



Job Safety Analysis

Safety Information for The University of North Carolina at Chapel Hill

Facility Services- Sheet Metal Shop

Performing Soldering at Shop Solder Station



Title	Work Task	Hazards	Controls
Prepare for soldering	1a. Turn on gas line for solder oven. 1b. Use striker or matches to light solder oven flame. 1c. Place solder irons in place on oven to heat and prepare for soldering. 1d. Turn on Fan #5 to start Exhaust Ventilation System.	1a &b. Burning hands when lighting flame. 1d. Exposure to fumes and gasses as a result of improper ventilation.	1a&b. Ensure appropriate amount of gas is activated though the line. 1d. Ensure exhaust ventilation system is operational before commencing soldering.
Prepare metal for soldering using corrosion remover chemicals/flux.	2a. Pour one capful of corrosion treatment chemical for use dependent on metal used to solder. 2b. Use an acid brush and soak tip in the chemical in the cap. The following chemicals are used based on the work process: -“Formula 7961”- Scale and Corrosion Remover Chemical used for Galvanized Metal. -“Stay Clean” Chemical used for Stainless Steel treatment. -Ruby Fluid- used for copper treatment. 2c. Use acid brush coated with chemical and clean metal area where iron solder will be placed to ensure a clean solder. Brush area of metal with chemical.	2a. Skin, eye, and lung irritant hazard when using the listed chemicals: Use of Formula 7961: Phosphoric Acid Use of Stay Clean: Zinc Chloride fume and Hydrochloric Acid Use of Ruby Fluid- Zinc Chloride fume	2a. Ensure exhaust ventilation system is operational before commencing work. 2b. Personal Protective Equipment: Impact safety glasses/Face Shield/ or chemical splash goggles, gloves (recommend use of disposable nitrile gloves when pouring and handling chemicals), long sleeve work shirt (when possible). 2c. Maintain good hygiene practices to prevent skin contact with chemicals. Change out acid brushes regularly.



Work Task		Hazards	Controls
Perform Soldering Operations.	3. Place solder material (50/50 lead/tin) on metal material e.g. corner of pan, obtain solder iron, and place solder iron in place to solder area.	3a. Burn hazard from hot soldering iron and melted solder. 3b. Solder Fumes 3c. Exposure to lead/tin from improper hygiene practices.	3a. Be cautious when handling iron. Communicate: Notify adjacent employees when moving hot iron. Personal Protective Equipment: Safety Glasses & recommend using heat resistant gloves for precautionary purposes. 3b. Ensure exhaust ventilation system is operational before commencing work. 3c. Wash hands upon completion of the job, before eating, smoking, or chewing gum.
Work Task		Hazards	Controls
Cleaning off flux from soldered area.	4. When soldered metal has cooled, obtain "Foaming Glass Cleaner" aerosol can from flammable materials locker and spray apply only minor amounts of chemical to area where corrosion treatment chemical was placed. 4b. Use a rag to wipe off flux.	4a. Potential irritation from contact with chemical ingredients in glass cleaner (2-butoxy ethanol, Ammonia).	4a. Apply product only in a well-ventilated area. Remain upwind of visible spray. 4b. Use good hygiene practices after wiping chemical with rags. Wash hands upon completion of the job, before eating, smoking, or chewing gum.
Training	Employees must have hands on training in the proper use of this equipment before performing work.	Hazard Communication Training- employees must have training on solder material used, metal treatment chemicals, and cleaner chemical materials.	
Created	Daniel Gilleski, 1-23-2009		
Referenced Material	Material Safety Data Sheet and Product Labels for chemical products listed in JSA		
Contact Info	For more information about this JSA and other JSAs, contact: <i>Department of Environment, Health and Safety</i> UNC-CH, 1120 Estes Drive Extension, Chapel Hill NC 27599 CB# 1650 (919) 962-5507 http://ehs.unc.edu		

