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ASSEMBLY SOLUTIONS

Flux Best Practices – Hand Soldering

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Flux Best Practices

Hand Soldering

- Best case – Only use the flux in the cored wire
- If more flux is needed, your first step is to try a cored wire with a higher percentage of flux.
  - Alpha Standard Core Wire Percentages:
    - P1 (1.1%)
    - P2 (2.2%)
    - P3 (3.3%)

Flux Best Practices

Hand Soldering

- For larger assemblies and components, external preheat can help improve the soldering results by reducing the soldering contact time
- Make sure your tip size is correct.

  - We recommend reviewing these areas before considering the use of a supplemental flux

Flux Best Practices

Hand Soldering

- If additional, supplemental flux is needed, we recommend using a flux pen
  - This allows for tight control of where the flux gets applied to the assembly
  - Flux in squeeze bottles is not recommended
    - Risk of flux going where it is not intended

Flux Best Practices

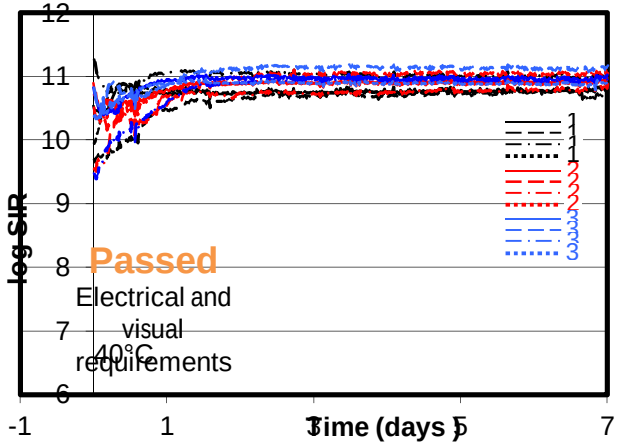
Hand Soldering

- For No clean supplemental flux, use a flux that is very safe electrically
- Alpha NR-205 Flux passes SIR even in situations where flux does not experience soldering temperatures
- It includes no rosin, so residue cosmetics are very good. Low, clean, clear residues.

Flux Best Practices

Hand Soldering

- A second option for No Clean supplemental flux is EF-6100R
- It has a higher solids content (4.3% vs. 2.5%)
  - This delivers more activity for improved soldering performance with fast wetting.
  - It has outstanding electrical reliability / SIR performance
  - It includes a small amount of rosin,



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Best Practices – Cleaning after Hand Soldering

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Best Practices

Removing Water Soluble hand solder residues

- Flux residues need to be removed in heated DI water in your existing aqueous cleaning process
- Clean ASAP after processing

Best Practices

Removing No Clean hand solder residues

- Use a cleaning solvent that is designed for cleaning no clean flux residues:
  - MicroCare, Techspray, etc.
- IPA is a poor cleaning solvent:
  - The flux residue may not be easily soluble in IPA.
  - IPA evaporates very quickly.
  - Proper flux cleaner sprays tend to evaporate more slowly, giving time to absorb the cleaning media and residue solution.

Best Practices

Removing No Clean hand solder residues

- Place a chem wipe or similar over the area to be cleaned
- Spray the flux remover onto the wipe
- Use brush to scrub through the wipe
  - The wipe absorbs the cleaning media and flux residue
- Rinse – using same cleaning solution
- Dry

Best Practices

Removing No Clean hand solder residues

Other tips:

- Routinely replace cleaning brushes to prevent contamination
- For high reliability applications, it is recommended to use an automated cleaning process with a PoR
  - Eliminates risk from operator inconsistency or improper technique

Best Practices

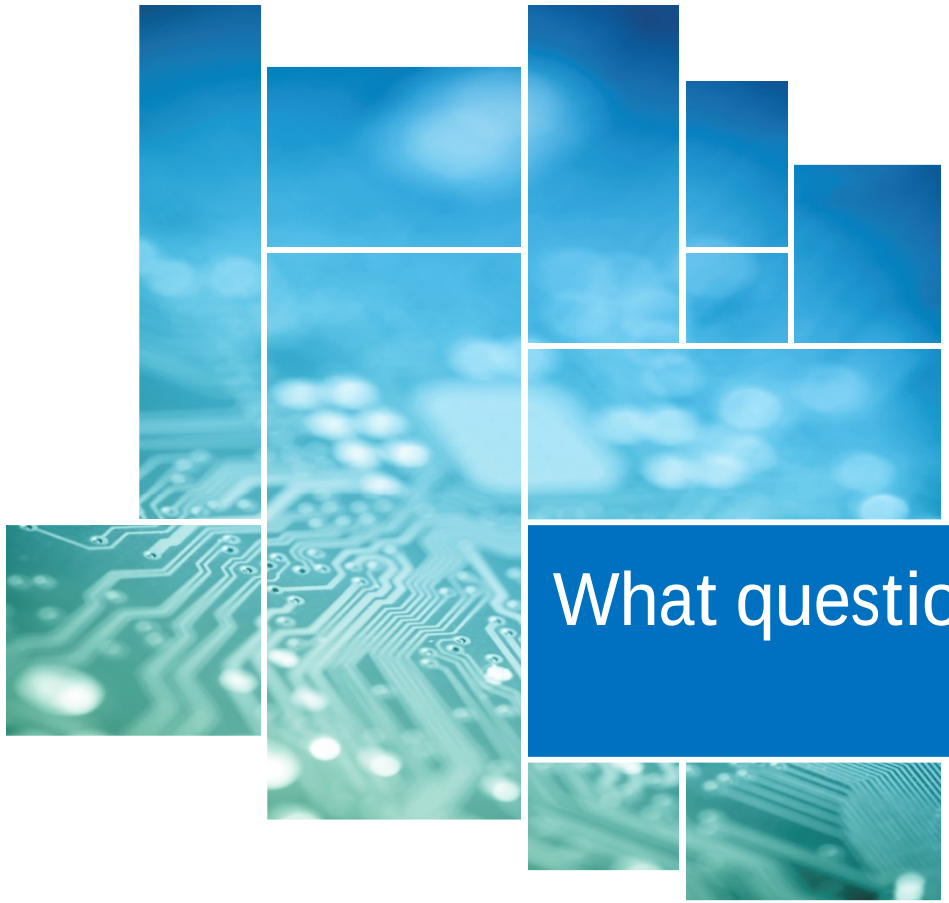
Hand Soldering - Component Removal / Replacement

- Typically supplemental flux is required to remove the component
  - For No Clean, we recommend using:
    - a safe liquid flux (NR-205 Flux Pen)
    - or a safe, no clean paste Flux, such as Alpha HF-1, universal paste flux
  - HF-1 can be used for all touch up & hand soldering operations as well as BGA repair/reballing and QFN/LGA repair.
    - It does not have to see the full thermal cycle from a typical reflow process.

Best Practices

Hand Soldering - Component Removal / Replacement

- After component removal, it is recommended to clean the area
- After hand solder replacement, the new part can either be left as a no clean or cleaned again for NC / WS
  - In these cases where replacement or rework/touch up is not part of the documented PoR it is recommended that the flux residues be removed
    - This will avoid any question of long term reliability



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What questions do you have?

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Thank you for your time and for your business

We are here to help!