

Universal Waste Management

University of Tennessee Safety Guide EC-022

Document Contact: EHS-Environmental Compliance

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Purpose

The purpose of this procedure is to provide a framework for those individuals on campus who generate or handle Universal waste. Consult title 40 Code of Federal Regulations, Facilities Services Department, or Environmental Health and Safety for additional information regarding universal waste.

Scope and Applicability

This standard applies to all universal waste as defined below. This shall apply to all students, staff and faculty on the Knoxville campus of the University of Tennessee.

Abbreviations and Definitions

Abbreviations

DOT – Department of Transportation

EHS – Environmental Health and Safety

PCB – Polychlorinated Biphenyls

TSCA – Toxic Substances Control Act

Definitions

Universal waste- Universal waste means any of the following hazardous wastes that are managed under the universal waste requirements of 40 CFR Part 273, and includes:

- a. Batteries
- b. Pesticides
- c. Mercury-containing equipment
- d. Fluorescent lamps

Roles and Responsibilities

The management of universal waste at the University of Tennessee is managed by Facilities Services and consists of the coordination and direction of the waste generated in numerous campus facilities. This section briefly describes the function of each group and its role in the universal waste management program.

Recycling Coordinator

- a. Ensure universal waste is being managed, stored, and disposed of according to all applicable federal, state and local regulations.
- b. Develop and provide training to departments and individuals who generate and manage universal waste.
- c. Coordinate universal waste pickups with a universal waste disposal contractor.

- d. Select and manage universal waste disposal contractor.
- e. Maintain universal waste disposal records.

EHS

- a. Ensure the Universal waste policy is implemented on campus and revise the policy periodically.
- b. Provide guidance and assistance to Facilities Services in ensuring Universal waste is being managed properly.
- c. Clean up spills involving universal waste (such as leaking batteries, PCB ballasts) and dispose of the cleanup material.
- d. Provide training assistance for departments or individuals seeking universal waste training.

Supervisors

Supervisors have the direct responsibility for assuring that the policy and guidelines established herein are followed by all personnel under their jurisdiction.

Maintenance Employees (Facilities Services)

- a. Package, label, store, dispose, and otherwise manage Universal waste in accordance with established procedures set forth in this disposal guide.
- b. Seek the advice, when necessary, of Facilities Services and EHS concerning the proper handling and disposal of universal chemicals.
- c. Transport Universal waste to Fleming Warehouse for disposal.
- d. Receive proper training on Universal waste management

Faculty, staff and students

Faculty, staff and students who generate universal waste need to place the waste in appropriate collection containers, as assigned by the Recycling Coordinator.

Guidance

Types of universal waste

There are four major types of Universal waste that are disposed of on campus:

1. Batteries, such as: lead acid, nickel-cadmium (Ni-Cd), lithium, and mercury batteries. Alkaline batteries are not included.
2. Lamps including but not limited to: fluorescent, HID, neon, mercury vapor, high pressure sodium, and metal halide. Facilities Services recycles all types of bulbs and lamps (even green tipped lamps) with the exception of incandescent.
3. Some pesticides (EHS disposes of pesticides and pesticides are not landfilled).
4. Non-PCB Containing Ballasts. Some non-PCB containing ballasts contain a Ni-Cad battery; therefore, these must be managed as a battery.

Although mercury containing devices, such as thermometers and thermostats, can be managed as a universal waste, UT Knoxville manages this as a hazardous waste through EHS.

Management

Below are guidelines of how each type of Universal waste must be managed at UT Knoxville. Environmental Health and Safety manages the content of this document, however Facilities Services manages the operations of Universal Waste management. For more information about universal waste recycling, contact the Recycling

Manager at Facilities Services at 974-3480.

Lamps

Maintenance personnel must store all lamps in closed boxes and labeled with a Universal waste label as soon as lamps are added to the box or container. The accumulation start date must be added to the Universal waste label when waste bulbs are first placed in the boxes. Lamp collection boxes must remain closed at all times, except when adding bulbs. Boxes should not be stored outside or exposed to the weather. Used and new lamps must not be mixed during storage. Lamps must not be forced into the boxes, which could result in breakage. Lamps must be safely transported to the Fleming Warehouse and stacked on the appropriate pallet, based upon box size. Lamps must not be broken intentionally, and broken and unbroken lamps should not be mixed. If a lamp is broken, wear nitrile gloves and place all contents into a trash bag or box. Label with a Universal waste label that is dated, a transport to Fleming and place in the “broken bulb” drum.

