



**OCCUPATIONAL SAFETY AND ENVIRONMENTAL  
HEALTH GUIDELINE**

**Subject:** Biohazardous (Medical) Waste Disposal

**Date:** 08/19/09

**Revision:** 03

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**SUMMARY:** This guideline describes the proper procedures for the accumulation and disposal of biohazardous waste from research operations, animal medical procedures and classroom instruction. For the purpose of this guideline biohazardous waste and medical waste are considered synonymous.

**SCOPE:** This guideline applies to all academic/research units involved in the generation and handling of biohazardous waste. See Appendix A for the disposal of non-biohazardous solid waste. Note: Radioactive biohazardous waste is not addressed in this document. Refer to Proper Segregation and Disposal of Low-Level Radioactive Wastes (LLRW) At The University of Michigan. Clinical medical waste is not addressed in this document. Refer to the medical waste plans for the University of Michigan Health Systems and University outpatient clinics. Chemically contaminated biohazardous waste is not addressed in this document.

**REGULATIONS:** Department of Transportation Regulations (49 CFR Parts 106, 107, 110, 171, 172, 173, 177 and 178)  
 Bloodborne Infectious Diseases (Public Act 154 R 325.70001 - R 325.70018)  
 Michigan Medical Waste Regulatory Act (Part 138 of Public Act 368)

**RESPONSIBILITY:** Deans, Directors, and Department Heads

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Ensure an environment where Principal Investigators, supervisors, and other personnel are enabled to comply with this guideline.

Principal Investigators/ Supervisors

Ensure staff are aware of this guideline, instructed on the details of implementation, and provided with equipment and controls necessary to comply with this guideline. Maintain documentation for all of the above.

Employees

Comply with this guideline and other safety recommendations initiated by the Principle Investigator or supervisor.

Conduct assigned tasks in a safe manner, wear assigned personal protective equipment, and only use equipment you have been formally trained to use.

Report any job-related injuries or illnesses, questions on health and safety, or any unsafe or unhealthy working conditions to your supervisor.

OSEH

Develop, maintain and update the written Biohazardous Waste Disposal Guideline.

Provide training and technical support to generators and ensure procedures and policies are in place to promote safe work practices.

Verify biohazardous waste is properly packaged and labeled for collection. Collect biohazardous waste for proper disposal.

Maintain required paperwork to document proper disposal.

**DEFINITIONS:**

*Autoclave* - to sterilize through the use of super heated steam under pressure.

*Biohazardous Contamination* – the presence or the reasonably anticipated presence of blood or other potentially infectious material on an item or surface.

*Biohazardous Decontamination* – the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use or disposal.

*Biohazardous Waste* – any waste material with the presence or reasonably anticipated presence of blood or infectious material. Or any waste material containing or contaminated with liquids of human or animal

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origin, but not including urine. The following categories of biohazardous waste are covered in this guideline:

*Liquid Biohazardous Waste* – biohazardous waste in the form of a liquid. Examples include human and animal blood, bodily fluids and tissue cultures.

*Pathological Waste* – animal carcasses, organs, tissues, body parts other than teeth, products of conception, and fluids removed by trauma or during surgery or autopsy or other medical procedure, and not fixed in formaldehyde.

*Sharps Waste* – any object that will easily penetrate the skin. Examples include broken contaminated glass, needles, scalpels, intravenous tubing with needle attached, razor blades and capillary tubes.

*Solid Biohazardous Waste* – biohazardous waste in the form of a solid that will not puncture the skin. Examples include plastic pipettes, syringes without needles, petri dishes, culture flasks, biohazardous animal bedding and gloves.

*Chemical Waste* – any waste material that contains or is contaminated with a chemical. The disposal of materials with chemical contamination is not addressed in this document, contact Hazardous Materials Management (HMM) at 763-4568 for additional information.

*Personal Protective Equipment* – is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

*Sharps Container* – a leak proof, rigid, puncture resistant container specifically designed for the safe collection of sharps. Sharps containers can be ordered by calling HMM at 763-4568.

