



Universal Waste Management

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What is Universal Waste?

40 CFR 273; Chapter 62-730, F.A.C. (Florida)



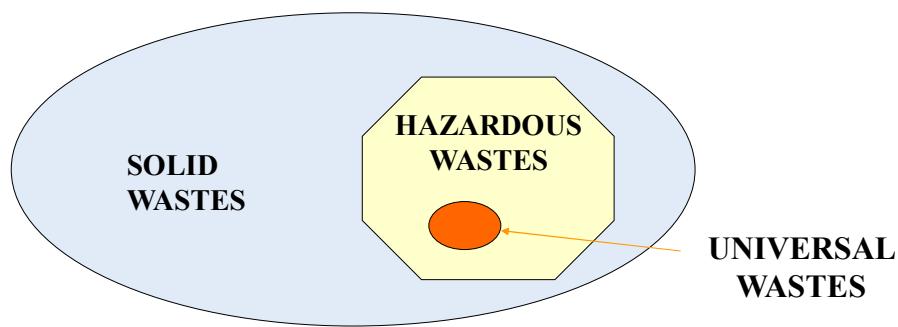
- Waste universally generated by all sectors of industry
- Applies to six types of waste

* Aerosol Cans were considered a Universal Waste in North Carolina on 2/7/20; in Florida on 11/16/20; in California 1/1/02; in Oregon on 1/1/22



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Where does Universal Waste Belong in the Waste World?



- Universal waste categories must be hazardous waste before they can be designated as UW
- They are exempt from full hazardous waste regulations, but must still be managed separately from general trash



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Household Hazardous Waste Exclusion 40 CFR 261.4(b)(1)

- Waste generated from individuals at temporary or permanent residences is excluded from regulation.
- If any non-HHW UW is accepted at HHWs, then it would be regulated under 40 CFR 273
- For HHW Programs only accepting HHW, the UW regulations are a best management practice



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General Hazards of Universal Waste

💀 Exposure to Universal Waste can cause chronic or acute illness

- 💀 Cadmium
- 💀 Chromium
- 💀 Lead
- 💀 Mercury
- 💀 Silver

As	56	46	24
Arsenic	Ba	Cd	Cr
	Barium	Cadmium	Chromium
Pb	80	47	34
Lead	Hg	Ag	Se
	Mercury	Silver	Selenium

💀 Releases to the environment can cause ecological damage

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Universal Waste Batteries
40 CFR 273.2

- A device consisting of one or more electrically connected electrochemical cells which is designed to receive, store, and deliver electric energy.
- Universal Waste Batteries consist of:
 - Nickel-cadmium, lithium, silver ion, and mercury
 - Sealed lead-acid batteries (*but not those being reclaimed under 40 CFR 266 Subpart G*)



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Universal Waste Batteries

- These batteries are commonly used in cell phones, cameras, and computers.
- Does not include single-use alkaline batteries (e.g., AA, AAA, C, etc.)



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Universal Waste Pesticides

40 CFR 273.3

Pesticide is defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant.

- Resulting from a pesticide recall, or
- Unused pesticides collected as part of a waste pesticide collection program



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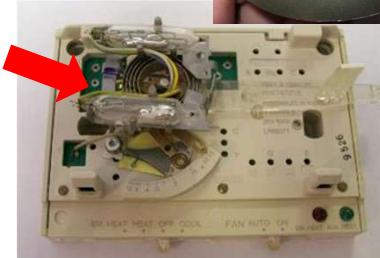
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Universal Waste Mercury Containing Equipment

40 CFR 273.4

A device or part of a device (including thermostats but excluding lamps and batteries) containing elemental mercury integral to its function.

- Includes thermometers, thermostats, barometers, manometers, temperature and pressure gauges, and mercury switches.



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Universal Waste Lamps

40 CFR 273.5

- The bulb or tube portion of an electric lighting device.

- Universal waste lamps include:

- Fluorescent lamps
- High-intensity lamps
- Neon lamps
- Mercury vapor lamps
- High-pressure sodium lamps
- Metal halide lamps



Note:

- This category does not include associated light fixtures such as ballasts.
- For info about PCBs check out: <https://www.epa.gov/pcbs>



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LEDs as Universal Waste



- LED lamps are not explicitly included or excluded from the definition.
- It is the responsibility of the generator of the lamp to determine whether it is a hazardous waste. If it is
 - Is it excluded from the definition of a solid or HW? – NO
 - Is it listed (F, U, P, K-list)? – NO
 - Is it characteristic (ignitability, corrosivity, reactivity, or toxicity)? – MAYBE
- If the LED lamp is legitimately recycled, then it is possible to manage it under the universal waste requirements.
- Lamps that are not hazardous wastes may be disposed of in municipal waste management facilities.

