

Location: _____ Instructor: _____ Date/Time: _____

TOPIC C617: SOLDERING

Introduction: Soldering uses low-melting-point metal alloys to join metallic surfaces without melting them. In soldering, a flux is used to remove oxide films, promote wetting and prevent re-oxidation of the surfaces during heating. Burns and respiratory problems can occur during soldering work. Follow these safety guidelines for safe soldering operations:

- **Prior to Work:** Read the manufacturer's instructions to become familiar with the tool you'll be using. Soldering can be done using a torch, a soldering iron, a flame heater or an induction heater.
- **INSPECT:** Check each tool for damage or defects before use, and repair or replace immediately if it's not in good condition
- **Operational Safety:** Keep the heat source away from any part of your body. A heat shield will protect you and an iron stand will give you a place to put the tool when not in use. Long sleeved clothes can reduce your risk of getting minor burns from the tool and solder or flux splashes
- Turn off and unplug the tool when you're finished using it and give tool time to cool down. Ensure the electrical system is protected from moisture, corrosion or any contaminants
- Acid flux is toxic if ingested or inhaled. Assure there's adequate ventilation- a ventilation system that's designed and built to engineering standards, installed per manufacturer's specifications with a notification if it fails.
- Wear a respirator if needed. Flux is acid used to clean the surfaces. Acid can cause severe burns if it touches your skin. Wear gloves, aprons and safety goggles.
- Read the SDS (safety data sheet) on all cleaning solvents used. Keep cleaning solvents away from hot soldering irons and torches. Make sure solvents are wiped off and dissipated; use an extraction system located near the solder to remove fumes before they have a chance to get into the breathable air
- Solder is available in wire, bar, or premixed-paste form, depending on the application. Wear the necessary PPE (personal protective equipment) when working with lead solders.
- **Other forms of soldering:** Wave-soldering devices are commonly used in printed-circuit production. Ultrasonic soldering is used for unusual or difficult materials and for very clean applications. Ultrasonic vibrations perform the function of cleaning the surface, even removing the oxide layer on aluminum so that it can be soldered, which eliminates the need for flux. Transformer powered soldering stations run at 600 to 800 degrees. Always read the manufacturer's instructions when using butane and propane powered soldering guns.
- Some applications require using an iron or gun with 3-wire grounded handle with an acid and flux resistant grip. Modular soldering irons offer a choice of heating elements, and interchangeable handles and tips. Always unplug the iron before changing the heating element
- Always use unleaded solder for fresh water supplies

Conclusion: Have a first aid kit readily available. Always be alert to chemical and burn hazards. Utilize these safety guidelines for safe soldering operations.

Employee Attendance:(Names or signatures of personnel who are attending this meeting)

These guidelines do not supersede local, state or federal regulations, and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.