If individuals besides maintenance personnel generate universal waste lamps, contact Facilities Services at 974-3480 for guidance on how to manage this waste properly.

Batteries

All sealed lead acid, Ni-Cd, and rechargeable batteries **MUST** be recycled. Batteries must be accumulated in recycling buckets. Battery recycling buckets are available for departmental and office use. To obtain a battery recycling bucket, to have it emptied, or to recycle individual batteries contact 974-3480 or email recycle@utk.edu. Batteries must be accumulated and then taken to one of the areas listed below. Also, the maintenance personnel in each building on campus have buckets for recycling batteries. You can give your batteries to them for recycling as well.

Main Campus Battery Bucket Locations:

- University Center Computer Store
- Walter's Life, near 4th fl. Elevator in F corridor
- SERF, 6th floor near 3-section recycling bin and elevator
- Nielsen Physics Room 204
- Forest Products Center
- Neyland Biology Annex, room 128
- Andy Holt Tower, room 201
- Buehler, room 215
- Kingston Pike Building, near loading dock
- Building Services, room 206e
- South Stadium Hall, room 250
- McClung Tower, room 915
- Stokely Athletic Center, room 246
- Stokely Athletic Center, room 166
- Stokely Athletic Center, room 259
- Ayres Hall, room 227

Maintenance personnel must place sealed lead acid batteries and rechargeable batteries in battery collection buckets or boxes with the terminals taped. Containers must be labeled with a “universal waste” label, which may be obtained from the Environmental Coordinator. The label must have an accumulation start date. The collection bucket must remain closed except when adding batteries. Full containers of batteries must be

transported to Fleming Warehouse, and placed on the appropriate battery pallet. Boxes on the pallet must remain closed.

Do not clean up material that has leaked from batteries. Contact your supervisor, or call Environmental Health and Safety at 974-5084 to clean up leaking battery spills. Wear gloves and place the leaking battery in a bag or trash liner before placing it in the battery bucket.

Ballasts

The Facilities Services Department recycles magnetic ballasts and electronic ballasts. If the ballasts are PCB Containing Ballasts, then those are managed as a TSCA waste. Non-PCB Containing Ballasts are managed as Universal waste. PCB ballasts must be collected and stored in separate buckets, or containers, from non-PCB ballasts, and also separate from non-PCB ballasts containing ni-cad batteries. The battery-containing ballasts should be treated as batteries and placed in appropriate containers for batteries. PCB ballast buckets must be labeled with a yellow or white TSCA marking (which can be obtained from the Environmental Coordinator) and remain closed at all times. The marking must be labeled with the Out of Service date, which is the date in which the PCB ballasts were first accumulated in the bucket. Non-PCB ballast buckets must be labeled with a Universal waste sticker and also labeled with the accumulation start date. Ballasts are only considered non-PCB if “No PCBs” is printed on the ballasts. Ballasts with no indicator must be assumed to contain PCBs. Full buckets of ballasts should be safely transported to Fleming Warehouse and the contents emptied into labeled 55 gallon drums or Gaylord boxes on the appropriate pallet. 55 gallon drums must be dated and remain closed at all times. There are two drums or Gaylord boxes for ballast collection

- PCB containing ballasts (ALWAYS collected in a steel drum)
- Non-PCB containing ballasts (typically collected in a Gaylord box)

Leaking Ballasts: Do not clean up the material that has leaked from ballasts. Maintenance personnel should contact their supervisor, or call Environmental Health and Safety at 974-5084 to clean up leaking ballasts. Wear gloves to change out the leaking ballast and place ballast in a bag or trash liner before placing it in the ballast recycling bucket.

When doing large scale fixture upgrades where it is impractical to remove all ballasts contact Facilities Services or EHS for guidance on ballast disposal.

Pesticides

Universal waste regulations apply to persons managing pesticides that meet the following conditions:

- Recalled stocks of suspended and canceled pesticides that are part of a voluntary or mandatory recall under Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 19(b), or a pesticide that is not in compliance with FIFRA, that are part of a voluntary recall by the registrant.
- Stocks of other unused pesticide products that are collected and managed as part of a waste pesticide collection program.

