



# SAFETY GUIDE

Environmental Health & Safety

March 2021

## Soldering Safety

This document applies to hand soldering using a soldering iron or soldering gun, or reflow soldering using solder paste in ovens or hotplates. For hot work, please refer to "[Hot work permit program](#)".



### Soldering Hazards

- **Heat & Electrical:** The soldering iron is very hot and can cause burns. It could cause fire if placed on flammable or combustible materials. Touching a hot iron to power cords can melt through the insulation and cause electric shock.
- **Fluxes:** Soldering may involve the use of flux paste or liquid, or the solder itself may have a rosin core. Inhalation of flux fumes may cause irritation and damage to mucous membranes and the respiratory system. Depending on the chemical composition, some flux can even release toxic emissions (e.g. formaldehyde etc.) when heated.
- **Lead and other metals:** Lead is a known neurotoxin and can pose significant chronic health effects, such as reproductive problems, digestive problems, and memory and concentration problems. Hand contact or surfaces contaminated with lead solder pose an ingestion hazards. Lead oxide fumes can be given off during soldering. Soldering can also release other metal hazardous fumes (e.g. cadmium, zinc, arsenic, and chromium).

### General Safe Practices

- Do not eat or drink in soldering areas.
- Always wash hands with soap and water after soldering.
- Follow manufacturer's instructions for safe use of soldering unit; consult Safety Data Sheets (SDSs) for the specific materials you are using.
- Inspect soldering equipment for damage before and after each use. Immediately report to your supervisor if damage is found.
- Soldering iron/gun safety
  - Never touch the element or tip of the soldering iron/gun.
  - Always return the soldering iron to its stand when not in use. Never lay it directly on your workbench.
  - Keep the cleaning sponge wet during use.
  - Turn off or unplug the soldering iron/gun when it is not in use.
- Use lead-free solder whenever possible.

- Conduct work in a well-ventilated area. Use ventilation or fume extraction systems at the source to restrict exposure to harmful soldering fumes. If you are not sure if your space is adequately ventilated contact EH&S.
- Wear proper Personal Protective Equipment:
  - Protective clothing, such as long-sleeved shirt and pants that are made of natural fibers (cotton) and closed-toe shoes
  - Eye protectors, such as ANSI/ISEA Z87.1 rated safety glasses or goggles. Solder can “spit”.
  - Conduct all soldering on a level surface away from any flammable or combustible materials.
  - Never solder a live circuit (one that is energized). All power sources should be unplugged, capacitors should be discharged and all batteries should be disconnected prior to soldering.



### Soldering Cleanup and Waste

- Clean all work surfaces after soldering. Treat all cleaning materials, including sponges or rags, as hazardous waste; do not dispose in regular trash.
- Place lead/silver waste solder in a sealable container. Add the university's Hazardous Waste label and mark with “the name of the metal + soldering waste”.
- Keep waste container closed unless adding or removing materials.

State University of New York at Stony Brook HAZARDOUS WASTE	
Lab Mngnr / PI _____	Extension _____
Building _____	Floor/Rm# _____
<u>Chemical Contents</u>	<u>% (if known)</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
<u>Hazard(s) (if known)</u>	
<input type="checkbox"/> FLAMMABLE <input type="checkbox"/> CORROSIVE <input type="checkbox"/> REACTIVE <input type="checkbox"/> TOXIC	
Handle with care. Keep lid closed except when adding waste.	
If you have any questions: <a href="mailto:HAZWASTE@STONYBROOK.EDU">HAZWASTE@STONYBROOK.EDU</a>	
Directions on Reverse Side	