

ASU Fact Sheet | Biohazardous waste handling procedures

Introduction

This document describes procedures for the proper handling and disposal of biohazardous waste, and waste from synthetic biological sources from research, instructional and clinical laboratories at ASU. These procedures are based on state and federal law, requirements from the Centers for Disease Control or CDC, and National Institutes of Health, or NIH, and good laboratory practices. Failure to manage biohazardous waste properly could result in personal injury, disruption to research, fines or criminal prosecution.

Biohazardous waste

Biohazardous waste is any waste from a living source such as human, plant, animal and microorganisms, whether disease-causing or not. According to State of Arizona regulations, biohazardous waste is defined as:

- Any solid waste which is generated in the diagnosis, treatment or immunization of a human being or animal or in any research relating to that diagnosis, treatment, or immunization, or in the production or testing of biological materials.
- Animal carcasses, body parts, and bedding of animals that have been infected with agents that produce, or may produce, human infection.
- Discarded cultures and stocks generated in the diagnosis, treatment or immunization of a human being or animal or in any research relating to that diagnosis, treatment or immunization, or in the production or testing of biologicals.
- Discarded products and materials containing blood or blood components.
- Discarded organs and body parts removed during surgery.
- Discarded sharps used in animal or human patient care, medical research or clinical laboratories. Examples of sharps include: hypodermic needles; syringes; pipettes; pipette tips; scalpel blades; blood vials; needles attached to tubing; broken and unbroken glassware; slides and coverslips.

Note: According to the NIH Office of Biotechnology Activities, genetically altered living organisms and their products, and materials containing recombinant DNA, are also considered biohazardous waste.

Procedures

ASU has a policy regarding waste of “Nothing in the trash; nothing down the drain.” This means that all biological and biohazardous waste must be disposed of according to ASU guidelines and must never be put into regular trash or dumped into a sink drain. Waste material that is contaminated with hazardous chemicals or radiological material has overriding regulatory procedures. Contact asuehs@asu.edu for more information.

Solid biological waste

All solid biological and biohazardous waste, whether infectious or not, is handled by the same procedures. For example, solid biological waste may include agar, petri plates, tubes and plastic pipettes. It may be genetically modified or contain recombinant or synthetic nucleic acid molecules. It could also include gloves, paper towels and other items contaminated with biological material. Solid biological waste must be placed immediately into an appropriately labeled container. The container should be within arm's reach of the work. While actively working on the bench top, the container may be a beaker, tin can, plastic box, hanging red bag or any other leak-proof container that is labeled with the biohazard symbol or the word "biohazard." When the bench-top container is 2/3 full, the contents should be bagged inside a closable secondary container. When 2/3 full, this secondary bag must be closed and transported to an autoclave for processing. Materials to be decontaminated outside the laboratory should be transported in a durable, leak-proof, closed container.

To protect employees who handle waste and to reduce odors, ASU requires that all biohazardous waste be autoclaved (see the ASU [Autoclave Poster](#) and the [Standard Operating Procedures for Autoclave Operation](#)). However, autoclaving on-site does not satisfy the state biological waste treatment standard and does not make waste suitable for disposal into regular trash or dumpsters. If your building does not have an autoclave, please contact asuehs@asu.edu for alternative procedures. Any decision to use alternative methods must be approved by ASU Environmental Health and Safety.

After autoclaving, the bag must be placed into the red drum that is present inside the autoclave room. There is a maximum weight limit of 50 pounds in each red drum. Red drums are picked up by ASU Environmental Health and Safety. When a drum is ready for pick-up, [submit](#) an online hazardous waste pick-up request.

Liquid biological waste

Liquid biological waste may include culture broths, media, stock cultures, centrifuge supernatants, blood and solutions containing recombinant and synthetic nucleic acid molecules. All liquid biological waste must be disinfected by chemical means or by autoclaving (not both). It is then labeled with a hazardous waste tag and treated as a chemical waste for pick up by ASU EHS. Materials to be decontaminated outside the laboratory must be transported in a durable, leak-proof, closed container. When the liquid biological waste is ready for removal, [submit](#) an online hazardous waste pick-up request.

Note: There are certain biohazardous waste streams that may be eligible for drain disposal. Prior to any drain disposal, autoclaved liquid biological waste **must** be reviewed and approved by EHS. Contact asuehs@asu.edu for more information.

Materials containing recombinant and synthetic nucleic acid molecules

The NIH [Guidelines for Research Involving Recombinant and Synthetic Nucleic Acid Molecules](#) require that all materials containing recombinant DNA be properly destroyed before disposal. All genetically modified organisms, or GMOs, including transgenic plants, animals or insects, and liquids containing recombinant or synthetic nucleic acid molecules must be chemically disinfected or autoclaved and held for pick up by EHS.

Sharps

Refer to the ASU [Sharps Fact Sheet](#) for more information.

Soil

Soil that does not contain recombinant or synthetic nucleic acid molecules, pathogens, or other contaminants may be placed in black bags, not red or orange, and put in normal waste containers. Soil that was used with transgenic plants or recombinant or synthetic nucleic acid molecules, pathogens or other contaminants must be handled as biohazardous waste. The soil must be bagged and autoclaved, placed into red drums and held for pick up by ASU EHS. There is a maximum weight limit of 50 pounds in each red drum.

Responsibilities

Report unsafe or incorrect waste disposal practices, spills, injuries, equipment failures or waste handling problems to the Principal Investigator and ASU Environmental Health and Safety.