

# MICHIGAN GUIDELINES TO UNIVERSAL WASTE

25<sup>th</sup> Annual Hazardous Waste Management Workshop



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Presented to:  
West Michigan  
Chapter  
Air & Waste  
Management  
Association

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**VIRTUAL Hazardous Waste Management Workshop**

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Thank you for the  
opportunity!



# Universal Waste - Defined



As defined in 40 CFR – Part 273;

*Universal waste* means any of the following hazardous wastes that are subject to the universal waste requirements of this part:

- (1) Batteries as described in §273.2;
- (2) Pesticides as described in §273.3;
- (3) Mercury-containing equipment as described in §273.4;
- (4) Lamps as described in §273.5; and
- (5) Aerosol cans as described in §273.6.



# Transportation & Waste Determination



- EPA's universal waste regulations streamline the hazardous waste management standards for certain categories of hazardous waste that are commonly generated by a wide variety of establishments.

## **The streamlined regulations:**

- Promote the collection and recycling of universal waste,
- Ease the regulatory burden on retail stores and other generators that wish to collect these wastes and transporters of these wastes, and
- Encourage the development of municipal and commercial programs to reduce the quantity of these wastes going to municipal solid waste landfills or combustors.

# Handler Options



Notification to EGLE

Small Quantity – USEPA ID # not required

Large Quantity – USEPA ID # required (EQP-5150 form)

## Small Quantity Handler

- Generate or receive for consolidation.
- Accumulate <5,000 kg of universal waste

## Large Quantity Handler

- Generate or receive for consolidation.
- Accumulate  $\geq$ 5,000 kg of universal waste

## Transporter

- Transport haz waste & store at transfer facility for  $\leq$  10 days

## Destination Facility

- Recycle, treat, or dispose

# Management 101



- The universal waste program promotes recycling and proper disposal.
- Universal waste does not need to be shipped on a hazardous waste manifest.
- The accumulation time frame for universal waste consists of 1 year.



# The Fab 4 US EPA Universal Wastes



## USEPA Universal Wastes

- Batteries;
- Lamps;
- Mercury-containing devices; and
- Recalled or canceled pesticides.

## MI specific Universal Wastes

- The fab 4 (plus):
- Antifreeze;
- Pharmaceuticals;
- Consumer electronics; and
- Aerosol Cans (added into the rule in 2019).

## Proper Labeling Procedures

- Onsite storage and labeling are the number one cause of violations.
- Label the container with the date you put the first piece of universal waste in the container or maintain an inventory that lists the item and date it was placed in the container.
- US D.O.T Regulations:
  - Consumers electronics (computers, printers)
  - UN2794, Batteries, Wet, Filled with Acid, (8)
  - Batteries, Dry, Sealed, n.o.s.
  - UN2809, Mercury, contained in manufactured articles, (8) PG III
  - Electronic Lamps (neon and vapor lamps)
  - Electronic Lamps (fluorescent light bulbs)

**UNIVERSAL WASTE**

OPTIONAL INFORMATION	
SHIPPER	
ADDRESS	
CITY, STATE, ZIP	
CONTENTS	Used Electric Lamps

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# Packaging Specifications for Transportation



- **ALL** containers must have a closed top, in good condition, and must be compatible with the contents within the container.
- Universal waste handlers may transport their own universal waste if they meet the transporter requirements.  
[R 299.9228 (4)(b) and 9288(5)(c)]
- In order to transport universal wastes, the facility must hire a permitted and registered hazardous waste hauler.

# Universal Waste: Batteries



## Types

- Ni-cad;
- Lead acid;
- Lithium Ion;
- Mercury;
- Silver, etc.

## Transportation Fun Facts

- Battery terminals must be taped prior to shipment according to DOT regulations.
- If terminals meet one another during shipment the heat from residual charge is enough to cause vehicle fires.

# Case Study: Lithium Ion Battery Transportation



The damage resulting from a lithium-ion battery fire in a FedEx truck is shown in these photos taken June 2, 2016. Left: The fire damage to the FedEx truck and its contents. Right: The contents of the truck were removed by firefighters following the fire. Photos courtesy of FedEx.

