

Universal Wastes 101

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Topics

- Overview of Universal Wastes?
- Rules for **ALL** Universal Wastes
- Rules for specific Universal Wastes

What are the Universal Wastes?

- Cathode Ray Tubes
- Automotive Antifreeze
- Certain Batteries
- Mercury-containing Devices
- Certain Lamps
- Certain Pesticides



What exactly does “Universal Waste” mean for you?

- This stuff might be hazardous...or it might not.
- Options:
 - Take the time to PROVE it isn't hazardous
 - Involves hazardous wastes determination, which can be costly; or
 - Just assume it's a hazardous waste and call it a universal waste
 - Easier regulations
 - Must be recycled



Household Universal Waste

- Made by households!
 - Not regulated by hazardous waste regulators
- As soon as a non-household accepts it, they become regulated
- Therefore, the receiving party (Solid Waste Facility) becomes a **“universal waste handler”**.



Business Universal Waste

- Unlike other hazardous wastes, a SW Facility CAN legally accept universal waste from a business.
- Is it a good idea?
 - What does the market look like?
 - Will taxpayers support it?
 - Will management support it?
- Also a “Handler”



What? Who is a “handler”?

- Someone who **receives** universal waste at their facility
 - Someone who makes universal waste
 - Someone who stores universal waste
 - Someone who sends universal waste to another party
-
- ...Except Households

Classes of Handlers

- “Small Quantity Handler”
 - Less than 11,000 pounds
- “Large Quantity Handler”
 - Between 11,000 and 50,000 pounds
- “VERY Large Quantity Handler”
 - More than 50,000 pounds

- Do NOT count lead-acid batteries



Things Handlers Can't Do

- Dispose of UW
- Treat UW
 - Such as crushing lamps on purpose
- Give it to someone who is not going to handle it legally



So what MUST Handlers do?

1. Rules for ALL Universal Wastes
2. Rules specific to the type of Universal Waste



Rules for ALL Universal Wastes

1. Any containers that hold universal waste must be:
 - Closed
 - Compatible with the universal waste it is holding
 - In good condition so it won't leak.



When is a container...

- Leaking or Damaged Batteries
- All Pesticides
- Leaking or damaged fluorescent light devices
- When ampules are removed from mercury
- Intact or broken
- Broken CRTs (Cathode Ray Tubes)
- All Automotive



Rules for ALL Universal Wastes

2. Storage time requirement:

- Must store for 1 year or less
 - Date Container, or
 - Date the item, or
 - Maintain an inventory
- More than one year only if it is necessary to allow proper recovery, treatment, disposal
 - Contract to prove it
 - Dating materials



Rules for ALL Universal Wastes

3. Outside storage must be covered.



Rules for ALL Universal Wastes

4. Respond to leaks and other releases
 - Immediately contain
 - Clean up in 24 hours
 - If human health or the environment are threatened, notify local fire company and NHDES (271-3899)



Rules for ALL Universal Wastes

5. Ship in compliance with DOT
 - Use a bill of lading
 - Not required to use a registered hazardous waste transporter
6. Handlers must be trained to recognize risks of waste, be familiar with waste handling and emergency procedures



Rules for ALL Universal Wastes

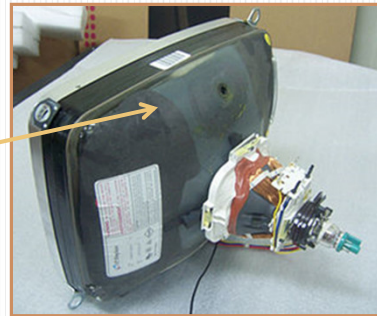
7. If you have > 11,000 pounds: of universal waste on-site
 - Tell NHDES (271-2921)
 - Remember, don't include the weight of batteries
 - Keep shipping records for 3 years



Cathode Ray Tubes (CRTs)

Rules specific to Cathode Ray Tubes

CRTs contain
lead.



