

The University of Sydney - Mechatronics Laboratory

Safe Operating Procedures SOLDERING AND DE-FLUXING

DO NOT use this equipment unless you have been instructed in its safe use and operation and have been given permission.

PERSONAL PROTECTIVE EQUIPMENT



Closed footwear must be worn at all times in the Laboratory.



Approved safety glasses must be worn when soldering or de-fluxing.



Gloves must be worn when de-fluxing.



Long and loose hair must be contained.

PRE-OPERATIONAL SAFETY CHECKS

- ✓ Check general work area to ensure no slip/trip hazards are present.
- ✓ Ensure bench top work area is clear.
- ✓ Examine the power lead and soldering iron for obvious damage, including tip damage.
- ✓ Ensure adequate ventilation by checking that the air conditioning is operating.
- ✓ Leave the soldering iron in the stand when it is warming up.

OPERATIONAL SAFETY CHECKS

- ✓ Place the soldering iron back in the stand immediately following each use.
- ✓ Avoid positioning your head directly over the soldering process. Soldering creates flux fumes that can irritate the lungs and eyes, and may cause sensitisation.
- ✓ Avoid breathing solder flux fumes.
- ✓ When trimming leads, contain the lead with a finger to prevent the cut lead becoming a projectile.
- ✓ Tin and switch off soldering iron before de-fluxing.
- ✓ Close the lid of the isopropanol bottle when not in use.
- ✓ Avoid flicking isopropanol on people or objects when scrubbing circuit boards. Always cover board with a lint-free wipe to absorb dissolved resin flux and minimise isopropanol spatter.

ENDING OPERATIONS AND CLEANING UP

- ✓ Ensure that the soldering iron tip is well tinned before switching off the soldering iron. Switch off, unplug and allow the soldering iron to cool down before storing.
- ✓ Return unused isopropanol to an approved storage container using a funnel.
- ✓ Leave work bench in a safe, clean and tidy state.

POTENTIAL HAZARDS AND INJURIES

- ⓘ Burns.
- ⓘ Cuts while trimming leads.
- ⓘ Eye injuries.
- ⓘ Lung and eye irritation.
- ⓘ Skin irritation.

DON'T

- ✗ **Never** use faulty equipment. Immediately report suspect equipment to a tutor or lecturer.
- ✗ **Never** use a soldering iron for anything other than soldering electronic components. Never cut paper clips or header strips.
- ✗ **Never** touch the soldering iron tip to an electrical cord.
- ✗ **Never** flick the soldering iron to remove excess solder.
- ✗ **Never** leave an unused soldering iron switched on – this will cause the tip to oxidise, reducing tip life.
- ✗ **Never** use electronics cutters to cut anything other than *annealed copper* leads less than 1mm in diameter.
- ✗ **Never** deliberately inhale or drink isopropanol.

This SOP does not necessarily cover all possible hazards associated with this equipment and should be used in conjunction with other references. It is designed as a guide to be used to complement training and as a reminder to users prior to equipment use.

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