

Medical Waste Management for Labs (OHS_BIO301L) Course Material

Introduction

Welcome to the **Medical Waste Management for Labs (OHS_BIO301L)** Course Material. The goal of this course is to ensure compliance with Federal and State medical waste regulations by those generating, handling, or signing for the removal medical waste at UAB. The focus of this course is on medical waste generated or handled in research laboratories at UAB. Renewal of this training is required every **three years** or if regulations change. This course meets the United States Department of Transportation (US DOT) training requirements for anyone that offers medical waste to a contractor for transport from UAB facilities.

Objectives

At the conclusion of this course, participants will be able to:

1. Identify and classify medical waste.
2. Demonstrate how to handle and pack medical waste.
3. Mark and label medical waste.
4. Follow safety guidelines to avoid any accidents or injuries.
5. Sign the Medical Waste Manifest.

What is Medical Waste?

The [Alabama Department of Environmental Management Land Division \(ADEM\)](#) and the [United States Department of Transportation \(US DOT\)](#) are in charge of regulations regarding medical waste at UAB. You may exceed both ADEM and the US DOT's minimum requirements after consulting with OH&S. However, at a minimum, you must meet their minimal requirements for handling medical waste. For more information, see Table 1 & 2 of the [Biosafety Manual](#).

ADEM

ADEM's [Land Division Medical Waste Program 335-17](#) defines medical waste:

- Animal-Related Waste
- Blood and Body Fluids
- Microbiological Waste
- Pathological Waste
- Renal Dialysis Waste
- Sharps

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US DOT

The US DOT defines regulated waste (also known as clinical waste or biomedical waste) as “waste or reusable material derived from the medical treatment or biomedical research of an animal or human.” For more detailed definitions, see Section 6A in the [Biosafety Manual](#).

Non-Regulated

Below is a list of items found in medical areas **not** considered regulated medical waste.

- Compressed Gas Cylinders
- Drugs
- Fixatives or Preservatives
- Food or Drink Containers
- Non-Contaminated Broken Glass
- Radioactive Material
- Resource Conservation and Recovery Act (RCRA) Hazardous or Chemical Waste

Procedures

Separating

You should separate medical waste from non-medical waste at the **point of generation**. What happens when you toss trash that doesn't belong in red medical waste bags? It becomes medical waste. What happens when you throw medical waste into the regular garbage? It can result in costly fines and may spread disease.

Packing

There are risks associated with handling, packing, and transporting medical waste. These risks can be reduced by:

1. Completing and documenting the approved training
2. Handling the contents of the medical waste packages correctly
3. Using ASTM-D approved bags, UN approved outer packaging, and an ADEM permitted transporter.

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ASTM-D Bags

ASTM-D bags must be correctly tied and secured and of sufficient thickness to completely contain the contents under standard handling procedures and if dropped while full. Red biohazard bags must meet ASTM-D criteria (see [Supplies List](#)). Properly package and label waste by:



Gathering the top of the ASTM-D bag and twist tight



Tying a secure knot (goose neck tie), tape with packing tape, or use a zip tie (as not to allow leaks if inverted for 5 minutes or if the bag is dropped).



Placing bags into a TB01 (gray bin). Close the TB01 so the lid locks. Apply the vendor's barcode sticker and date it.

Infectious Substances

US DOT further defines Infectious Substances under 49 CFR 173.134 Class 6, Division 6.2 Infectious Substances as a “material known or reasonably expected to contain a pathogen.”

- Proper Shipping Name (PSN): **Regulated Medical Waste, n.o.s.**
- UN Number: **UN 3291**

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Infectious Substances, Category A

Infectious Substances, Category A, are defined as “infectious substances capable of causing permanent disability, a life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs.” Examples include:

- Dengue Virus Cultures
- Hepatitis B Cultures
- HIV Cultures
- MTb Cultures (Tuberculosis)
- Smallpox Virus
- West Nile Virus Cultures

Maintain and keep validation records for autoclaves used for inactivating Category A material (after every 40 hrs used for inactivation purposes).

