



Keeping electronics clean with KlenTek and Koki

Factsheet

There are ever increasing demands from the consumer to make things smaller and more convenient. As a result, electronic devices are becoming smaller with more densely populated printed circuit board (PCBs) assemblies.

While this is largely positive in terms of technological advancement and usability, it does create some practical complications, especially when considering the PCB cleaning process.

Particular issues include lower component stand-off making access to the flux residues more difficult, rinsing of the remaining residues and chemistry, and the typical use of 'no-clean' soldering materials which are not designed to be removed in the first place. Trapped cleaning chemicals and partially dissolved flux residues can lead to assembly defects. High reflow temperatures and overheating can also cause hard-to-remove oxidised residue, and the overall variety of contaminants can make cleaning more complex.

In many cases, traditional cleaning methods are not sufficient to achieve the expected standard of cleanliness, so it is critical that considerations are made to accommodate new PCB structures and designs and most importantly consideration is given to the compatibility of the contaminant and what you use to remove it.

Next generation cleaning products

The latest generation PCB cleaners that break down tough soils without leaving residue are the most efficient choice to target tighter spaces. Superior cleaning also ensures stronger, more active fluxes can be used, resulting in better solder joints and a wider process window for manufacturing.

The latest range of cleaning products are rising to the challenge and changing the game – delivering processes that offer better cleaning, consistency, speed and value.

KlenTek® cleaning products, developed by Fraser Technologies, deliver superior, environmentally friendly electronics cleaning solutions for a wide range of requirements and applications. These chemistries offer outstanding cleaning power that is gentle on components; non-flammable in ambient air temperatures and pressure conditions; and are environmentally friendly.

The KlenTek® Cleaner and Flux Remover aerosol features an attachable brush and ergonomic can design for effective, economic use and is compatible with a broad range of metals, plastics and elastomers. It is versatile enough to work with almost any defluxing application, including lead-free fluxes. It has a safe exposure limit of 201 ppm, which is comparable to everyday rubbing alcohol, and is a safe alternative to flammable materials such as IPA and flammable aerosols, some of which are being phased out for health and environmental reasons.

The KlensTek® SMT cleaner/defluxer is a highly effective, multi-use aqueous cleaning detergent formulated to meet today's exacting standards for both PCB and stencil cleaning. Dilutable to concentrations as low as 10%, SMT can help significantly reduce electronics cleaning process costs. Rigorously tested on the most widely used solder paste and flux chemistries, SMT is proven to achieve excellent, residue-free cleaning results with PCB assemblies, including those with densely placed, low-standoff components.



One-stop shop

Fraser Technologies also offers and recommends the Koki soldering range of products, which complement the KlensTek® cleaning chemistry range, to offer a one-stop shop for all electronics component needs.

Koki is globally well known for manufacturing exceptionally high quality, reliable products and has over 50 years of experience behind them. Koki leads the field with innovative products to keep up with the rapid changes in technology.

Koki in action

Fraser Technologies worked closely with an Electronics manufacturer which was experiencing voiding under a large surface mount LED component.

Part and board samples were sent to Koki's in-house testing facility for analysis, and it was identified that the voiding (bubbles in the flux/solder joint) were preventing the parts from sitting down correctly. This created inconsistent soldering and resulted in poor final test pass rates.

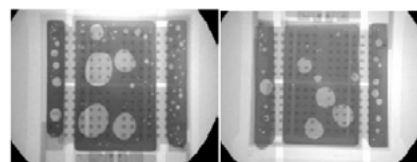
After other paste suppliers failed to find a solution to the voiding issue, Fraser Technologies worked with Koki and the customer to investigate and optimise the process to address these issues. The combination of Koki's ultra-low voiding solder pastes, reflow oven profile and stencil design adjustments, resulted in significant reduction in void occurrence. Subsequent X-ray investigation identified the void ratios for each paste/profile/stencil combination to determine the most recommendable process.

When using Koki's S3X58-M500C-5 solder paste, the voiding reduced from an average 23-28 percent down to 4-5 percent.

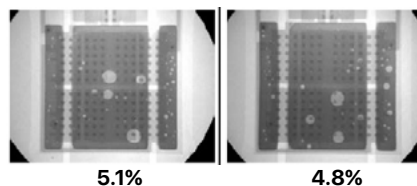
Koki offers the full range of PCB assembly materials, leaded and unleaded solder pastes, solder wires, liquid fluxes for both wave and selective soldering, tack fluxes for repair and rework and SMT adhesives.

Once the PCB is assembled, the KlensTek® cleaning range can then be used to remove the flux residues and contamination, before going on to the next step in the assembly process, coating, potting and box-build.

Previous solder paste



Koki solder paste



The manufacturer also found that the combination of reduced voiding and successful component seating had improved so significantly that in its final-stage, in-circuit testing for functionality, yields were dramatically increased.

Fraser Technologies has been supplying electronics cleaning solutions for over 50 years and is a trusted partner. The company has achieved such expertise in the field, it developed its own chemistries in order to provide the best possible outcomes for customers.

With an extensive range of products, Fraser Technologies works with customers to identify the best solution for nearly every cleaning application imaginable.

For more information visit:

www.frasertech.co.uk/soldering-and-cleaning

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