product Classification	2	2.11	United States Department of Defense (US DoD)	7
1.5	Definition of Requirements	2	2.12	Reference Documents	7
1.5.1	Requirement Format (N/A/D)	2	2.13	Guidance on Use of “Inactive for New Design” Documents	7
1.5.2	Requirements Flowdown	3	2.14	Documentation References	7
1.5.3	Commercial Off-The-Shelf (COTS)	3	3	GENERAL ASSEMBLY REQUIREMENTS	8
1.5.4	Existing or Previously Approved Designs	3	3.1	Material	8
1.6	Measurement Units and Applications	3	3.1.1	Changes in Materials, Processes, or Requirements	8
1.6.1	Use of Measurement Units	4	3.1.2	Nonstandard/Special Processes, Materials or Parts	8
1.6.2	Verification of Dimensions	4	3.1.3	Documentation	8
1.7	Definition of Terms	4	3.2	Rework and Repair	8
1.8	Engineering Documentation	4	3.2.1	Rework	8
1.9	Order of Precedence	4	3.2.2	Repair	8
1.10	Conflict	4	3.3	Electrostatic Discharge Requirements	8
1.11	Clause References	4	3.4	Selection Requirements for Polymeric Materials	8
1.12	Line Drawings and Illustrations	4	3.5	Qualification and Acceptance of Polymeric Materials	9
1.13	Appendices	4	3.5.1	Special Design Elements for Staking	9
1.14	Approval of Departures from Standards and Requirements	4	3.5.2	Special Design Elements for Conformal Coating	9
1.15	Personnel Proficiency	4	3.5.3	Special Design Elements for Bonding	9
1.16	Acceptance Requirements	4	3.5.4	Special Design Elements for Encapsulation	10
1.17	Facilities	5	3.5.5	Special Design Elements for Underfill	10
1.18	Health and Safety	5	4	FACILITIES, TOOLS AND MATERIALS	11
1.19	Packaging, Handling, Shipping and Transportation (PHS&T)	5	4.1	Health and Safety	11
1.20	Documentation Requirements	5	4.2	Facility Cleanliness	11
1.21	Intellectual Property (IP) Control Requirements	5	4.3	Environmental Conditions	11
1.22	Supply Chain Traceability	5	4.3.1	Temperature	11
1.23	Trusted Source	5	4.3.2	Humidity	11
1.24	Materials and Substances Declaration	5	4.3.3	Special Environmental Requirements	11
2	APPLICABLE DOCUMENTS	5	4.3.4	Test	11
2.1	IPC	5	4.3.5	Field Operations	12
2.2	Joint Standards	6	4.4	Foreign Object Debris (FOD) Control Plan	12
2.3	American Society of Mechanical Engineers (ASME)	6	4.5	Lighting Requirements	12
2.4	ASTM International	6			
2.5	International Electrotechnical Commission (IEC)	6			
2.6	EOS/ESD Association, Inc.	6			