Inactivated Category A material can then be disposed of as “medical waste” through Stericycle. Determining the disposal of research animals infected with Category A agents is on a case by case basis. Contact Occupational Health and Safety (OH&S) **immediately** at (205) 934-2487 if your research animals will be infected with Category A agents.

Label select agents or Creutzfeldt-Jakob disease (CJD) waste requiring incineration as the final treatment method by UAB with **SA for Incineration by UAB Support Facility** or **CJD for Incineration by UAB Support Facility** and placed in a UAB yellow barrel with a biohazard label.

Biological Substances, Category B

Biological Substances, Category B substances are defined as “substances not generally capable of causing permanent disability, a life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs.” Examples include:

- Hepatitis B in a patient sample
- HIV in a patient sample
- *Proteus mirabilis*
- *Pseudomonas aeruginosa*
- *Staphylococcus aureus*
- *Streptococcus pneumonia*

Category B material is disposed of as medical waste at UAB. For more information, see a complete list of [Category A and B Pathogens](#).

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Sharps

UAB and regulating agencies define sharps as “any used or unused discarded article capable of cutting, penetrating the skin, cutting or puncturing packaging material during transportation, and intended for use in animal or human medical care, medical research, or in laboratories using microorganisms.” Examples include:

- Contaminated glassware, glass blood vials, pipettes, and similar items
- IV tubing with needles attached
- Needles
- Scalpel blades
- Syringes (with or without needles)

Place sharps in an approved sharps container as close to work areas as possible. Approved sharps containers are leak proof under standard handling procedures. You should seal the container when sharps reach $\frac{3}{4}$ of the way full or the fill line and place it in a medical waste transport container.

Bulk Liquid

Free-flowing material or items saturated to the point of dripping liquids containing visible blood, blood components, liquid media, or culture waste should be sterilized or chemically disinfected. Once treated and disinfected, the bulk liquid may be discharged down the drain into UAB’s sanitary sewer system as long as the chemical disinfectant is appropriately used and is not itself restricted for disposal in the sanitary sewer system. Rinse the sink thoroughly after the disposal of waste.

Another option is to solidify bulk liquid and pack enough absorbent material to capture fluid if the container ruptures during handling. The contractor will accept the medical waste transport containers as long as these conditions are met.

Special Markings

The markings on the outermost bag of the waste must include the Universal Biohazard symbol, the ASTM-D initials, and the words medical waste, biological waste, or a combination thereof.

Incineration

Place red biohazard bags requiring incineration as the final treatment method by Stericycle in either a:

- Stericycle fiberboard transport container labeled “**Incineration Only.**”
- Stericycle plastic transport container labeled “**Incineration Only.**”

You can find printable “Incineration Only” labels [here](#).



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Transporting

Containers

TB01

Container	Packing Instructions	Image
<p>A TB01 container should:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hold 30 gallons <input type="checkbox"/> Be 4.0 Cu Ft in size <input type="checkbox"/> Be hinged with a lockable lid <input type="checkbox"/> Constructed of polyethylene <input type="checkbox"/> Have a seamless, leak-proof base <input type="checkbox"/> Not exceed a limit of 64 pounds gross weight (weight including the container and waste) 	<p>To properly pack a TB01 container:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Place the medical waste in ASTM-D bags. <input type="checkbox"/> Secure using a US DOT approved knot. <input type="checkbox"/> Place it in a transport container. <input type="checkbox"/> Close the lockable lid. <input type="checkbox"/> The label “Incinerate Only” if applicable. <input type="checkbox"/> Place in the pickup location. 	
<p>Users must supply ASTM-D red bags for the container. Waste in this type of container is destined for Stericycle’s autoclave unless it is labeled “Incineration Only.” Flip-top lids and dollies are available through Stericycle.</p>		

