

## High Reliability and Low Variability Results with Benchtop PCB Cleaning

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The advent of miniaturization has caused many to second-guess the traditional method used in the benchtop cleaning of printed circuit boards (PCB). The dip-and-brush method, with isopropyl alcohol (IPA), has proven problematic, particularly on no-clean flux residues. While aerosol cleaning eliminates the problem of cross-contamination introduced by the dip-and-brush method, questions remain concerning the reliability of aerosol cleaning. Tests were conducted to examine the variables involved in aerosol cleaning in order to offer guidelines for improvement.

During testing, components were fluxed with type "R," non-activated rosin flux to simulate rework, while one component remained untouched, so it could act as a control and be checked for cross-contamination. Aerosol testing was performed using Techspray's G3 Flux Remover, chosen for its effectiveness in removing type "R," non-activated rosin flux. A known effective cleaner was used in order to study the impact of the solvent delivery. The board was examined for cleanliness under 64X magnification.

Test results conclude excessive solvent waste is eliminated with the use of a straw attachment, and the straw is effective in directing the placement of the solvent. Little material traveled under the component when the solvent was delivered with a straw.

For larger components, best results were achieved with an oscillating spray, which allowed the solvent to flow under the component in the same manner as the flux.

Brushes and swabs spread partially solvated flux around the components leaving a residue. Foam swabs became flimsy and tore when saturated with the solvent. Best results were achieved with a final rinse.

Brush attachments produced better results than handheld tools due to a constant supply of virgin solvent. However, brush attachments did not produce the same level of cleanliness observed in aerosol-only cleaning. While the attachment scrubbed problem areas, the force of the aerosol through the straw produced similar results.

After examining the variables involved in aerosol benchtop cleaning, variability can be reduced by selecting a combination of approaches and formalizing the process.