



## AUTOCLAVING BIOHAZARDOUS WASTE GUIDELINES

**PURPOSE:** A properly operating autoclave renders biohazardous waste sterile so that it can be disposed of safely via municipal waste. By following operation and monitoring requirements, you help protect the health and safety of autoclave operators, waste handlers, the general public, and the environment.

**SCOPE:** Any University of Washington laboratory or facility that uses an autoclave to decontaminate biohazardous waste is required to follow the [General Autoclave Safety Guidelines](#), these Autoclaving Biohazardous Waste Guidelines, and implement a site-specific procedure for autoclaving biohazardous waste. A [template SOP](#) is available.

**REGULATIONS:** Steam sterilization of biohazardous waste with an autoclave must be done in accordance with Seattle-King County regulations as specified in [Seattle Municipal Code, Section 21.43.050](#) and [King County Board of Health, Title 10.07](#). If you are operating an autoclave outside of Seattle or King County, follow local and state requirements. This document serves as a compliance tool to assist departments in meeting above regulations and policies set forth in the [UW Biohazardous Waste Management Plan](#) and the [UW Biosafety Manual](#).

**RESPONSIBILITY:** It is the responsibility of the principal investigator or laboratory/facility manager, and/or department to ensure compliance with all autoclave safety guidelines and the UW Biohazardous Waste Management Plan.

### TRAINING

- Develop and implement an autoclave training program. Include the following as part of training:
  - Review [General Autoclave Safety](#) and Autoclaving Biohazardous Waste Guidelines.
  - Watch Arizona State University's [Autoclave Training Video](#).
  - Provide training on site-specific procedure for autoclaving biohazardous waste.
- Designate a responsible person to assure autoclave operation and monitoring, train users, and inform users if the autoclave is not functioning properly.
- Train all users before they operate an autoclave, and maintain training records.

### RECORDKEEPING

- Maintain and post autoclave log sheets or logbook near the autoclave.
- Prepare a standard operating procedure (SOP) for each autoclave that is used to treat biohazardous waste; SOP must include cycle time, temperature, pressure, waste type, containers, closure on containers, loading pattern, water content, and maximum load quantity (template SOP included at the end of this document).

### AUTOCLAVE OPERATION

- Consult the manufacturer's manual for your autoclave to select or program a cycle.
- For sterilization of biohazardous waste, the cycle must include a **minimum temperature of 121°C or 250°F for 30 minutes or longer**, depending on size and compaction of the load. The full cycle time will take 60-90 minutes.
- Greater time and/or temperature may be necessary to sterilize certain loads.



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### MONITORING

To ensure that an autoclave is adequately sterilizing waste, monitor each autoclave as follows:

Type of Monitoring	Frequency	Instructions
Temperature	Each cycle  Annually	<ul style="list-style-type: none"> <li>• Ensure autoclave has a recording and/or indicating thermometer or other method to verify temperature.</li> <li>• Check and record that sterilization temperature (121°C) was achieved and sustained for at least 30 minutes.</li> <li>• Calibrate thermometer.</li> </ul>
Heat-sensitive tape (autoclave tape)	Each cycle	<ul style="list-style-type: none"> <li>• Use heat-sensitive tape to visually indicate steam sterilization.</li> <li>• Tape only indicates that proper temperature was reached; it does not indicate heat was sustained for sufficient time.</li> </ul>
Chemical integrator	Each cycle	<ul style="list-style-type: none"> <li>• Place an approved integrator in the center of load to confirm attainment of adequate sterilization.</li> </ul> <p>Note: The only integrators approved for use by the Seattle-King County Health Department are:</p> <ul style="list-style-type: none"> <li>• 3M Comply Thermalog or Thermalog-S</li> <li>• Steriscan</li> <li>• 3M Attest Steam Integrator 1243A</li> <li>• 3M Attest Steam Integrator 1243B</li> <li>• Steris VERIFY™ STEAM Integrating Indicator</li> <li>• Crosstex STEAMPlus™ Class 5 Sterilization Integrator</li> <li>• 3M Comply SteriGage (no longer manufactured but existing integrators can be used prior to expiration)</li> </ul>
Biological indicator	Monthly	<ul style="list-style-type: none"> <li>• Use the biological indicator <i>Bacillus stearothermophilus</i> at the center of a load to confirm the attainment of adequate sterilization conditions.</li> <li>• Instructions are included on the <a href="#">Quality Control Checklist</a>.</li> </ul>
Structural inspection	Every 2 years	<ul style="list-style-type: none"> <li>• If autoclave is over five cubic feet in volume, contact Facilities Services <a href="#">Maintenance &amp; Alterations</a> for an autoclave structural inspection (required per <a href="#">WAC 296-104-100</a>).</li> <li>• Post sticker/sign indicating maximum permissible pressure and date of confirmation.</li> </ul>



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### BACK-UP PLAN

Have a back-up plan for biohazardous waste if the autoclave needs repairs or a validation failure occurs. Biohazardous waste must be treated within eight days if stored above freezing (0°C). Options include:

- Use an alternate autoclave for treating biohazardous waste (specify location).
- Transport waste to Health Sciences [Laboratory Services](#) (T276) for treatment and disposal.
- Ship waste off-site via contracted carrier (training and account set-up required).
- Store waste in a secure freezer (specify location) for up to 90 days.

### 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.
- Report any accidents or near misses via the [Online Accident and Reporting System \(OARS\)](#).

### AUTOCLAVE DOCUMENTS

- [General Autoclave Safety Guidelines](#)
- [Autoclaving Biohazardous Waste SOP Template](#)
- [Quality Control Checklist and Biological Indicator Instructions](#)
- [Autoclave Log Sheet](#)
- [Autoclave Training Log](#)

### RESOURCES

- Arizona State University's [Autoclave Training Video](#)
- [EH&S Biohazardous Waste webpage](#)
- [EH&S Sharps and Laboratory Glass webpage](#)
- [EH&S Packaging Sharps and Lab Glass Waste poster](#)
- [Fisher Scientific](#) – chemical integrators available for purchase

### QUESTIONS?

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