

10.0 BIOLOGICAL WASTE

Classification

Biological wastes are classified either as Infectious Waste or Non-Regulated Biological Waste.

Infectious Waste - is regulated by the Ohio Environmental Protection Association (OH EPA). The Ohio Administrative Code defines infectious waste as follows:

- 1) Cultures and stocks of infectious agents and associated biologicals. This includes specimen cultures, cultures and stocks of infectious agents, wastes from the production of biologicals, and discarded live and attenuated vaccines.
- 2) Laboratory wastes that were, or were likely to have been, in contact with infectious agents that may present a substantial threat to public health if improperly managed.
- 3) Pathological wastes, including human and animal tissues, organs, and body parts, and body fluids and excreta that are contaminated with or are likely to be contaminated with infectious agents, removed or obtained during surgery or autopsy or for diagnostic evaluation, provided that, with regard to pathological waste from animals, the animals have or are likely to have been exposed to a zoonotic or infectious agent.
- 4) Waste materials from the rooms of humans, or the enclosures of animals, that have been isolated because of diagnosed communicable disease that are likely to transmit infectious agents. Such waste materials from the rooms of humans do not include any system established by the Centers for Disease Control, unless specific wastes generated under the universal precautions system have been identified as infectious wastes by the Public Health Council in rules adopted in accordance with ORC Chapter 119.
- 5) Human and animal blood specimens and blood products that are being disposed of, provided that, with regard to blood specimens and blood products from animals, the animals were or are likely to have been exposed to a zoonotic or infectious agent. "Blood products" does not include patient care waste such as bandages or disposable gowns that are lightly soiled with blood or other body fluids, unless the generator determines that they are soiled to the extent that they should be managed as infectious wastes.
- 6) Contaminated carcasses, body parts, and bedding of animals that were intentionally exposed to infectious agents from zoonotic or human diseases during research, production of biologicals, or testing or pharmaceuticals, and carcasses and bedding of animals otherwise infected by zoonotic or infectious

agents that may present a substantial threat to public health if improperly managed.

- 7) Sharp wastes used in the treatment or inoculation of human beings or animals. Also sharp wastes that have or are likely to have, come into contact with infectious agents in medical, research, or industrial laboratories. Sharp wastes include, but are not limited to, hypodermic needles, syringes, scalpel blades, and glass articles that have been broken.
- 8) Any other waste materials generated in the diagnosis, treatment, or immunization of human beings or animals, research pertaining to the immunization of human beings or animals, or in the production or testing of biologicals, that the public health council identifies as infectious wastes after determining that the wastes present a substantial threat to human health when improperly managed because they are, or may be, contaminated with infectious agents.
- 9) Any other waste materials the generator designates as infectious wastes.

Non-Regulated Biological Wastes - are any waste materials with a biological origin that do not meet the definition of an Ohio EPA Infectious Waste.

Disposal of Infectious Wastes

Infectious Waste may be disposed of by two methods: removal and disposal by a contract infectious waste company or cultures may be treated with hypochlorite solution. These are the only two treatment options that Ohio University is licensed and equipped to use. An Ohio EPA [guidance document](#) is available for generators of infectious waste.

Contract Waste Service

The university maintains a contract with a state licensed infectious waste service company to pick-up, transport, treat, dispose of and document infectious waste. Contact the Biosafety Officer (740-593-1662) to be set-up with this service. It is the responsibility of the laboratory, department or center/institute to pay all costs incurred for infectious waste disposal. Users of the contract service must use the following procedures.

- 1) The contractor provides cardboard boxes with special plastic liners to the waste generator (laboratory). These boxes and bags must meet specific performance requirements, so only items specifically designated for infectious waste may be used.
- 2) The generator sets up the box, taping the bottom, and lines the box with the plastic liner.
- 3) The waste collection boxes must be stored in a secure location that is labeled with the biohazard symbol. The collection area must have a spill clean-up

procedure posted ([General Spill Procedure](#) or [Appendix E](#)) and must have spill cleanup supplies available.

- a. The clean up supplies must include – absorbent, materials to make a 10% bleach solution or an EPA registered disinfectant, red/orange biohazard bags, gloves, other needed personal protective equipment, a first aid kit, and boundary tape or other method of demarcating a spill area.
- 4) Generated infectious waste must be segregated at the source of generation. For example, sharps waste must be placed into a sharps container when generated and other infectious waste could be placed into small biohazard bags to segregate it from regular waste. For disposal the wastes must be placed into the lined box.
 - a. All sharps must be placed into a puncture proof sharps container, before being placed into the collection box. When it reaches the full line, the entire sharps container should be placed into the collection box.
 - b. Any liquid or semi-liquid materials must be double bagged before being placed into the collection box.
 - 5) Laboratories may choose to perform an initial decontamination of the waste prior to placement in the box (autoclaving, bleach treatment, etc.) This initial decontamination is not required, but often suggested based on the type of waste and frequency of waste pick-up by the contractor.
 - 6) The large collection boxes must be stored in a method to maintain the integrity of the boxes. The boxes must be stored in a non-putrescent state, and refrigerated if necessary.
 - 7) Once the collection box is full, the generator must tie off the plastic liner and seal the box shut with tape.
 - 8) Generators may either establish a regular pick-up schedule with the contractor or the generator must contact the contractor to schedule each pick-up of a full box.
 - 9) When the box is picked up, the waste contractor will have a manifest shipping document that someone from the generator area will sign. The contractor will leave a yellow copy of this form with the signer. These yellow forms must be sent to EHS (EHS, Hudson Health Center), where EHS will maintain the records according to EPA regulations.

Treatment of Cultures with Sodium Hypochlorite Solution

- 1) This treatment option may only be used on cultures at BSL 1 or BSL 2 that are either surface colonies or colonies in suspension, which will allow the sodium hypochlorite solution to come into direct contact with the colonies.

- 2) The sodium hypochlorite solution must be mixed immediately prior to each use and contain 15% by volume household bleach in water. This solution results in a hypochlorite concentration of 0.45-0.79% or 4500-7900ppm.
- 3) The cultures must be submerged in the hypochlorite solution for at least 20 minutes.
- 4) The hypochlorite solution must be decanted from any culture that is put into the solid non-hazardous waste. The hypochlorite solution must be discarded after use either by pouring into the sanitary sewer or placing it (double-bagged) into the infectious waste boxes for commercial pick-up.
- 5) The laboratory must ensure that all cultures and hypochlorite solutions are appropriately labeled and handled. Household bleach is corrosive, irritating and toxic.
- 6) Records must be kept of all infectious waste cultures treatments. These records must include the date of treatment and the number of cultures treated. A [tracking sheet](#) designed by EHS may be used or laboratories may develop their own sheet, as long as that sheet includes the same information. These records must be maintained for three years after the latest treatment date recorded on the sheet.

Disposal of Non-Regulated Biological Wastes

Non-regulated biological wastes should be inactivated using methods appropriate to the agents in use. These methods may include: chemical treatment, heat treatment, autoclaving, etc. The laboratory must have a defined inactivation procedure for each category of waste, but is not required to keep documentation of each waste inactivation event.

Multihazard Wastes

Multihazard wastes are any waste materials that present more than one of the following hazards: biohazard, radioactive, chemical hazard. Contact EHS prior to generation of multihazard waste to determine the proper disposal method.