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Universal Waste Aerosol Cans 40 CFR 273.6

- An aerosol can is a non-refillable receptacle containing a gas compressed, liquified, or dissolved under pressure, the sole purpose of which is to expel a liquid, paste, or powder and fitted with a self-closing release device allowing the contents to be ejected by the gas.

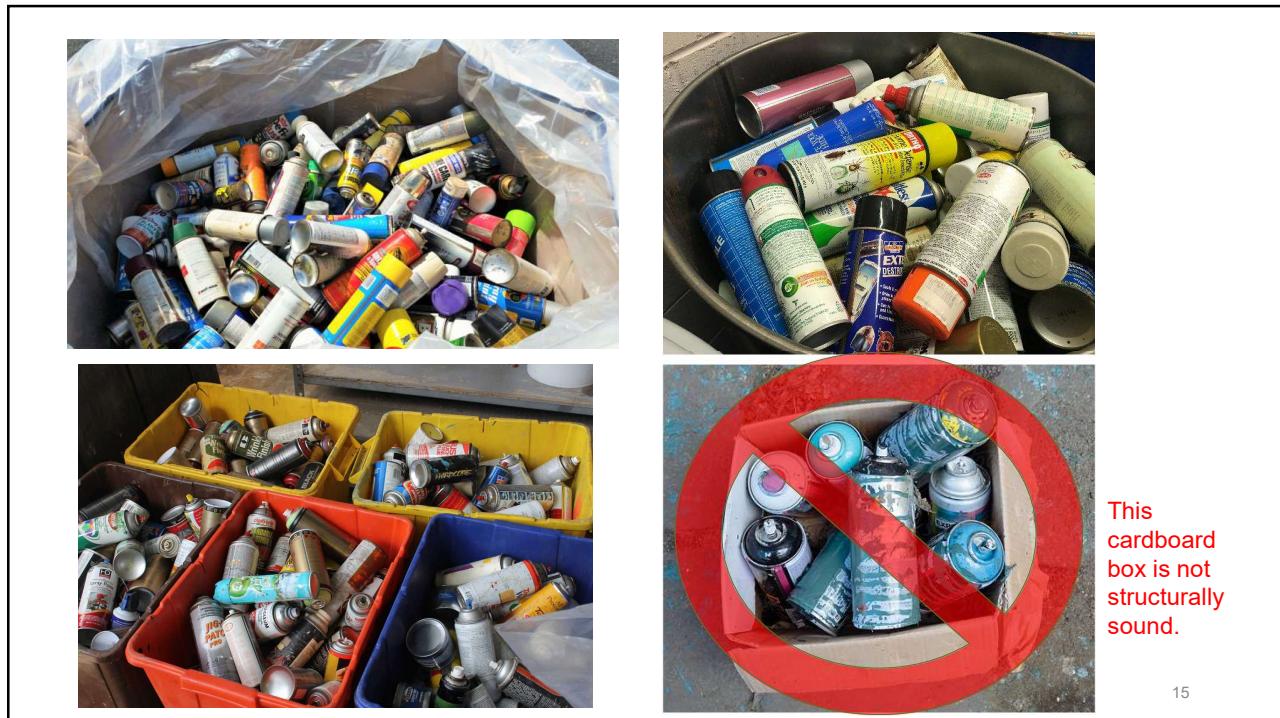


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Aerosol Management



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Puncturing and Draining Aerosol Cans

Generators or handlers may puncture and drain aerosol cans if they are part of a legitimate recycling process.

- If aerosol cans are punctured and drained, the punctured cans must be recycled



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Puncturing and Draining Universal Waste Aerosol Cans

40 CFR 273.13



- If universal waste aerosol cans are punctured and drained:
- A device must be used that is specifically designed to safely puncture cans & effectively contain the residual contents and any emissions
- Ensure puncturing of the can is done in a manner designed to prevent fires and release of waste.
 - This includes, but is not limited to, locating the equipment on a solid, flat surface in a well-ventilated area



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Puncturing and Draining Universal Waste Aerosol Cans

40 CFR 273.13

If universal waste aerosol cans are punctured and drained:

- A written procedure must be established detailing how to safely puncture & drain cans:
 - Including proper assembly, operation, and maintenance of the puncturing unit;
 - Separation of incompatible wastes,
 - Proper waste management practices to prevent fires or releases
 - Maintain, on-site, a copy of the manufacturer's specifications and instructions for the puncturing unit
- Ensure that employees operating the device are trained in the proper procedure
- Immediately transfer contents from the waste aerosol can, or puncturing device, if applicable, to a container or tank that meets the applicable requirements (for VSQG, SQG, LQG or satellite accumulation)