Photo Credit: Photos courtesy of FedEx via NTSB

# PACKAGING EXAMPLES - BATTERIES

- INCORRECT



- CORRECT



# Universal Waste: Lamps



The bulb or tube portion of a lighting device specifically designed to produce radiant energy. Lamps can exhibit the toxicity characteristic for some heavy metals (i.e., mercury, lead, cadmium)

## Types

- Incandescent;
- Fluorescent;
- High Intensity;
- Neon;
- Metal Halide, etc.

## Transportation Fun Facts

- Container with lid is required for shipment. Lid needs to be “secured” via a ring or lockable clamp.
- Incidental breakage (~<5%) is allowed if contained properly

# PACKAGING EXAMPLES - LAMPS

- INCORRECT



- CORRECT



# Universal Waste: Mercury



Thermostats with mercury switches showing glass ampoule containing mercury.

Device or part of a device with elemental mercury present and integral to the function of said device.

## Examples

- Thermometers;
- Thermostats;
- Switches;
- Gauges.

## Transportation Fun Facts

- Mercury-containing equipment with non-contained elemental mercury or that shows evidence of leakage, spillage, or damage that could cause leakage must be placed in a container that is closed, structurally sound, compatible with the contents of the device, lacks evidence of leakage, spillage or damage that could cause leakage or releases of mercury or other hazardous constituents to the environment, and reasonably designed to prevent the escape of mercury into the environment by volatilization or any other means.
- Non-metallic container with tight-fitting lid is best practice.
- Spill kit recommended.

# Universal Waste: Pesticides



Recalled, suspended, and cancelled pesticides, and unused pesticides that have not been recalled but are collected and managed as part of a waste pesticide collection program may be managed as a universal waste.

An unused pesticide becomes a waste on the date the generator decides to discard it.

## Transportation Fun Facts

- Recalled, suspended, and cancelled pesticides become a waste on the first date on which the generator agrees to participate in the voluntary or mandatory recall and the person conducting the recall decides to discard it.



# Universal Waste: Antifreeze



Antifreeze is a mixture of water, coolant, and additives. It is used to protect engines and other equipment against overheating and corrosion and from freezing in low temperatures.

## Types

- Ethylene glycol (EG); and
- Propylene glycol (PG).

## Transportation Fun Facts

- Keep containers closed except to add or remove waste.
- Comply with USEPA regulations for hazardous waste in tanks, if applicable.



# Universal Waste: Pharmaceuticals



Pharmaceuticals are chemical formulations used in the diagnosis, cure, mitigation, treatment, therapy, or prevention of disease in humans or animals. A pharmaceutical becomes a waste when it can no longer be administered to a patient and must be discarded.

## Transportation Fun Facts

- Store in closed containers, separate incompatibles, and keep original labels (if available)
- May disassemble packaging and sort by type.
- Do NOT store with medical waste or sharps

# Universal Waste: Consumer Electronics



A device containing an electronic circuit board, liquid crystal display, or plasma display which is commonly found in homes and offices.

## Types

- Computers;
- Printers;
- Televisions, etc.



# Universal Waste: Aerosol Cans



Aerosol cans are a common waste generated by most businesses. Aerosol cans contain a product and propellant under pressure.

## Types

- Maintenance products (cleaners);
- Beauty products (hairspray);
- Surface coatings (paints & varnish).

## Transportation Fun Facts

- Universal waste aerosol cans must be accumulated in a container that is structurally sound, compatible with the contents of the aerosol cans, and lacks evidence of leakage, spillage, or damage.
- Containers must be protected from heat sources (e.g., open flames; smoking; cutting and welding).
- Used aerosol cans become a waste when discarded and not empty.

# Destination Facility Requirements



- A destination facility is one that treats, disposes or and/or recycles universal wastes.
- You can find a list of recyclers and destination facilities on the EGLE website below:  
<https://www.michigan.gov/egle/>

# CASE STUDY



- Below is a picture taken from a SET customer's facility. You will note several issues (can you spot them all?)



For More  
Information



Michigan EGLE Guidance:

- [Universal Waste](#)
- [Antifreeze](#)
- [Medical Waste](#)
- [Aerosols](#)
- [Recycled Material Market Directory](#)
- [Managing Pharmaceutical Waste](#)