

## IU Bloomington: Specific Biological Waste Handling Procedures

Biological waste management for research laboratories at IU is administered by Indiana University Environmental Health and Safety in accordance with state regulation 410 IAC 1-3, other applicable regulations, and an internal evaluation of the risks of exposure to potentially infectious materials on each campus. Specific procedures may vary between campuses due to logistical variables, custodial procedures, and/or disposal contractor requirements and preferences. The guidelines below must be followed for the disposal of all research-related biological wastes generated at IU Bloomington. ***If a research protocol includes specific waste disposal procedures or additional precautionary measures, the protocol procedures must be followed in addition to the procedures below. Contact the Biosafety Office if you believe that your protocol procedures are contradictory to these procedures.***

Type of waste	Waste disposal Procedure
<p>All biologically contaminated research waste generated in lab rooms conducting only BSL-1 work.</p> <p>Examples: wild-type or genetically modified organisms with BSL-1 determination, insect or mammalian (<b>non-human</b>) cell or tissue culture, any lab materials in contact with or gloves and paper towels soiled with above.</p> <p><i>*ABL-1 waste will be required to be decontaminated on an as needed basis when IUEHS Biosafety has determined that it may be contaminated.</i></p>	<p>Solids: Waste Procedure #1</p> <p>Liquids: Waste Procedure #3</p>
<p>All biologically contaminated research waste generated in lab rooms conducting BSL-2 or higher work.</p> <p>Examples: wild-type or genetically modified organisms with BSL-2 determination, human/NHP tissues or fluids, human/NHP cell culture, any lab materials in contact with or gloves and paper towels soiled with above</p> <p><i>*If BSL-1 work is being done in a lab room that also does higher level work, <b>ALL</b> biological waste generated in that room, must be treated according to the applicable higher level procedure.</i></p>	<p>Solids: Waste Procedure #2</p> <p>Liquids: Waste Procedure #3</p>
<p>All animal carcasses and tissues: Transgenic, wild type, wild-caught, and experimentally infected vertebrate animals.</p>	<p>Waste procedure #4</p>
<p>Biologically contaminated sharps.</p>	<p>Waste procedure #5</p>
<p>Chemically-fixed tissues, in which fixing has facilitated inactivation of potentially infectious agents.</p>	<p>Waste procedure #6</p>
<p>Human fluids not defined as bloodborne pathogens (vomit and urine) and all materials contaminated with these fluids where there is no visible blood.</p>	<p>Waste procedure #7</p>
<p>Animal blood and fluids and contaminated materials.</p>	<p>Waste procedure #7</p>

## IU Bloomington: Specific Biological Waste Handling Procedures (cont.)

All waste contaminated with biological materials must be decontaminated prior to disposal. All biologically-contaminated waste must be labeled at all times with a biohazard symbol until it is properly decontaminated.

1. Non-sharps BSL-1 waste
  - a. Autoclaving
    - i. Before autoclaving:
      - 1) Place waste for autoclaving into bags that are transparent, rated for autoclave use, and marked with a biohazard sticker. Appropriate bags are available from vendors such as VWR (product #14220-012) or Fisher (product #01-826B). Double bag the materials if necessary to avoid perforations in the outer bag. Pipettes and other linear items should be bundled together and bagged or boxed before placing in a bag with other waste. *No red or orange bags are allowed.*
      - 2) Loosely close the bag(s) in a manner that will prevent waste materials from being released and still allow air exchange between the interior of the bag and the ambient environment. Add water to bag to assist with steam generation.
      - 3) Place autoclave tape over the biohazard sticker or other highly visible location on the bag.
      - 4) Place waste bag in an autoclavable plastic or metal tub before transporting to autoclave room on a cart.
      - 5) Follow procedures for autoclaving biological waste found in Section 3.11 of the IU Biosafety Manual. Do not remove bags from tubs.
    - ii. After autoclaving:
      - 1) Ensure the autoclave tape visibly indicates that proper autoclaving occurred.
      - 2) Ensure that all biohazard markings on the waste clearly indicate that the waste has been treated via autoclave tape tagging. If autoclave tape was not placed over the biohazard sticker, clearly deface the label with black marker.
      - 3) Return the tubs of decontaminated waste to your lab on a cart, and place the bags into a regular trash can lined with a heavy duty trash bag.
  - b. Chemical Decontamination
    - i. Place contaminated materials in a suitably sized vessel.
    - ii. Add an appropriate chemical disinfectant, and allow adequate contact time for deactivation.
    - iii. After decontamination, drain liquids, and dispose down the drain with copious amounts of water.
    - iv. Bag the decontaminated solids and place the bags into a regular trash can lined with a heavy duty trash bag. Double bag materials as necessary to avoid perforations in the outer bag. Pipettes and other linear items should be bundled together and bagged or boxed before placing in a bag with other waste. Unbagged, decontaminated solids may be placed into a non-hazardous sharps waste bucket if one is located in your lab.
  - c. Other Decontamination
    - i. If your protocol specifies a specific decontamination and disposal method, that method must be followed.
    - ii. If you cannot effectively or safely decontaminate your waste by one of the above methods, contact IUEHS to arrange for off-site disposal of untreated waste. Biohazard symbols must not be removed or defaced on untreated waste. Examples of reasons for not decontaminating:
      - 1) An autoclave, with sufficient capacity for the waste, is not accessible to you by internal building routes.

