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Leo Lambert
Vice President & Technical
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Tools and Chemical Selection for Soldering Processes



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Initial Query

- Define technology of product
- Define quantity of solder joints to be made
- What is the delivery schedule
- What resources are available
- Are process yields an issue
 - Repair and rework part of the program requirements



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Based Upon Technology

- If the volumes are high and the product is surface mount, then one has to use automation with an automated assembly line
 - Consider the cost of equipment, materials, resources and space requirements, ESD, safety, computers, etc.
 - Internal logistics, handling



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Surface Mount Equipment

- Evaluation and Selection of the following is necessary
 - Equipment
 - Paste deposition
 - Stencils
 - Pick and place
 - Reflow
 - Cleaning
 - Associated tools
 - Microscopes
 - trays



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Surface Mount Chemicals

- Solder paste selection
 - IPC-J-STD-005 and its associated tests
 - Alloy
 - Slump
 - Solderability
 - Solder ball
 - Tackiness
 - Sphere size
 - Flux
 - Viscosity
 - Cleanability



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PTH Technology

Assembly of PTH components can be accomplished both manually and automatically, depending upon resources.

- Many variables exist with manual assembly
 - Wrong location components
 - Wrong value components
- Reduced the variables with automation
 - Increased throughput
 - Reduced assembly cost
 - Improved inventory turns



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PTH Technology

- The issue to decide is whether or not these joints are to be soldered manually or by mass soldering techniques.
- Either way the following elements have to be addressed



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PTH Technology

Automated Process

- Equipment and Alloy Selection
 - Wave Solder System
 - Selective Soldering system
- Flux Selection
 - Application method
 - Environmental compliance
 - Low Solid – No Clean
- Cleaning if necessary



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PTH Technology

- Equipment and solder alloy selection is based upon
 - Product Layout
 - Board Thickness
 - Lead to Hole sizes ratio
 - Whether or not PTH Components are on both sides of the board.
 - Floor space and venting requirement
 - Equipment Maintenance and support



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PTH Technology

Flux Selection

- Method of application
 - Spray
 - Wave
- Entrapment Areas on the product
- Availability of cleaning system and environmental monitoring systems
- Compatibility with the product being produced
 - Laminate
 - Solder Mask



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PTH Technology

Process Development

- Conveyor Speeds
 - Capacity controls
- Preheat
 - Thermal Profiles
- Solder Pot Temperature



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PTH Technology

Manual soldering.

- Selecting the
 - Solder iron
 - Solder iron tip
 - Alloy
 - Cored solder



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Thank You



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Further Information

For questions regarding this webinar, please contact Leo Lambert at leo@eptac.com

For information on any of EPTAC's or IPC's Certification Courses, please visit our website at <http://www.eptac.com>