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# IPC-AC-62A

## Aqueous Post Solder Cleaning Handbook

**IPC-AC-62A**

January 1996

A standard developed by IPC

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Supersedes IPC-AC-62

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# Aqueous Post Solder Cleaning Handbook

## 1.0 SCOPE

This handbook addresses aqueous cleaning of electrical/electronic parts and application tools after soldering.

**1.1 Purpose** The content of this text is intended to provide a basic understanding of the subject and to serve as a guide to users or prospective users of aqueous cleaning technology, allowing selection or improvement of aqueous cleaning processes.

## 2.0 APPLICABLE DOCUMENTS

**IPC-B-24** Surface Insulation Resistance Test Board

**IPC-B-25** Standard Test Board

**IPC-B-36** Cleaning Alternatives Test Board

**IPC-T-50** Terms and Definitions

**IPC-SC-60** Post Solder Solvent Cleaning

**IPC-AC-61** Post Solder Semi-Aqueous Cleaning

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

**IPC-TP-383** Organic Surface Contamination—Its Identification, Characterization, Record Effects on Surface Insulation Resistance and Conformal Coating Adhesion

**IPC-TM-650** Test Methods Manual

**2.3.25**, “Resistivity of Solvent Extract (Manual)”

**2.3.26**, “Ionizable Detection of Surface Contaminants (Dynamic Method)”

**2.3.26.1**, “Ionizable Detection of Surface Contaminants (Static Method)”

**2.3.27**, “Cleanliness Test - Residual Rosin” (UV Method)

**2.3.27.1**, “Rosin Flux Residue Analysis, HPLC Method”

**2.3.28**, “Ionic Analysis of Circuit Boards, Ion Chromatography Method”

**2.3.38**, “Surface Organic Contaminant Detection Test (In-House Method)”

**2.3.39**, “Surface Organic Contaminant Detection Test (Infrared Analytical Method)”

**2.6.3.1**, “Moisture and Insulation Resistance - Polymeric Soldermasks and Conformal Coatings”

**2.6.3.3** “Corrosivity Testing”

**2.6.9.1**, “Test to Determine Sensitivity of Electronic Assemblies to Ultrasonic Energy”

**2.6.13**, “Assessment of Susceptibility to Metallic Dendritic Growth : Uncoated Printed Wiring”

**2.6.14**, “Resistance to Electromigration, Polymer Solder-mask”

**IPC-PE-740** Troubleshooting Guide for Printed Board Manufacture and Assembly

## 2.1 Joint Industry Standards<sup>1</sup>

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

**NOTE:** For additional documents and references related to general cleaning issues (IPC, DOD, EIA, UL, ASTM and ANSI) the reader is referred to IPC-CH-65).

## 3.0 TERMS AND DEFINITIONS

All terms and definitions used throughout this handbook are in compliance with IPC-T-50. Other basic terms and definitions, essential for the discussion of the subject, are provided below or are defined in appropriate sections of this handbook.

**3.1 “Aqueous Cleaning”** — a cleaning process that uses an aqueous medium, consisting of more than one half of water for washing, and water for subsequent rinsing.

**3.2 “Wash” or “Washing”** — the primary cleaning operation that removes undesirable impurities (contaminants) from surfaces by chemical and physical effects.

**3.3 “Rinse” or “Rinsing”** — a cleaning operation (usually following the wash step) where water replaces - via a dilution mode - any residual contamination.

**3.4 “Drying”** — the process of removing surface and/or absorbed water from the washed and rinsed parts.

**3.5 “Gross Drying”** — the removal of surface water.

**3.6 “Defluxing” (“Flux Removal” or “Post Solder Cleaning”)** — the cleaning process designed to remove solder flux and by-products. Other objectives are removal of process residues and materials used as production aides, such as water soluble maskants. Impurities left by board or component fabrication processes or other operations may or

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