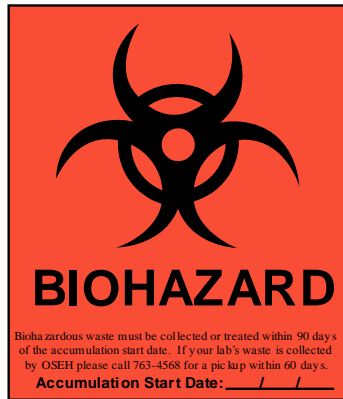
*University Approved Autoclave Bag* – a clear bag with a biohazard symbol and a printed-on sterilization indicator badge (example Fisher Scientific part number 01-826A).

## **PROCEDURES:**

### **A. Specific Management Methods**

NOTE: All containers of biohazardous waste must have a “Biohazard Label” attached. For containers that are not pre-labeled, biohazard labels can be ordered through HMM at

763-4568. When waste accumulation begins the accumulation start date must be written on the label. The accumulation start date is the date the waste is first generated. All biohazardous waste must be treated or sent for disposal through HMM within 60 days.



*Biohazard Hazard Label*

**1. Disposal Procedures for Solid Biohazardous Waste** (note: solid biohazardous waste does not include sharps).

**a. Autoclave**

1. Laboratories with access to an autoclave should treat their own solid biohazardous waste.
2. Check that there are no standing liquids or chemicals.
3. Place waste in a university approved autoclave bag; avoid overpacking of autoclave bags. Do not seal bags or close bottles and other containers tightly
4. After sterilization cycle, close and seal bag. The sterilized waste can be transported directly to the dumpster by Building Services or laboratory staff without boxing or labeling.

**Autoclave supplies** - Use University approved autoclave bags (example Fisher Scientific part number 01-826A). Autoclave bags are not available through HMM, and must be purchased by the laboratory.

**b. Chemically Disinfect**

1. Soak contaminated materials in a 1:10 dilution of household bleach (contains 5% sodium or calcium hypochlorite) to water for at least 30 minutes or other suitable commercial disinfectant. Follow manufacturer's label instructions for appropriate concentration and contact time.
2. Following treatment, package the material in a cardboard box and label the exterior as "uncontaminated glass & plastic" in writing or by affixing a label available through HMM.

**UNCONTAMINATED  
GLASS AND PLASTICS**

*Uncontaminated Glass and Plastics Label*

3. Building Services or laboratory staff can transport to the dumpster.

**c. Hazardous Material Management (HMM) collection** -If a laboratory does not have access to an autoclave HMM must be contacted for collection of the waste.

1. Collect the waste in a properly labeled biohazard pail or biohazard box.
2. Seal the container.
3. Call HMM at 763-4568 to arrange for a collection.

**Solid Biohazardous Waste Containers (not to be autoclaved)** - Various containers are available through Hazardous Materials Management (HMM) for the collection of solid biohazardous waste. Containers can be ordered by calling HMM at 763-4568. Examples include:



**Labeling** - All containers of solid biohazardous waste must have a “biohazard label” attached. For containers that are not pre-labeled, biohazard labels can be ordered through HMM at 763-4568. When waste accumulation begins the accumulation start date must be written on the container or biohazard label. The accumulation start date is the date the waste is first generated. All biohazardous waste must be treated or sent for disposal through HMM within 60 days.

## **2. Disposal Procedures for Liquid Biohazardous Waste**

### **a. Sanitary drain**

- a. Verify that there are no chemicals.
- b. Treat biohazardous waste with a 1:10 dilution of household bleach (contains 5% sodium or calcium hypochlorite) to water for at least 30 minutes or other suitable commercial disinfectant. Follow

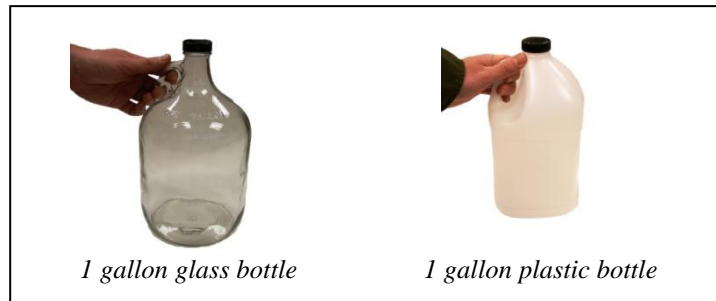
manufacturer's label instructions for appropriate concentration and contact time.

