



ENVIRONMENTAL HEALTH & SAFETY FACT SHEET: AUTOCLAVED WASTE



What is an autoclave?

An autoclave, or steam sterilizer, is an insulated pressure chamber in which saturated steam is used to elevate the temperature. Autoclaves are found in research, diagnostic and microbiology laboratories, health centers and other places that require high-level disinfection.

How does an autoclave work?

An autoclave uses pressurized steam to decontaminate infectious waste. Laboratory autoclaves normally operate at a temperature of 250° F (121° C), a pressure of 15 pounds per square inch (psi), and a minimum cycle time of 60 minutes. The effectiveness of an autoclave depends on the time, temperature and direct steam contact with infectious agents. Therefore, we recommend that bags are opened for best steam penetration during the autoclave run. Other factors that influence treatment efficiency include: waste destiny, physical state, size, and organic content.

How do I use the autoclave?

Autoclaves come in many different styles. Therefore, always follow the manufacturer's instructions when using the autoclave.

What can be autoclaved?

In Massachusetts, all biological research material noninfectious and infectious, must be deactivated by autoclave or chemical treatment before being disposed as Municipal Solid Waste (MSW). The following biological waste products may be autoclaved and disposed of as MSW:

- Cultures and stocks of noninfectious and infectious biological waste;
- Human, animal & plant cell lines;
- Biological waste and discarded materials contaminated with excretions from humans or animals;
- Preparations made from genetically altered living organisms and their products.
- Gloves and labware contaminated with materials above.

What cannot be autoclaved?

- Massachusetts currently prohibits human tissues, sharps (needles, syringes, etc.) and research animal carcasses from entering the MSW stream. These items must be removed by an outside contractor according to their specifications. Waste law: <http://www.mass.gov/Eeohhs2/docs/dph/regs/105cmr480.pdf>
- Types of waste that should not be autoclaved include: cancer drugs, toxic chemicals, radioisotopes, volatile chemicals or any other harmful material that can be vaporized and disseminated with heat. In general, do not autoclave flammable, reactive, corrosive, toxic or radioactive materials.

Autoclave Maintenance & Record Keeping

Autoclaves must be validated to ensure effective disinfection by spore testing monthly and inspected yearly by a professional. Autoclave logs are required by the Massachusetts Department of Public Health and are available from EH&S.

How should I collect and dispose the waste?

Liquid infectious waste may be autoclaved and then disposed via the laboratory drainage system. (Do not pour melted agar into a sink. Allow it to cool and solidify for disposal as a solid waste.)

Follow these disposal procedures for solid biological waste:

1. Collect the biological waste in clear ASTM approved autoclave bags (no biohazard symbols).
2. Autoclave and cool the waste. Place a completed Autoclaved Waste Label on the bag.
3. Place the autoclave bag into an opaque polypropylene trash bag.
4. Place the bagged waste into an approved location/dumpster.

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