4.5.1	Lighting Requirements – Visible/White Light . . .	12	6	QUALITY ASSURANCE	38
4.5.2	Lighting Requirements – Short-Wave Black Light/Ultraviolet (UV)	12	6.1	General	38
4.6	Inspection Optics	12	6.2	General Inspection Requirements	38
4.7	Silicone Operations	13	6.2.1	Verification of Cure – Tackiness and Adhesion	38
4.8	Tool and Equipment Control	13	6.2.2	Verification of Cure – Hardness	39
4.9	Material Storage and Records Retention	13	6.2.3	Acceptance/Rejection Criteria for Bonding (Mechanical/Thermal)	39
4.9.1	Storage	13	6.2.4	Acceptance/Rejection Criteria for Underfill	39
4.9.2	Records	13	6.2.5	Acceptance/Rejection Criteria for Staking	40
4.10	In-Process Storage and Handling	14	6.2.6	Acceptance/Rejection Criteria for Fastener Staking	44
4.11	Solvents	14	6.2.7	Acceptance/Rejection Criteria for Torque Striping	44
5	PROCESS REQUIREMENTS	15	6.2.8	Acceptance/Rejection Criteria for Conformal Coating	44
5.1	General	15	6.2.9	Acceptance/Rejection Criteria f or Encapsulation	46
5.2	Process Requirements	16	6.2.10	Connector Backshell Potting Acceptance/Rejection Criteria	46
5.3	Processing Sequence	16	7	DEFINITIONS AND ACRONYMS	46
5.3.1	Sequential Processing – Staking and Conformal Coating	16	APPENDICES	51	
5.4	Cleaning and Demoisturization	16	Appendix A – Military/Space/ Hazardous Applications Requirements	52	
5.5	Surface Preparation	17	Appendix B – Conformal Coating Issues	56	
5.5.1	Priming	17	Appendix C – Verification & Validation Matrix	57	
5.5.2	Masking	17			
5.5.3	Spillage/Residue Film	18			
5.5.4	Material Condition(s)	18			
5.5.5	Material Preparation	19			
5.5.6	Bonding	21			
5.5.7	Staking	22			
5.5.8	Conformal Coating	28			
5.5.9	Encapsulation/Potting	35			

Tables

Table 4-1	Solvent and Cleaner Specification	15
Table 5-1	Demoisturizing Schedule	17
Table 5-2	Conformal Coating Thickness	30
Table 5-3	Preferred Conformal Coating Removal Methods	34
Table 5-4	Repair/Rework Compatibility	35
Table A.1	Military/Space/Hazardous Applications Requirements	52

Figures

Figure 1-1	Printed wire Assembly With Staking	1
Figure 3-1	Example – Underfill	10
Figure 5-1	Example of Masking	17
Figure 5-2	Example of Minor Spillage	18
Figure 5-3	Example of a Shelf-Life Sticker	18
Figure 5-4	Example - Test/Sample Specimen	20
Figure 5-5	Example of Bonding (Thermal)	21
Figure 5-6	Example of a Stress-Sensitive Sensor	22
Figure 5-7	Excess Squeeze-out	22
Figure 5-8	Example - Staking	22
Figure 5-9	Jumper Wires	23
Figure 5-10	Axial-Leaded Tantalum Capacitor	24

Figure 5-11	Axial-Leaded Component (Unsleeved)	24
Figure 5-12	Axial-Leaded Comp. (Sleeving Applied)	24
Figure 5-13	Axial-Leaded Component (Pre-sleeved)	24
Figure 5-14	Axial-Leaded Component (Glass Body)	25
Figure 5-15	TO-Type Package	25
Figure 5-16	Radial Leaded – Component (1X)	25
Figure 5-17	Radial-Leaded Component (1X Tall)	25
Figure 5-18	Radial-Leaded Component – (2X-4X)	26
Figure 5-19	Radial-Leaded Component (+4X)	26
Figure 5-20	Wiring/ Wire Bundles	26
Figure 5-21	Example – Thread-Locking Compound	27
Figure 5-22	Example – Fastener Staking	28
Figure 5-23	Example – Fastener Staking (Alt)	28
Figure 5-24	Example – Torque Striping	28
Figure 5-25	Example – Conformal Coating	29
Figure 5-26	Example – Encapsulation/Potting	35
Figure 5-27	Spillage - Acceptable	36
Figure 5-28	Spillage - Unacceptable	36
Figure 5-29	Example – Potted Backshell	37
Figure 5-30	Acceptable – Underfill	38
Figure 5-31	Acceptable - Stringing	38
Figure 5-32	Unacceptable – Incomplete Underfill	38

Design, Critical Process and Acceptance Requirements for Polymeric Applications

1 GENERAL REQUIREMENTS

1.1 Scope This document prescribes the minimum design, critical process and acceptance requirements for the application of polymeric materials to electrical/electronic components, modules, printed wiring assemblies and other elements thereof.