- c. Rinse the treated material down the drain.

**b. HMM collection**

- a. If a laboratory cannot dispose of the material in the sanitary drain, HMM can be contacted for collection of the waste.
- b. Package the bottle in a cardboard box so that the material can safely be moved by HMM staff.
- c. Label the box with a "biohazard label".
- d. Call HMM at 763-4568 to arrange for a collection.

**Liquid Biohazardous Waste Containers-** Various containers are available through Hazardous Materials Management (HMM) for the collection of liquid biohazardous waste. Containers can be ordered by calling HMM at 763-4568. Examples include:



**Labeling -** All containers of liquid biohazardous waste must have a "biohazard label" attached. For containers that are not prelabeled, biohazard labels can be ordered through HMM at 763-4568. When waste accumulation begins the accumulation start date must be written on the label. The accumulation start date is the date the waste is first generated. All biohazardous waste must be treated or sent for disposal through HMM within 60 days.

**3. Disposal Procedures for Sharps Waste – Note Sharps cannot be treated by the laboratory. All sharps must be collected by HMM.**

- a. Collect sharps in a properly labeled sharps container.
- b. Close the container.
- c. Call HMM at 763-4568 to arrange for a collection.

**Sharps Containers-** Various containers are available through Hazardous Materials Management (HMM) for the collection of sharps waste. Containers can be ordered by calling HMM at 763-4568. Examples include:



*2 gallon sharps container*

**Labeling** - A “Sharps” label must be attached to the container or the word “Sharps” written on the container exterior. All containers of biohazardous sharps waste must also have a “biohazard label” attached. For containers that are not pre-labeled, sharps and biohazard labels can be ordered through HMM at 763-4568. When biohazardous sharps waste accumulation begins the accumulation start date must be written on the container or biohazard label. The accumulation start date is the date the waste is first generated. All biohazardous sharps waste must be sent for disposal through HMM within 60 days.

**SHARPS**

*Sharps Label*

**4. Disposal Procedure for Pathological Waste – (Note: All pathological waste must be sent for proper disposal through HMM).**

- a. Place in an opaque plastic bag, and tape the bag shut with duct tape.
- b. Place in a fiber drum and write the weight on the top of the drum. The total weight of the drum should not exceed 55 pounds unless the drum contains a single heavy animal.
- c. Ensure that the drum is labeled with a biohazard label and an “incinerate” only label”.
- d. Store the drum in an animal collection freezer or cold room.
- e. If your storage freezer is not routinely collected, contact HMM at 763-4568 to arrange for a collection.

**Labeling** - All containers of pathological waste must have both a “biohazard label” and “incinerate only” label attached. For containers that are not pre-labeled, biohazard and incinerate only labels can be ordered through HMM at 763-4568. When pathological waste accumulation begins the accumulation start date must be written on the fiber drum or biohazard label. The accumulation start date is the date the waste is first generated. All pathological waste must be sent for proper disposal through HMM within 60 days.

**INCINERATE  
ONLY**

*Incinerate Only Label*

**TECHNICAL  
SUPPORT:**

All referenced regulations and other documents, including building specific medical waste plans as required by the Medical Waste Regulatory Act, are available through OSEH (763-4568).

**ATTACHMENTS:** Appendix A - [Laboratory Refuse collection](#)

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Appendix B - [Special instruction – Pasteur Pipettes](#)  
Appendix C - [Waste Packing Supplies](#)