TB02

Container	Packing Instructions	Image
<p>A TB02 container should:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hold 130 gallons <input type="checkbox"/> Be 17.4 Cu Ft in size <input type="checkbox"/> Constructed of polyethylene <input type="checkbox"/> Have a hinged, lockable lid <input type="checkbox"/> Have a seamless, leak-proof base <input type="checkbox"/> Not exceed a limit of 250 pounds gross weight (weight including container and waste.) 	<p>To properly pack a TB02 container:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Place the medical waste in ASTM-D bags. <input type="checkbox"/> Secure using the US DOT approved knot. <input type="checkbox"/> Place in the transport container. <input type="checkbox"/> Close lockable lid when the container is at capacity. <input type="checkbox"/> The label “Incinerate Only” if applicable. <input type="checkbox"/> Place in the pickup location. 	
<p>Use a TB02 container for large animal waste destined for Stericycle’s incinerator. Users must supply ASTM-D red bags for the container. Waste in this type of container is intended for Stericycle’s autoclave unless it is labeled “Incineration Only.”</p>		

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US43

Container	Packing Instructions	Image
<p>A US43 container should:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hold 31 gallons <input type="checkbox"/> Be 18" x 18" x 22" in size <input type="checkbox"/> Be 4.3 Cu Ft in size <input type="checkbox"/> Be constructed of sturdy fiberboard <input type="checkbox"/> Have a 64-pound limit 	<p>To properly pack a US43 container:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Tape all the bottom seams of the US43 container securely using packing tape. <input type="checkbox"/> Place the medical waste in ASTM-D bags. <input type="checkbox"/> Tie the bag in a US DOT approved knot. <input type="checkbox"/> Place the bag in the approved transport container. <input type="checkbox"/> Tape the lid when the box is at capacity. <input type="checkbox"/> The label "Incinerate Only" if applicable. <input type="checkbox"/> Place the container in the pickup location. 	
<p>Users must supply ASTM-D red bags for the container. Waste in this type of container is destined for Stericycle's autoclave unless it is labeled "Incineration Only."</p>		

BX05

Container	Packing Instructions	Image
<p>A BX05 container should:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hold 15 gallons, <input type="checkbox"/> Be 12" x 12" x 22" in size, <input type="checkbox"/> Be 2.0 Cu Ft in size, and <input type="checkbox"/> Be constructed of sturdy fiberboard. 	<p>To properly pack a BX05 container:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Securely tape the bottom seams of the BX05 container. <input type="checkbox"/> Place the medical waste in ASTM-D bags. <input type="checkbox"/> Tie the bag in a US DOT approved knot or tape down. <input type="checkbox"/> Place the medical waste in an approved transport container. <input type="checkbox"/> Tape the lid when the transport container is at capacity. <input type="checkbox"/> The label "Incinerate Only" if applicable. <input type="checkbox"/> Place the container in a pickup location. 	
<p>Users must supply ASTM-D red bags for the container. Waste in this type of container is destined for Stericycle's autoclave unless it is labeled "Incineration Only."</p>		

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Medical Waste Staging Areas

Management of shared spaces in research laboratories and medical facilities present challenges concerning placing medical waste in these areas before pick up by Stericycle. All labs sharing a staging area, are responsible for managing these areas and will be held accountable for:



- Following good housekeeping practices: No medical waste debris (bag pieces, sharps, PPE, bandages, etc.) and no evidence of past spillage (wet or dry) present on floors.
- Closing all medical waste containers unless in the process of being filled.
- Prohibiting loose sharps from being placed directly into red plastic bags. Contain sharps in a closed disposable sharps container and put into red bags.
- Placing the biohazard symbol on all containers.
- Labeling full containers with Stericycle bar code label (it must have “the University of Alabama at Birmingham,” the physical address of the building generating the medical waste, and a contact phone number on the label.
- Dating the container on the barcode when the full container is closed.
- Labeling storage appropriately (a sign posted with appropriate contact information), secured and only accessible to authorized personnel.

