onto the autoclave chamber floor.

- If there is a spill inside the autoclave chamber, allow the unit to cool completely before attempting to clean up the spill.
- Use the appropriate personal protective equipment, including heat and fluid-resistant autoclave gloves, a lab coat, and goggles if a splash hazard is present.
- If glass breaks in the autoclave, use tongs, forceps or other mechanical means to recover fragments. Do not use bare or gloved hands to pick up broken glassware.
- Be on the alert when handling pressurized containers. Superheated liquids may spurt from closed containers. Never seal a liquid container with a cork or stopper. This could cause an explosion inside the autoclave.

Care and Maintenance

Autoclave users should know the function of all controls and locking mechanisms, as well as the importance of all safety devices. Inexperienced users should use the autoclave under supervision from more knowledgeable personnel.

- Check autoclaves periodically to ensure that safety devices are working properly and that all mechanisms are in good condition. If a problem is found, notify your supervisor.
- Never override an autoclave's built-in safety control features; if you suspect there is a problem with your autoclave's performance, contact your autoclave repair representative for assistance.
- Do not operate an autoclave until it has been properly repaired.

Getting Assistance

If you have any questions about safe operation of autoclaves or waste disposal, contact EH&S.

WASHINGTON STATE UNIVERSITY

Environmental Health & Safety
P.O. Box 641172
Pullman, WA 99164-1172
(509) 335-3041

Wenatchee....509-663-8181
TriCities.....509-372-7163
Vancouver.....360-546-9706
Spokane.....509-358-7993

http://www.ehs.wsu.edu

Environmental Health & Safety

Laboratory Autoclaves

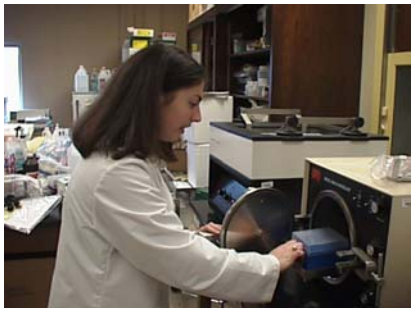
Care and Use

Steam sterilization is a time proven and economical process of killing microorganisms through the application of moist heat (saturated steam) under pressure. Although autoclaves are common laboratory tools, they must be properly used and maintained to be effective.

Preparing Materials for Autoclaving

Correct packaging ensures that steam penetrates the load. Containers packed to capacity will not be properly decontaminated even if autoclave parameters are observed.

- Use special caution when autoclaving containers that may have become pressurized. Never autoclave a sealed container of liquids as this may result in an explosion of superheated liquid during the cycle or when the container is opened.



- Do not put sharp or pointed contaminated objects into an autoclave bag. Place them in an appropriate rigid sharps disposal container.
- Never lift a bag from the bottom to load it into the chamber - handle the bag from the top in case sharp objects were inadvertently placed in the bag.

Loading the Autoclave

- Do not overload the chamber with containers that are too large for the capacity of the autoclave.
- While clean and contaminated items may be sterilized in the same autoclave, do not mix them together during the same cycle—they require different heat exposure times.
- Follow the guidelines set by the posted autoclave parameter signs when setting cycle time and temperature.

- Conduct autoclave sterility testing on a regular basis using appropriate biological indicators (B. stearothermophilus spore strips) to monitor efficacy. Use indicator tape with each load to verify it has been autoclaved.
- To prevent spills and accidents, be sure that the exhaust setting is appropriate for the type of material being autoclaved. Use FAST exhaust for solid items (solid waste, instruments) and SLOW exhaust for liquids and liquid wastes.
- Do not leave an autoclave operating unattended for a long period of time. Always be sure someone is in the vicinity while an autoclave is cycling in case there is a problem.
- Don't autoclave flammable or volatile items, such as solvents or corrosive chemicals (phenol, trichloroacetic acid, ether, chloroform, etc.), or any radioactive materials.

Unloading the Autoclave

- After the cycle is completed, wait until the chamber pressure gauge reads zero before attempting to open the autoclave door.
- Open door slowly and stand back to let residual steam escape gradually. Opening the autoclave door too quickly may result in glassware breakage and/or steam burns on your skin.
- If door won't open, don't force it. Door is locked if steam pressure isn't zero.
- Remember that all surfaces inside the autoclave are still extremely hot; allow materials to cool for several minutes before removing.
- Make sure nothing has broken, spilled, or splashed. Be aware of molten agar that may have collected in the secondary container during the cycle. Use a secondary tray to catch any potential leakage from an autoclave bag rather than allowing it to leak