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Stencil and Misprinted Board Cleaning Handbook

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Stencil and Misprinted Board Cleaning Handbook

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

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

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Stencil and Misprinted Board Cleaning Handbook

1.0 SCOPE

1.1 Statement of Scope This handbook addresses understencil cleanliness during stencil printing, removal of solder paste from stencils following the cleaning process and misprint PCB board cleaning considerations.

1.2 Purpose The goal in stencil printing is to place an exact amount of material in a precise location on the PCB. The print medium might be solder paste, adhesive/glue, flux, or thick film materials. The squeegee speed or pressure can affect the quality of the material deposition, the stencil is the primary control mechanism for material deposition. The purpose of this handbook is to provide the assembler best practice guidelines for understencil cleanliness during the stencil printing process, and stencil cleaning once the stencil is removed from the stencil printer. The document also addresses best practices for cleaning a PCB that was misprinted.

1.2.1 Problem Statement: The stencil and PCB must be well aligned and in very tight contact (gasketing) to achieve an acceptable print. The problem is that poor contact between the stencil and the board can cause poor quality prints resulting in soldering defects. A common root cause of gasketing issues is solder paste on the stencil's contact side. The cleanliness of the stencil is critical to the success of the stencil printing process. Insufficient solder is the primary cause of defects originating from the stencil printing process; therefore, stencil cleanliness is an essential process step for delivering the proper amount of solder paste to the PCB pads.

2.0 APPLICABLE DOCUMENTS

The following documents are provided as possible sources of additional information.

2.1 Reference Documents

IPC-7525 Stencil Design Guidelines

IPC-A-610 Acceptability of Electronic Assemblies

IPC-7093 Bottom Terminated Components

IPC-CH-65 Guidelines for Cleaning of Printed Boards and Assemblies

IPC-SC-60 Post Solder Solvent Cleaning Handbook

IPC-SA-61 Post Solder Semi-Aqueous Cleaning Handbook

IPC-AC-62 Post Solder Aqueous Cleaning Handbook

IPC-CA-82 General Requirements for Thermally Conductive Adhesives

IPC-3406 Guidelines for Electrically Conductive Surface

IPC-3408 General Requirements for Anisotropically Conductive Adhesive Films

2.2 Joint Industry Standards

J-STD-001 Requirements for Soldered Electrical and Electronic Assemblies

J-STD-005 Requirements for Soldering Pastes

2.3 Surface Mount Technology Association (SMTA)

Stencil Printing Fundamentals Stencil Printing 101

2.4 American Standards for Testing Materials

ASTM Standards & Publications can be found at https://www.astm.org/Standard/standards-and-publications.html

2.5 Federal Laws and Standards

CAA Clean Air Act

CWA Clean Water Act

CERCLA Comprehensive Environmental Response, Compensation and Liability Act

RCRA Resource Conservation and Recovery Act

SARA Superfund Amendment and Reauthorization Act