Laboratory Satellite Accumulation Area's

If only small amounts of hazardous waste are regularly generated or if medical waste pick-up site is located in your lab, collect it at or near the point of generation (and under the control of the operator of the process creating the waste) in **Medical Waste Transport Containers**. Store containers in a designated single location in your workplace and away from daily lab traffic. Identify the area with a

[Satellite Accumulation Area Sign.](#)

Quick Summary

To have your medical waste successfully picked up, you must do the following:

1. Training

- a. Complete Medical Waste Training for Labs

(OHS_BIO301L). If you have not completed this training, under **no circumstances** should you sign the medical waste manifest as this could result in a fine for UAB of \$77,000 per incident per day from the Department of Transportation.

2. Properly package and label waste

- a. Gather the top of the ASTM-D bag and twist tight
b. Tie a secure knot (goose neck tie), tape with packing tape, or use a zip tie (as not to allow leaks if inverted for 5 minutes **or if the bag is dropped**).
c. Place bags into a TB01 (gray bin). Close the TB01 so that the lid locks.
d. Apply the vendor's barcode sticker and date it.

3. Label select agents or Creutzfeldt-Jakob disease (CJD) waste requiring incineration as the final treatment method by UAB with **SA for Incineration by UAB Support Facility** or **CJD for Incineration by UAB Support Facility** and placed in a UAB yellow barrel with a biohazard label.

4. When the Stericycle driver arrives:

- a. Present your OneCard to the medical waste vendor and sign the manifest. If your OneCard is not presented, the vendor is authorized to leave the medical waste.
b. Sign the medical waste manifest.



If these conditions are not met, the medical waste will not be picked up until corrected.

If you have any questions, contact Occupational Health and Safety (OH&S) at (205) 934-2487.

Stericycle

The US DOT requires that you know a little about UAB's medical waste contractor, Stericycle Inc. Stericycle Inc.:

- Collects, treats, and disposes of medical waste
- Provides boxes, bins, and carts for the disposal of medical waste
- Is a permitted transporter of medical waste
- Is the largest medical waste company in the United States
- Autoclaves solid medical waste generated in hospitals, clinics, and research labs. A large grinder renders the waste unrecognizable for disposal in landfills.
- Incinerates:
 - Pathological waste
 - Animal carcasses. Place animal carcasses in an ASTM-D red bags and then into either a Stericycle fiberboard transport container or plastic transport cart labeled “**Incinerate Only.**”
 - Animal bedding
 - Trace chemo waste

For more information about Stericycle's online services, click [here](#). Also, please review the [Waste Acceptance Policy for Regulated Medical Waste](#).

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Conclusion

This section concludes the **Medical Waste Management for Labs (OHS_BIO301L)** Course Material. Recertification of this training is required every three years if you generate, handle, or sign for medical waste removal. If you haven't completed the assessment, you should do so now. The passing score is 90% or higher.

Other Required Training

- If you are working around or will be shipping samples that are considered Infectious Substances, Category A you must complete [Shipping Infectious Substances, Category A \(OHS_BIO2\)](#).
- If you are working around or will be shipping samples considered Biological Substances, Category B, Genetically Modified Organisms (GMO's), Exempt Human or Animal Specimens, you must complete [Shipping Biological Substances, Category B \(OHS_BIO201\)](#).
- If you handle or work around anything that is considered a sharp, it is recommended that you complete the [Working Safely with Sharps at UAB \(OHS_HS255\)](#).
- If you are required to wear Personal Protective Equipment while you conduct your work or research, it is strongly recommended for you to complete [Personal Protective Equipment \(PPE\) \(OHS_OHS100\)](#).
- UAB Campus Employees whose job duties put them at an increased risk for exposure to bloodborne pathogens are required to complete [Bloodborne Pathogens Training \(OHS_BIO500\)](#).
- If you work with or around infectious agents or materials, you must complete [Basic Biosafety Training \(OHS_BIO303\)](#).

OH&S has many training courses available to all UAB active employees and students. A [decision tree](#) is available to assist you in choosing the right training courses to supplement the knowledge and skills you may need at work. If you have any questions or comments, contact OH&S at (205) 934-2487.