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Puncturing and Draining Universal Waste Aerosol Cans

If universal waste aerosol cans are punctured and drained (40 CFR 273.13):

- A written procedure must be in place in the event of a spill or release and a spill clean-up kit must be provided

The following requirements are applicable to UW aerosol cans:

- Conduct a HW determination on the emptied aerosol can and its contents per 40 CFR 262.11
- Any hazardous waste generated as a result of puncturing/draining is subject to all applicable hazardous waste rules and must be managed accordingly
- A spill or releases of the contents must be cleaned up promptly



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Aerosol Can Puncturing Devices



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Homemade Can Puncture Station – NO!



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Empty Aerosol Cans

Assume all waste aerosols are hazardous waste until the facility has evaluated and documented that they are non-hazardous or meet the definition of an empty container.

- No liquid is felt or heard when the container is shaken by hand.
- No gas or liquid is released when the spray/discharge actuator is pressed

DO NOT throw aerosol cans in the trash unless you are certain they are empty!



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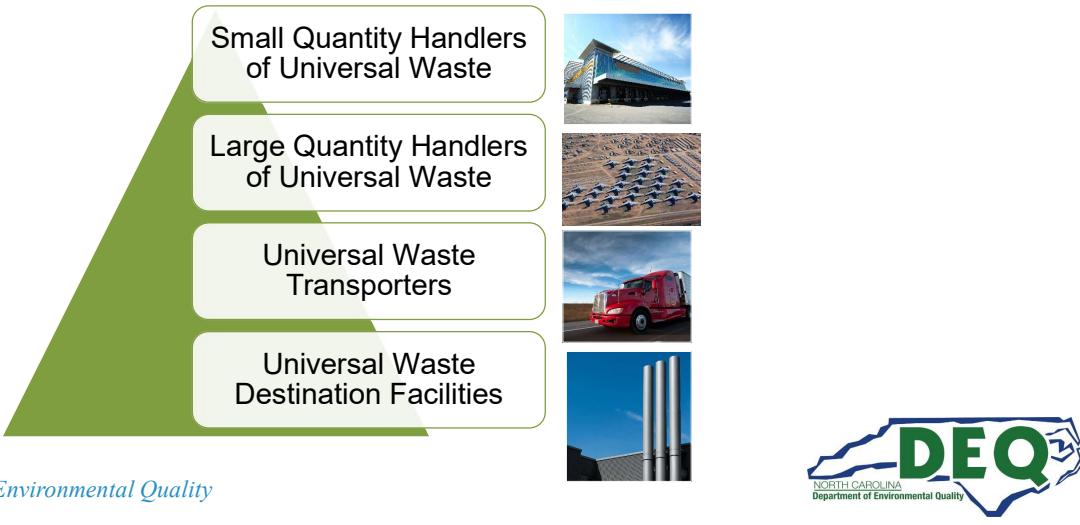
Additional Florida Requirements

- Rule 62-737, FAC – management of mercury-containing lamps and devices
- 403.7186(2), FS – mercury-containing devices shall not be knowingly incinerated or landfilled
- 403.7186(3), FS – mercury-containing lamps shall not be knowingly incinerated or landfilled



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Regulated Participants in the Universal Waste System



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Universal Waste Handlers

A UW handler is:

- A generator of UW, or
- A facility that receives UW from other handlers, accumulates it, and sends it to another handler, destination facility, or foreign destination

A UW handler does not include:

- Treaters or disposers of UW
- Transporters or transfer facilities.



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Universal Waste Handler Categories

Small Quantity Handler of UW (SQH)

- Accumulates < 5,000 kg or (11,000 lbs.) at any one time

Large quantity handler of UW (LQH)

- \geq 5,000 kg at any one time

The facility has to count ALL universal waste onsite (e.g., lamps, batteries, aerosol cans (*if managing as UW*))



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Comparison of Universal Waste Handlers

Requirement	Small Quantity Handlers	Large Quantity Handlers
Notification of UW activity and obtaining an EPA ID number		✓
UW accumulation time limit (one year)	✓	✓
Must prevent/must contain any releases	✓	✓
Waste container labeling/marketing	✓	✓
Training	Employees must be informed of proper waste handling and emergency response procedures.	Employees must be informed of proper waste handling and emergency response procedures.
Use of hazardous waste manifest/LDR	Not required, but DOT shipping paper rules can still apply.	Not required, but DOT shipping paper rules can still apply.
Waste tracking/recordkeeping		✓

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Waste Management for Handlers

SQH 40 CFR 273.13

- Universal waste must be managed to prevent releases by keeping it in containers that are structurally sound, compatible with the UW, and in good condition (no deterioration or leaking)
- Keep containers closed
- Clean up releases



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Structurally sound and compatible containers.