Rules for Cathode Ray Tubes

- Broken/Damaged CRTs that could release glass particles must be in a container that is closed impermeable and prevents releases.
- Do NOT break or crush on purpose
- Label
 - Universal Waste – Cathode Ray Tubes
 - Waste Cathode Ray Tubes
 - Used Cathode Ray Tubes



https://das.nh.gov/purchasing/Docs/Notice das.nh.gov

File Edit Go to Favorites Help

Page Safety Tools

NOTICE OF CONTRACT

COMMODITY: Electronic Waste Removal & Recycling

CONTRACT NO.: 8001834

NIGP: 926-7700

VENDOR: Electronix Redux Corp. **VENDOR # :** 226720
 282 Dedham St.
 Unit 2
 Norfolk, MA 02056

CONTACT PERSON(s): Casey Sawyer
Tel. No.: 508-384-1112
Fax No.: 508-384-3459
E-Mail: caseysawyer@electronixredux.com

EFFECTIVE FROM: July 28, 2015 **Through:** September 30, 2018

TERMS: Net 30

PRODUCTS & PRICES:

Description	Cost/LB	Rebate/LB
Unsorted Electronic Equipment		\$0.04
CRT Televisions	\$0.05	
CRT Monitors	\$0.05	
LCD Televisions and Monitors		\$0.10
Computer Equipment (CPU, laptops, servers, etc.)		\$0.20

State Contract Available for Municipalities!

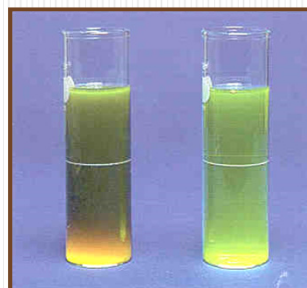
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Automotive Antifreeze

Rules specific to Automotive Antifreeze

Through use antifreeze becomes contaminated with things such as heavy metals and benzene (carcinogen).



Rules for Automotive Antifreeze

- Store in a CLOSED container or tank.
- Label
 - Universal Waste Antifreeze
 - Waste Antifreeze
 - Used Antifreeze



Certain Batteries

Rules specific to Batteries (Lead-Acid, Button Cell, Rechargeable)

Dangerous for heavy metals, fire hazard and sometimes acids.



Batteries

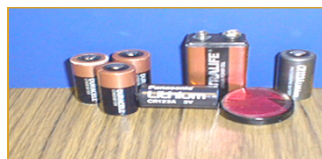
Nickel-Cadmium (Ni-CD)

- Hazardous for Cadmium.



Lithium

- Hazardous for reactivity.



Button Cell

- Hazardous for mercury or silver.



Lead-acid

- Hazardous for corrosivity and lead.



Alkaline and Carbon Zinc – Non-Hazardous

In 1996, Federal law is adopted (Mercury Containing & Rechargeable Battery Act) that prohibits the addition of mercury to batteries (except for button cells.)

There are vendors who will take them from you – for a price! Ask for documentation that they are truly recycled and not landfilled.

Batteries

Flashlight Batteries from the 1930's are hazardous.

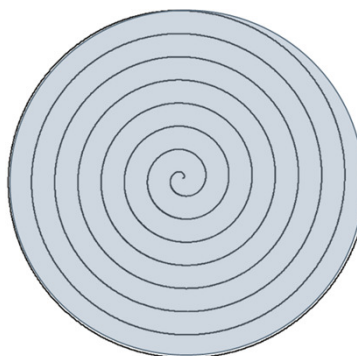


Lithium Batteries produced now are hazardous. How they are made? ([Video](#))



Lithium-ion Battery Construction

- “Jelly roll”
- “+” side coated with lithium electrolyte
- “-” side coated with lithium electrolyte, also
- High-tech separator in between the two layers.



Interesting Fact: Key ingredient in making Meth.

Concerns with Lithium Ion

- Safety
 - Potential for fire from overheating
 - Shorting, cheap charger, damaged separator, damaged regulating circuit
 - Storage of large numbers together create a greater hazard
 - Some lithium batteries look like lead-acid batteries and end up in the wrong recycling system.
- Recycling Concerns
 - Changing technology – resistance to start up company if technology will change
 - The parts of battery most valuable for recovery may be phased out in favor of better, but less valuable ones.
 - Burning, leaching to recover Cobalt – the Li is not recovered!



