

Safety Note #165

Laboratory Hot Plate Safety



Photo source: Lawrence Berkeley National Laboratory

A laboratory can be a safe place to work if you and others are properly trained, follow safe practices, and use appropriate protective equipment.. Over the last five years, the University has experienced several explosions or fire incidents involving defective hot plates, which has resulted in injuries to laboratory employees and/or damage to laboratories. The most recent incident occurred in a UC laboratory involving a Corning Hot Plate, model #PC400D, which overheated while the heat control was in the “off” position. The overheating condition was discovered before there was a fire, so fortunately there were no injuries or damage to property. Based on information from the *Laboratory Safety Institute*, other institutions have had similar experiences involving different hot plate models and manufacturers. Power switch failure appears to be the root cause of many of these hot plate incidents.

Recommended Actions

The following actions are recommended to help reduce the potential risks of hot plates, heating mantles, water baths and fire in laboratory operations:

- ✓ Unplug hot plates, heating mantles and water baths when not in use.
- ✓ Periodically test the function of the “off” switch on each hot plate, heating mantle, and water bath to verify that it works and the heating device quickly cools when the switch is in the “off” position. Any unit that fails this test should be taken out of service *immediately* and reported to EH&S for further evaluation.
- ✓ Avoid unattended use of hot plates, heating mantles, and water baths when possible.
- ✓ If you must have an unattended heating operation, think out your safety plan. It may require a feedback system that will detect overheating and cut power to the heating device before a fire erupts.
- ✓ Read all manufacturer instructions before using heating devices, and maintain current training for all employees on the equipment they are expected to use.
- ✓ Pay close attention to all recall notices for the device and take appropriate action when necessary. Register new heating devices with the manufacturer so you will be notified of any warnings or recalls.
- ✓ Follow all laboratory Standard Operating Procedures (SOPs) and recommended work practices.

For more information on General Laboratory Safety, including pre-laboratory activities and operating precautions, - see [Safety Note # 127](#).

For Laboratory Burner Safety (e.g., Bunsen Burner use and safety precautions) – see [Safety Note # 122](#).

Safety videos E-048 (OSHA Laboratory Standard) and E-029 (Safety First in Campus Labs) are also available from the ANR Environmental Health & Safety Library at <http://safety.ucanr.org>.