College of Engineering
UNIVERSITY OF WISCONSIN–MADISON

Hot Plate Safety

Hot plates used in labs present many potential dangers, such as fires and electrical shock. Fires can cause injuries, significant disruption of lab operations and loss of scientific data.

Basic Precautions:

- Periodically test the function of the "off" switch on each hot plate to verify that it works and the device cools quickly when the switch is in the "off" position.
- Always inspect equipment prior to use. Do not use if the plug or cord is warn, frayed, or damaged, if the grounding pin has been removed, or if a spark is observed. Check for corrosion of the thermostat, which can also cause a spark.
- Do not use hot plates in the presence of flammable or combustible materials. Fire or explosion may result.
- Provide secondary containment for any flammable liquids being heated to prevent liquid from contacting the hot plate in the event of a leak or overflow.
- Read the manufacturer's instructions before using, and register the device with the manufacturer so you will be notified of any warnings or recalls.
- **TURN OFF** the hot plate when not in use. The surface of a hot plate stays hot for some time – and looks exactly the same as a "cold" plate.

Tips for Working Safely with Hot Plates:

- Use only heat-resistant, borosilicate glassware, and check for cracks before using. Do not place thick-walled glassware, plastic containers, soft-glass bottles or jars on a hot plate.
- The hot plate surface should be larger than the vessel being heated.
- Ensure that electrical cords and temperature sensor probe wires do not come in contact with the hot plate surface.
- Use a medium to medium-high setting to heat most liquids, including water. Do not use the high setting to heat low-boiling liquids. The hot plate surface temperature can reach up to 540°C.
- Do not place metal foil or metal containers on the hot plate - the top can be damaged and shock hazard may result.
- Use thermal gloves or tongs when removing hot items from a hot plate and allow items to cool prior to handling.

If you have questions about hot plate safety, contact EHS at: chemsafety@fpm.wisc.edu or CoE Safety at: coesafety@engr.wisc.edu