Rules for UW Batteries

- Any battery leaking, or at risk of leaking, goes into a container compatible with the stuff that's leaking!
- Label containers holding batteries
 - Universal Waste Batteries
 - Waste Batteries
 - Used Batteries
- Lead Acid Batteries
 - May be managed under Env-Hw 1100 or Env-Hw 809
- Best Management Practices
 - Stack on leak-proof surface
 - No more than 5 layers high with rigid non-conducting material between layers
 - Stored inside or under cover
 - Keep any container lids loose to prevent build-up of gases or fumes
 - Store away from sparks or flames



Lead-Acid Battery Clean-up

1. Put on acid-proof gloves and eye protection at a minimum.
2. Put leaking battery in a 5-gallon bucket.
3. Put baking soda or lime in bucket to neutralize acid that leaks out.
 - Do **NOT** put baking soda or lime directly on battery.
4. Recycler will probably still accept it with advanced notice.
5. Neutralize acid on ground with baking soda.
6. Collect neutralized acid and put in a compatible container.
7. Still has lead in it.
8. Save contaminated soil and debris for HHW event.

Mercury-Containing Devices

Rules specific to Mercury



Rules for Mercury-Containing Devices

- Put any leaking devices into a closed and compatible container
- Do not remove glass vials except in compliance with Env-HW 1111.03(b)
- Label containers holding batteries
 - Universal Waste - Mercury-Containing Devices
 - Used Mercury-Containing Devices
 - Waste Mercury-Containing Devices

The screenshot shows a web browser window with the URL <https://das.nh.gov/purchasing/Docs/Notice>. The page content is as follows:

CONTRACT: SERVICES-RECYCLE LAMPS, BALLASTS, DRY CELL BATTERIES AND MERCURY DEVICES

CONTRACT NO.: 8001660

NIGP CODE: 926-7777

CONTRACTOR: COMPLETE RECYCLING SOLUTIONS, LLC. ID# 16
1075 AIRPORT ROAD
FALL RIVER, MA 02720

CONTACT PERSON: KEITH BOYEA
Telephone No.: 508-402-7700
Facsimile No.: 508-300-0362
E-mail: kboyea@crsrecycle.com

EFFECTIVE FROM: December 20, 2014 through November 30, 2017

Questions: Alan Hofmann, Purchasing Manager
Telephone: 603-271-2550
Facsimile: 603-271-2700
E-Mail: alan.hofmann@nh.gov

An orange arrow points from a callout box to the contract number 8001660. The callout box contains the text: "State Contract Available for Municipalities!".

ALL of these Lamps contain Mercury!

Metal Halide Automotive (Xenon)

- Blue Tinted light
- Three older models had mercury
 - D1
 - D2
 - 9500

Ever wonder how Fluorescents are made?

Metal halide

Mercury vapor

Rules for Handling Lamps

- Intact and broken lamps stored in CLOSED containers
- Do NOT crush the lamps ***Permit required***
- Label containers holding batteries
 - Universal Waste - Lamps
 - Used Lamps
 - Waste Lamps



What about LED Lamps?

- Not considered universal wastes
- Some versions have regulated lead and arsenic in them
 - Majority don't
 - Don't know if they would fail the test for hazardous waste



Pesticides



Rules specific to Pesticides

Pesticides are the toughest to manage.

- Designed to intentionally kill
- In a form that can easily get:
 - Moved
 - Inhaled
 - Ingested dissolved

Pesticides are the toughest UW to manage

- Most likely to be destroyed than recycled
- Rules are designed for more large-scale collections & major recalls.
- Only specific pesticides – those that are suspended or recalled under EPA's FIFRA
 - Contact NH Dept. of Agriculture at 271-3550 for information.
- Rules are extensive...



What is the BIGGEST UW Violation?



Open containers of Lamps

