



## GENERAL AUTOCLAVE SAFETY GUIDELINES

An autoclave is capable of rendering items sterile of any living organisms by using hot, pressurized steam. Autoclaves are commonly used in laboratories to sterilize glassware and instruments, media and solutions, and biohazardous waste. The hazards associated with autoclave use include heat, steam, and pressure. Familiarize yourself with the hazards and know how to protect yourself before operating an autoclave. Do not operate an autoclave until you have been trained how to do so safely. Watch Arizona State University's [Autoclave Training Video](#).

For questions, contact an EH&S Biosafety Officer at [ehsbio@uw.edu](mailto:ehsbio@uw.edu) or 206.221.7770.

If you are autoclaving biohazardous waste, follow the [Autoclaving Biohazardous Waste Guidelines](#).

### PPE

- Always use personal protective equipment (PPE) when using an autoclave.
- Wear a lab coat, heat-resistant gloves, and safety glasses.
- Be sure arms are covered by a lab coat and longer heat-resistant gloves to prevent burns from heat and steam.

### PREPARE THE AUTOCLAVE

- Inspect the door gasket (seal) for any cracks or bulges. The gasket should be smooth and pliable.
- Clean the drain screen of debris if necessary.
- If any problems are found, contact the responsible person before using the autoclave.
- Turn the autoclave on, and allow time for the jacket to reach sufficient temperature and pressure.

### PREPARE ITEMS

- Do not autoclave flammable, reactive, corrosive, toxic, or radioactive materials. Contact EH&S for disposal of hazardous materials.
- Check that plastics are compatible with the autoclave. Not all plastics can be autoclaved.
- Inspect glassware for cracks. Do not autoclave cracked or compromised glassware.
- For liquids, leave caps loose or cover with foil to allow steam penetration and prevent explosion.
- For bagged items, loosely tape or tie closed. Leave an opening for steam to penetrate the bag.

### LOAD

- Inspect for spills or debris inside the autoclave; check door gasket for cracks or bulges.
- Ensure that the jacket has reached sufficient pressure to start a cycle.
- Place items in an autoclave tub on rack. Never place items directly on the autoclave bottom or floor.
- Do not overload the autoclave. Allow sufficient space between items for steam.
- Add water if needed (100 mL of water can be added to the autoclave pan to ensure even heating of liquids).
- Always use secondary containment in case of spillover.



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### OPERATE

- Follow the manufacturer's user manual and laboratory SOP for operating the autoclave.
- Close and lock the door. Ensure the door is secure before starting a cycle.
- Select appropriate cycle (e.g. dry heat, sterilize media, sterilize biohazardous waste).
- Record run on log sheet.
- Check about 20 minutes into the cycle to verify the autoclave has reached sterilization temperature (121°C).
- Do not open the autoclave door during a cycle! If necessary, abort the cycle and wait until the chamber depressurizes.
- If cycle fails, notify the person responsible for the autoclave. Items may not be sufficiently decontaminated if the cycle did not complete.

### UNLOAD

- When the cycle is complete, verify that chamber temperature has dropped and pressure is zero.
- Wear appropriate PPE to protect yourself from heat and steam (e.g. heat-resistant gloves, lab coat, safety glasses).
- Slowly open the door to allow steam to escape gradually. Keep your face away from the door.
- Allow items to stand in the autoclave for 10 minutes.
- Cautiously remove items, and place in a safe area to cool. Do not agitate containers as boiling or superheated liquids can explode if moved too quickly.
- Record cycle information on autoclave log sheet or logbook.

### TRAIN AND MAINTAIN

- Designate a responsible person for the autoclave. The responsible person will train users and inform them if the autoclave is out of service.
- Train all autoclave users and keep documented training records on the [autoclave training log](#).
- Implement a regular maintenance schedule to ensure safe operation. Keep contact information for maintenance technician available.
- If autoclave is over five cubic feet in volume, contact Facilities Services [Maintenance & Alterations](#) regarding an autoclave structural inspection with a qualified inspector (required every two years per [WAC 296-104-100](#)). Post sticker/sign indicating maximum permissible pressure and date of confirmation.

### ACCIDENTS AND NEAR MISSES

- Post the [Exposure Response Poster](#) near the autoclave. In the event of an accident, immediately provide first aid and get help according to the instructions on the poster.
- Report any accidents or near misses via the [Online Accident and Reporting System \(OARS\)](#) so that they can be investigated and hopefully prevented in the future.