

## Flux Residues And What To Do About Them

***Cleaning Flux and White Residue 36C - Hand Soldering with Low Residue Flux How and Why To Clean Up Soldering Residue (AmpMechanic #002) No-Clean vs. Water Soluble Solder Paste Alternative Flux Cleaner for electronics Talking about Flux Residue PCBs Flux residues cleaning (Decotron® CP381, Decotron® 351S, Decotron® 355S) How to Solder Surface Mount Resistors and Caps How to Remove Flux i finished writing the book Should I Clean Electronics After Soldering? FLUX 10 Soldering Tips to Instantly Improve Your Soldering Skills What Is Flux? | Soldering a self care sunday night***

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***Orion Carloto talks Flux, Film, and Florence Welch***

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***Flux is an acidic mixture that is used to remove metal oxide and create good metallurgical bonds during the soldering process. The downside is that the flux residue left after soldering can lead to electronics failures and current leakage. Engineers need to understand the soldering process to reduce the amount of flux residue and improve electronics reliability.***

***What Is Flux Residue and Why Can It Cause Electronic Failures?***

***The most common flux residues found are chloride and weak organic acids. Weak organic acids include substances like adipic and succinic acids. Flux residues are a result of flux activators, and if allowed to fully complex and volatilize from boards, do not usually cause issues.***

***What is a flux residue? — Foresite, Inc.***

***Fluxes with higher content of solids tend to leave larger amount of residues; thermal decomposition of some vehicles also leads to formation of difficult-to-clean, polymerized and possibly even charred deposits (a problem especially for hand soldering). Some flux residues are soluble in organic solvents, others in water, some in both. Some fluxes are no-clean, as they are sufficiently volatile or undergoing thermal decomposition to volatile products that they do not require the cleaning step.***

***Flux (metallurgy) - Wikipedia***

***Rosin-based flux leaves a residue behind after the soldering 1 The difference between 'rosin' and 'resin'...the former is a special case of the latter...no extra charge for this service. ROSIN: A translucent, amber-colored to almost black, brittle, friable resin obtained by chemical means from the***

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***Flux Residues And What To Do About Them***

***One that can be difficult to identify and prove is soldering flux residue. As circuit designs shrink and become more complex, flux residues are more likely to cause failure from leakage current. There are four main ways of soldering: Surface mount reflow (SMT) Full board or masked wave. Select.***

***Why Flux Residue Can Cause Electronics Failures***

***The same flux and residues in one application may be perfectly safe, while in another application they may be harmful. It is up to the customer, the product designers, etc., anyone who understands the demands of the end-use environment for that product, to dictate whether a Low-Solids flux is actually a No-Clean flux for them.***

***Choosing a Flux - A Technical Article - Pillarhouse ...***

***Once the soldering process is done some flux residue is seen on the surface. These fluxes are reactive chemicals, which if left unattended on the board surface, can lead to corrosion and eventually to circuit failures. If your boards contain some high-impedance analogue circuits, then this flux poses a real concern due to conductivity issues.***

***How to Clean Flux Residue After Soldering?***

***This paper will present the conditions of no-clean flux residues (from any of the flux and paste suppliers) that cause poor electrical performance and explain what leads to the poor performance....***

**(PDF) What makes no-clean flux residue benign?**

**The flux residue forms a conductive path connecting an anode to a cathode. The results are either electrical leakage (a temporary problem) or dendrite growth (a permanent problem). Use of lead-free alloys have increased visible residues on circuit assemblies.**

**Problem with 'No Clean' Solder Flux Residue**

**Technicians use flux to properly solidify and connect the electrical components using a different kind of soldering process. When you apply to solder flux paste or only solder flux, it leaves residues on the boards. The tailings can eat up the components slowly and result in a damaged PCB board over time.**

**How To Clean Flux from PCB:An In-Depth Guideline**

**With the predominance of no-clean soldering processes and ever decreasing component standoff, the industry has had to consider the reliability of, what may be, partially activated or "goosey" flux residues under component bodies.**

**The Effects of Flux Residues on Reliability**

**Flux Residue & ICT No-Clean flux residues are mostly designed to be test-probable. The residue could be soft & gummy for easy probe penetration or hard & brittle so that it shatters upon probe contact. In addition, the residue needs to be designed to minimize probe maintenance and prevent clogging of the probes that in turn causes false failures.**

**Flux Residue Causing Test Issues**

**The flux acts as an agent to clean oxidation from the surface of the metal so that the melted solder can flow. Afterward, flux residue can be removed from the solder joint with commercial flux removers. There are all-purpose, heavy duty, no-clean, rosin and water-soluble flux removers.**

**How to Clean Flux Residue After Soldering | Our Pastimes**

**Solder pastes with a IPC J-STD-004 classification of ROL0 or ROL1 rely heavily on two basic mechanisms to render the flux residue as "no-clean": (1) the encapsulating properties that the rosin provides and (2) the heat activation/decomposition of the chemicals in the flux, commonly known as "activators."**

**Effect of Reflow Profiling on Solder Paste Flux Residues**

**Light (white) residues of organic nature can often be found after soldering and/or cleaning the PCB. Fluxes on rosin basis facilitate the removal of residues.. The white residues are mostly caused by layers still adherent before soldering. In fewer cases they are due to the flux only.**

**Flux residues on PCB / components - TechnoLab GmbH**

**The irregular dark areas are pockets of residual flux, while the red areas in between are where the once open fracture has healed shut with microscopic amounts of what is essentially synthetic ruby. In some places, the flux residue appears transparent. This is an illusion produced by reflection off the surfaces of the flux pockets.**

**Fracture Healing of Ruby • Fluxed Up**

**The dirty little secret is that flux residues will not evaporate along with the solvent. You may dissolve the flux, and some of the residues will soak into the swab, but most of the residues will settle back onto the board surface. Many times these white residues are more difficult to remove than the original flux.**

**Flux Remover | Rosins and Cleaners From Chemtronics ...**

**The coating remains a contiguous sheet, but adhesion has failed at the interface of the flux residue and the coating. Upon inspection, the flux residue is still adhered to both the board and the coating, but had suffered a cohesive failure and disintegrated, leading to a delamination condition. Fig.3-4**

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