

I. Introduction/Purpose

Steam sterilization of biohazards requires special procedures that vary with each autoclave in order to assure adequate sterilization. Proper training of staff is required to insure the correct sterilization procedures are followed in order to achieve sterilization of biohazards. The purpose of this SOP is to outline the procedure for use of the autoclave and steam sterilization of biohazard waste.

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II. Procedures

A. Training (*research group responsibility*) – Prior to using the autoclave, researchers will be trained by experienced users on the proper operating procedures. Training is the responsibility of individual research groups. Training must cover the following items:

1. What an autoclave is used for, each of the operating cycles, and how to select the proper cycle for a particular load.
2. The autoclave's control panel, displays, and printouts.
3. Emergency shutdown procedures.
4. Burn hazards and appropriate PPE to use while working with the autoclave.

B. Authorization for use

1. Users must be trained (see II-A above) before they are authorized to use an autoclave. Authorization for use occurs when successful completion of training is reported to the departmental Safety Coordinator. Purchasing and Accounting office staff will cross-check the autoclave use logs against the departmental training records to ensure compliance.

C. General autoclave procedures

The details of the available operating cycles, the controls, and the indicators are particular to the model of autoclave. Consult the guide posted near each autoclave for specific instructions to guide use of each autoclave. The following are general guidelines:

1. All loads must be autoclaved for a minimum of 30 minutes and 121 degrees Celsius. Bags, bundles, and liquid waste may require more time.
2. An autoclave bag labeled with a biohazard symbol and that is capable of withstanding 132° C can be used for most items. Bags should be twisted loosely shut and folded over once. The supplied rubber band should be placed once over the fold.
3. Syringes with needles attached, razor blades, and other sharps items should be placed in an autoclave sharps container.

4. In order to achieve thorough sterilization, items should be loosely stacked on the rack in the autoclave. Liquids should not be sealed tightly.

D. Autoclave operational procedures

1. Each use (*user responsibility*)

- a. Check the printout at the end of each run to ensure that the proper temperature was reached and that no faults occurred.
- b. Place heat sensitive tape (autoclave tape) on the outside of each bag to demonstrate that the load has undergone steam sterilization.
- c. **Operators must use Thermalog-S chemical integrator strip for monitoring.** This is the only chemical integrator currently approved by the Seattle-King County Health Department. Place the integrator in the center of **every** load run to confirm attainment of adequate sterilization conditions.
- d. Record the details of the run on the Autoclave Log sheet. Note that the entry must include the result of checking the printout (OK, not OK) and the chemical integrator result (Safe or Unsafe).

2. Monthly (*departmental responsibility*)

The autoclave must be tested monthly by a designated person using a biological indicator. The procedure for this test is as follows:

- a. The autoclave operator will place a biological indicator (*Geobacillus stearothermophilus*) at the center of a load to confirm sterilization conditions have been met. Refer to Environmental Health and Safety Biosafety Manual, section 4-F-5-b for instructions on use.
- b. Run the load using standard procedures as outlined above.
- c. Upon completion of the cycle, remove the test spore.
- d. Incubate the *Geobacillus stearothermophilus* indicator vial according to instructions.
- e. Record the results on the Quality Control Checklist for Steam Sterilization of Biohazardous Waste (<http://www.ehs.washington.edu/forms/rbs/qcchecklist.doc>). This record must be kept for six years.
- f. Live or incubated biological spores should be autoclaved again before disposal or incineration.

3. Annually (*departmental responsibility*), at a minimum, the recording thermometer must be calibrated by the contracted maintenance vendor.

4. Every two years structural inspections will be scheduled and conducted via EH&S (*departmental responsibility*).
- D. If an autoclave is not working properly, discontinue its use and post a sign alerting others not to use the autoclave. Notify the departmental autoclave contact immediately to initiate repairs.