



## Fundamentals of Industrial Soldering Outline

This is a brief outline of the training program called the "Fundamentals of Industrial Soldering". The program has been broken into many small modules so that the user can select which program you would like to see.

The program is in PowerPoint (running from my laptop to whatever projection device you have access to) and features about 15-25 slides per topic. The whole course can be done in about 2-3 hours but may take longer depending on the questions asked. The viewers of the program are encouraged to ask as many questions as they can during the presentation. I have done this training for 10 years and have found that the best sessions happen when multiple people have a chance to ask many questions.

- **Metallurgy of Solders**
- **Chemistry of Fluxes**
- **Process Control in Soldering**
- **Troubleshooting and Analysis of Failures**
- **Causes of Corrosion and Part Cleaning Issues**
- **Lead-Free Industrial Soldering**
- **Aluminum Alloy Soldering**

### A brief discussion of these Courses:

- **The Metallurgy of Solders** course is the basic course on what solders do, types of solders, and details how to select a heating process for a given solder. This course goes into the basic understanding as to what happens when soldering occurs. This is the basis of what we are teaching.
- **Chemistry of Fluxes** describes what all of the components of a flux do and why they are in the flux. Each component in a flux serves a purpose detailed in this course. This course also talks about flux control and evaluation.
- **Process Control in Soldering** details the issues that any operation has to consider in designing a controlled soldering process. Consistent soldering requires process control. This course goes into the variables that affect the consistency in soldering.
- **Troubleshooting and Analysis of Failures** course talks about the step one should take to analyze and correct a particular failure in a soldering process. Troubleshooting soldering failures is an important way to improve the overall soldering process. The errors in making bad products can show a process how to make the product right the first time.



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- **Causes of Corrosion and Part Cleaning Issues** details what can cause corrosion and how to deal more effectively in cleaning residues from soldering and brazing. Corrosion can occur from flux residues left on parts. This course goes into the factors that can help either remove these residues or help control the effects of these residues.
- **Lead-Free Industrial Soldering** details the issues involved in converting from a lead based system to a lead-free one, focusing on the processing changes needed for a system to withstand the erosive lead free solders and to make proper joints.
- **Aluminum Alloy Soldering** talks about the very challenging but workable task of soldering aluminum alloys with some of the products available from Superior Flux. Aluminum soldering requires special considerations due to the hard to solder nature of aluminum. This course goes into the types of aluminum alloys that can be soldered and how best to accomplish this task.