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Management for Handlers (Labeling/Marking)
SQH 40 CFR 273.14/LQH §273.34



Each container of UW must be identified as:

“Universal Waste _____”,
“Waste _____”, OR
“Used _____”
(e.g., Battery(ies), Lamps, Aerosol Can(s), Mercury Containing Equipment)



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Improper UW labeling/markings?



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Management for Handlers Accumulation Time Limits

40 CFR 273.15: SQHs may accumulate universal waste no longer than 1 year

- Must be able to demonstrate length of accumulation time:
 - Marking the container
 - Marking each individual item
 - Maintaining an inventory system
 - Marking the accumulation area
 - Any other method that demonstrates accumulation time



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Management for Handlers (Improper Management)



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We may have a few questions ...



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Lamps – “Green Tips”

What about Green Tips Fluorescent Lamps?

- Green tips may still contain mercury
- If a facility claims non-hazardous, they should be ready to prove it



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Shipments for Handlers

Handlers must send universal waste only to:

- Other handlers,
- Destination facilities, or
- Foreign destination (§273.18 or §273.38)



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Universal Waste Disposal

40 CFR 273.19: Tracking UW Shipments

- “A small quantity handler of universal waste is **not required** to keep records of shipments of universal waste.”
- But they do need to demonstrate that UW is not accumulated over one year.



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Universal Waste

SQH Response to Releases – 40 CFR 273.17

If a release occurs, it must immediately be contained and a HW determination must be made.

For example, if a lamp breaks or shows evidence of leakage, spillage, or damage the facility must:

- Immediately clean up the broken lamp and place the pieces or damaged lamp in an approved container (that is closed, structurally sound, and compatible with the contents of the lamps).



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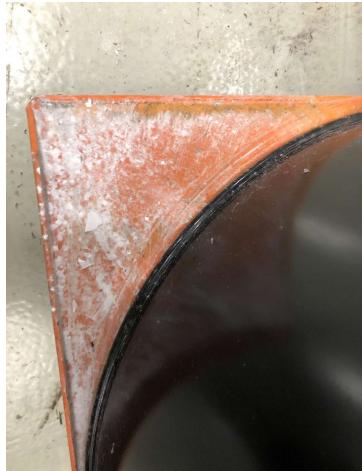
Lamp Crushers

- Are crushed lamps still a Universal Waste?
- **Federal Rule - NO!!**
 - Must meet hazardous waste requirements
 - Might be HW treatment
- **Florida – YES!! (*if done properly*)**

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Lamp Crushers

62-737.400(6)(b), F.A.C.



A generator may crush lamps on-site provided:

- Crushing is done in a final accumulation container
- Lamps are crushed in a controlled manner that prevents the release of mercury vapor or other contaminants

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Lamp Crushers

62-737.400(6)(b), F.A.C.



- Activity is performed in accordance with manufacturer's procedures, including filter changes
- The employees are thoroughly familiar with the procedures and emergency procedures in case of equipment malfunction.

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Training for Handlers

SQH 40 CFR 273.16

- Handlers of universal waste must inform all employees who handle or have the responsibility for managing universal waste.
- The information must describe proper handling and emergency procedures appropriate to the type of universal waste.



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Universal Waste Transporters

40 CFR 273.50 through 273.56



- Universal wastes must be transported in accordance with the US Department of Transportation requirements
 - Includes packaging, labeling, marking, placarding, and preparing shipping papers
- Must contain accidental releases
- For guidance on DOT requirements:
 - <http://www.phmsa.dot.gov/portal/site/PHMSA>
 - DOT Hotline: 1.800.467.4922



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Universal Waste Destination Facilities

40 CFR 273.60 through 273.62

A facility that treats, disposes, or recycles Universal Waste

- Must comply with hazardous waste storage, treatment or disposal (TSD) facility permitting
- Must comply with recycling facility requirements
- Must send waste off-site only to another destination facility or a foreign destination
- Must keep shipping records (same as LQH UW)



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Summary

- HHW lamps, batteries, and mercury-containing devices are exempt from regulation
- Accepting non-household hazardous lamps, batteries, and mercury-containing devices will make the HHW facility subject to Universal Waste regulations
- UW regulations are a best management practice for HHW facilities that only accept HHW



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Questions?

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