- 2) The waste has mixed biological and chemical or radioactive contamination.
2. Non-sharps BSL-2 or above waste
    - a. Follow the applicable steps in procedure #1 to decontaminate the waste. Red/orange biohazard bag/sharps containers may be used. **DO NOT RETURN WASTE TO YOUR LAB OR PLACE BAGS INTO THE REGULAR TRASH.**
    - b. After decontamination, mark the treated bags with a properly completed and signed [Treated Biohazard Waste label](#). If you need to double bag your treated waste, place the label on the outermost bag. Labels are available in the stockrooms or online at the IUB EHS website ([www.ehs.iu.edu](http://www.ehs.iu.edu)).
    - c. Place the treated and labeled waste into the designated can for treated waste in the autoclave room. Do not take treated BSL-2 or higher waste back to your lab.
  3. Place liquid materials into a suitably sized vessel. Add an appropriate chemical disinfectant and allow adequate contact time for deactivation. Contact IUEHS Biosafety for agent-specific procedures. After decontamination, dispose of treated liquids down the drain with copious amounts of water to the sanitary sewer.
  4. Place carcasses and tissues\* that may putrefy or decay with an objectionable odor into a red biohazard bag. If the biohazard bag is not opaque, put the carcass in an opaque bag first. Double bag the materials if necessary to avoid perforations in the outer bag. Seal the bag and place in freezer. [Request a waste pickup](#) online at [www.ehs.iu.edu](http://www.ehs.iu.edu) if regular weekly pickups are not scheduled for your area.

\*Invertebrate animals and tissues that do not produce objectionable odors, can be managed according to procedure #1 or #2.
  5. All discarded sharps, as defined in Section 3.14.4 of this manual, must be placed in the appropriate puncture-proof or puncture-resistant packaging designated in Section 3.14.4.1 or 3.14.4.2. All other materials must be packaged and managed according to non-sharps waste procedure #1 or #2.
    - a. Section 3.14.4.1 sharps are required to go into approved biohazard sharps containers. All sharps containers are to be disposed of when no more than 2/3 full, and must have a lid that is closed and secured prior to decontamination.
      - i. Glass Pasteur pipettes may be autoclaved or chemically decontaminated following the steps in procedure #1. Before decontamination, these pipettes must be kept in a puncture-proof sharps container or sterilizing tray with a lid. After decontamination glass Pasteur pipettes may be placed in a sealed cardboard box and labeled with the Treated Biohazard Waste label.
    - b. Section 3.14.4.2 sharps can be placed in biohazard sharps containers, lined and labeled cardboard boxes or other plastic containers that can withstand autoclaving.
    - c. Once the proper container has been selected, follow procedure #1 or #2 above as applicable for the biosafety level of the contaminants. Treated Biohazard Waste labels can be placed directly onto containers. Remember that BSL-1 waste generated in lab rooms where BSL-2 or higher level work is done, must be managed according to the higher level procedure. *If you are following procedure #1, no red sharps containers are allowed.*
  6. Place preserved specimens, along with chemical fixatives, in an appropriate container with a lid that will seal. Seal the container and attach a completed *Waste Chemical Tag*. Request pickup online at [ehs.iu.edu](http://ehs.iu.edu).
  7. Liquids must be absorbed, bagged in any regular trash bag, and placed in the building dumpster or disposed as liquid into the sanitary sewer. Solids can be bagged in regular trash bags and placed in the building dumpster.