IPC-AJ-820, IPC-HDBK-001, IPC-HDBK-830 and IPC-HDBK-850 are companion documents to this specification. They contain valuable explanatory and tutorial information compiled by IPC Technical Committees that is relevant to this specification.

Although the handbooks are not a part of this specification, when there is confusion over the specification verbiage, the reader is encouraged to refer to the handbooks for assistance.

Reference materials listed in this text are recommended reading. The User is encouraged to obtain all relevant referenced materials as this document cannot (nor can any single document) cover every material, process, environment, performance or safety aspect that affects a given design.

1.2 Purpose The intent of this document is to establish a baseline of requirements, procedures, practices and process attributes based on Lessons Learned and Best Practices that have been demonstrated through use and experience, to result in a robust design and high reliability.

This document is intended for use by the design engineer, manufacturing engineer, quality engineer or other individual responsible for implementation and compliance with requirements of this document to the applicable performance class.

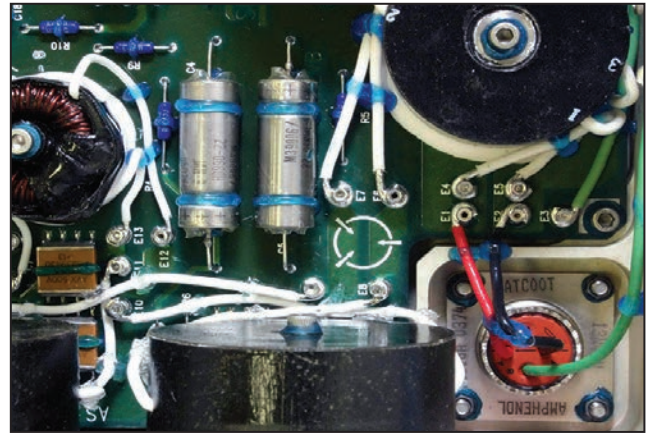


Figure 1-1 Printed wire Assembly With Staking

Image Courtesy: NASA/Johnson Space Center (JSC) Quality & Flight Equipment Division Group

a. **In-Service Criteria.** This document defines design requirements and acceptability criteria for “New/Beginning of Life” hardware. It is not the intent of this document to establish or define “In Service” acceptance criteria to address performance or reliability issues caused by aging or use. However, the acceptability criteria and limits that are currently detailed in this document may be considered to be wide enough to be applicable to the more common hardware degradation caused by aging/use. Use of these criteria for acceptance of “In Service” hardware conditions **shall [N1D2D3]** be as agreed between the Manufacturer and the User.

b. **Metallic Whisker Control.** It is not the intent of this document to be used as a stand-alone document for the control and mitigation of performance and/or reliability concerns related to metallic whiskers.

Note: Users of this document are encouraged to review GEIA-STD-0005-1, GEIA-STD-0005-2 or IPC-AJ-820 for additional information pertaining to control of metallic whiskers.

c. **Alternate/Proprietary Documents or Processes.** It is not the intent of this document to exclude any alternate or manufacturer-proprietary documents or processes that meet or exceed the baseline of requirements established by this document. Use of alternate or manufacturer-proprietary documents or processes that tailor (e.g., change, increase, reduce, delete) any of the mandatory requirements of this document **shall [N1D2D3]** require review and prior approval of the User.

d. For purposes of this document:

1) The Designer is the design agent for the User.

2) The User is the individual, organization, company, contractually designated authority or agency responsible for the procurement or design of electrical/electronic/electromechanical (EEE) hardware and having the authority to define the class of equipment and any variation or restrictions to the requirements of this document (e.g., the originator/custodian of the contract detailing these requirements).

3) The Supplier is considered the individual, organization or company which provides the Manufacturer (Assembler) components (e.g., electrical, electronic, electromechanical, mechanical, printed boards) and/or materials (e.g., solder, flux, cleaning agents).

4) The Manufacturer is considered the entity that provides a service or product to the User.

e. The acceptability of the use of polymeric with no-clean flux chemistries **shall [N1D2D3]** be as agreed between the Manufacturer and the User.