

AUTOCLAVES AND AUTOCLAVE USE

General Statement of Policy:

This policy shall stand as a guide for personnel in preparing items for sterilization in laboratories with steam autoclaves. To assure that autoclaves are maintained properly for the safety of personnel and good research practices.

Autoclaves are safe and highly effective when used properly. They sterilize equipment and supplies, killing biological contamination and denaturing proteins. Autoclaves remove chemical contamination.

General Information about Autoclaving and Steam Sterilization

Steam autoclaving is the most desirable method for decontaminating cultures, lab glassware, pipettes, or other small items contaminated with biohazardous material. Autoclaving is a reliable way to sterilize media and lab equipment as well as decontaminate infectious waste.

Optimal effectiveness of an autoclave depends on three important parameters: time, temperature, and steam penetration. In addition, here are some general guidelines that should be followed:

- Thorough examinations should be done by a qualified person once a year
- Certification of inspections must be posted
- Operating procedures must be written and displayed
- All users must be trained in proper techniques and practices
- Maintain a monitoring program to ensure proper functioning, using biological indicators quarterly.

Autoclave Guidelines

1. An autoclave bag/packs should be filled to two-thirds of its capacity.
2. After the bag/pack is 2/3 full, it should be loosely taped closed and labeled with the Investigator's name.
3. Autoclave tape should be affixed to the exterior of the bag to ensure the contents have received proper autoclave temperature, if the autoclave bag does not have an indicator.
4. The Risk Management Department and the Institutional Biosafety Committee challenges autoclaves throughout the University to ensure that they are functioning properly. Contact Risk Management at 656-5400 to arrange for distribution of vials of biological indicators, *Bacillus stearothermophilus* spores that can be used to test the sterilization capability of all steam autoclaves. It is recommended that this be done quarterly at a minimum, frequency will depend on how often your particular autoclave is being used. Risk Management will pick up the ampoules after they have been autoclaved, incubate them at their own facility, and report back to the Department whether the autoclave passed or failed.
5. The IBC/IACUC requests that each department designate a responsible faculty member to supervise periodic testing of the autoclave, recording the results in a log to be kept near the instrument. These logs will be reviewed at times of inspection.
6. For multiple surgical instrument sterilization, it is recommended that autoclaves be tested monthly by steri-strips or *Bacillus stearothermophilus* spores.

- All instruments that come into direct contact with the surgical area must be sterile.
- Sterilization of instruments can be achieved in a number of ways:
 - steam (autoclave)
 - dry heat (e.g. hot bead sterilizer)
 - ethylene oxide
- If surgeries are to be performed on consecutive animals, surgical instruments must be sterilized between animals. Using multiple surgical packs, chemical sterilants with a minimum 10 minutes contact time, or use of a hot bead sterilizer can achieve this. Isopropyl alcohol is not an appropriate cold sterilant; solutions such as dilute chlorhexidine or Clidox[®] are appropriate.
- After five animals a new set of autoclave-sterilized instruments should be used.
- An alternative to chemical sterilants is bead sterilization for one minute. Instruments must be clean and dry before inserting into the glass beads.