Universal waste pesticides become waste:

- On the date that the manufacturer of the recalled pesticide agrees to participate in the recall **and** the person conducting the recall decides to discard the pesticide, **or**
- When the handler decides to discard the unused pesticide.

For questions concerning proper Universal waste management of pesticides, contact EHS or Facilities Services.

EHS manages the disposal of pesticides.

Mercury Containing Devices/Thermostats

Any used or unused mercury containing device or thermostat becomes a waste on the date that it is no longer operable or on the date that the handler decides to discard it. To manage a mercury containing device or thermostat as a Universal waste, the following requirements must be met:

- Mercury containing devices or thermostats that show any sign of leakage, spillage, or damage that could cause spillage must be stored in a container that is closed, compatible with the type of waste, and free of defects that could cause a leakage.
- Ampules containing mercury may be removed from a mercury containing device if:
 - The ampule is removed such that breakage of the ampule does not occur;
 - The ampule is only removed over a containment device;
 - A mercury clean-up system is readily available;
 - Any spilled mercury from a broken ampule is immediately transferred to an appropriate container;
 - The area where the ampule is removed is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury;
 - Employees removing ampules are familiar with proper waste mercury handling and emergency procedures, including transfer of mercury from containment devices to an appropriate container; and
 - Empty ampules are collected and stored in appropriate containers.

If any waste is generated from a mercury-containing device, thermostat breakage or emptying of ampules (ampules themselves, spill clean-up debris, etc.), the waste handler must determine if it exhibits the characteristic of hazardous waste for mercury. If the waste does meet the characteristic, it must be managed as a hazardous waste.

Mercury containing devices or mercury device storage areas must be labeled with the date that it was removed from service and one of the following: "Universal waste – Mercury Containing Device(s)", or: "Universal Waste – Mercury Thermostats". Contact EHS at 974-5084 to pick up the device for proper disposal.

Labeling

In order to comply with state and federal regulations and University policy, the following information must appear on each container of Universal waste. Universal waste labels may be obtained from the Facilities Services Recycling/Environmental Coordinator at 974-3480 or email recycle@utk.edu.

- **"Universal waste"**: State and federal regulations require that each container be clearly marked with the words, "Universal waste". You may obtain Universal waste labels by contacting Facilities Services.
- **Generator's Name and address**: The individual who is responsible for the area or process from which the waste originated and the best person to contact if further information about the material is needed and their address.
- **Accumulation Start Date**: Universal waste must be dated with the date accumulation of the waste began.

Storage

Universal waste will be generated, stored, and disposed of within one year of the accumulation start date, as

required by 40 CFR Part 273.

Disposal

The Recycling Coordinator will ensure that all Universal waste is disposed of properly.

UT Knoxville requires that a Bill of Lading and a Certificate of Recycling from the destination facility be retained on file in the Facilities Services office. The Person(s) responsible for shipments of Universal waste (Recycling Coordinator) must request a Certificate of Recycling from the vendor.

Recordkeeping:

Most of the records, such as Bills of Lading and Certificates of Recycling, must be maintained for three years to meet regulatory requirements. However, to be prudent these records will be kept indefinitely.

Training records shall be maintained by the individual department or responsible unit to whom the employee or student reports. Training records may also be kept in IRIS.

Training and Information Requirements

All employees who handle or have responsibility for managing Universal wastes must be informed of the proper handling and emergency procedures appropriate to the types of Universal wastes handled at the facility. Contact Facilities Services or EHS for assistance.

Facilities Services must provide training and all supervisors must ensure that all individuals (staff, faculty and students) under their control who generate Universal waste shall ensure these individuals have been trained. Training is available from Facilities Services in the form of traditional classroom, or by self-study.

References

OSHA 29 CFR 1910.120 (Hazardous Waste)

EPA 40 CFR 260-270 (Universal waste)

Tennessee Rule: 0400-12-01-.12 (Standards for Universal Waste Management)

40 CFR 761: EPA TSCA Regulations

Disclaimer

The information provided in these guidelines is designed for educational use only and is not a substitute for specific training or experience.

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