

Universal Waste

Overview of the Universal Waste Regulatory Requirements

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Characteristics of Hazardous Waste

- **Ignitability**
- **Corrosivity**
- **Reactivity**
- **Toxicity**

Universal Waste

- Universal wastes are hazardous wastes that contain elements like mercury (Hg), lead(Pb), cadmium(Cd) and chromium (VI) (Cr)
- These elements are hazardous to human health and environment
- In general, universal waste **may not be discarded in solid waste landfills**



Batteries



Fluorescent tubes (lamps)



Electronic devices



Cathode ray tubes (CRTs)



Mercury wastes



Non-empty aerosol cans

Lamps

Common UW electric lamps include

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

Mercury-Containing Universal Waste

Examples



Vehicle Switches



Barometers



Thermostats



Manometers

Electronic Device (UWED)

Means any electronic device including but not limited to:

- Computer peripherals
- Telephones, answering machines
- Radios, stereo equipment,
- Tape players/recorders,
- Compact disc players/recorders
- Cell phones
- Some small appliances (e.g., plastic microwave ovens)

Electronic Devices: Cell Phones

- Cell phones contain toxic metals such as lead and cadmium
- If hazardous waste, DTSC regulates cell phones as UWEDs
- California Cell Phone Recycling Act of 2004 requires retailers to accept cellular phones for recycling

Electronic Devices: Smoke Alarms

- The Nuclear Regulatory Commission (NRC) says:
 - “To the extent that you possess domestic smoke detectors distributed as exempt units, you are exempt from any regulatory requirements.”
- If hazardous waste, DTSC regulates smoke detectors/alarms as UWEDs

Electronic Devices: Smoke Alarms

- Some manufacturers have take-back programs to be more responsible with their products at end-of-life
- Simplified universal waste rules make this feasible

CRT Materials

- Includes a CRT
- CRT device and
- CRT Glass

A Cathode Ray Tube” or “CRT” is a vacuum tube or picture tube used to convert an electrical signal into a visual image

Covered Electronic Devices/Wastes (CEDs/CEWs)

- A video display device containing a screen greater than four inches measured diagonally
- A term created as part of the [CIWMB's SB 20/50 regulations](#), which designate which materials are eligible for payment
- A complete list can be found in [22 CCR Chapter 11, Appendix X](#)

So What is a Video Display Device?

- Displays moving graphic images creating the illusion of motion
- A device that is an integral part of the display
- Includes, but is not limited to:
 - CRT
 - Liquid crystal displays (LCD)
 - Gas plasma
 - Digital light processing
 - Other image projection technology

What do we do...

...when we receive E-waste or Universal Waste at a solid waste facility?

THE REGULATIONS

- [CCR Title 22, Div 4.5, Chapter 23](#)

http://www.dtsc.ca.gov/LawsRegsPolicies/Title22/OEAR_A_REG_Title22_Ch23.cfm



Universal Waste Handler

“Universal Waste Handler” means

- A generator of universal waste or
- The owner or operator of a facility that:
 - Receives universal waste, accumulates universal waste and
 - Sends universal waste to another universal waste handler, to a destination facility, or to a foreign destination

CRT Material Handler

“...any person who generates, accumulates, stores, treats, or recycles any universal waste CRT material.”

Basic Handler Requirements

- Prohibitions: no treatment or recycling (limited exceptions for e-waste)
- Waste management requirements
- Labeling/marketing
- Accumulation time limit: 1 year
- Employee training

Basic Handler Requirements

- Response to releases
- Offsite shipment
- Tracking (record of all shipments and receipts)
- Export
 - UW in general: EPA acknowledgement
 - E-Waste: DTSC notification

Notification Requirements

A handler of CRTs and UWEDs must notify the Department of their intent at least 30 days in advance

- Name of handler
- Telephone number
- Type of handler (collector, recycler or dual entity)
- Mailing address and physical address (if different)
- Contact Person Information (Name, phone number, email if available)
- The types of materials handled (CRTs and or UWEDs)
- Sources of waste (residential, business, etc)

Annual Reporting

- Applicability is based on quantity of CRTs and UWEDs handled (>220 lbs)
- Total quantities of waste handled during the previous calendar year specified by the Department (DTSC)
- Report includes basic business information
- The treatment/ recycling method used
- The final destination of UWED/ CRTs recycled

Containment of Waste

- A UW handler shall handle any universal waste
- in a manner that minimizes breakage, prevent leakage, spillage or damage
 - Contain UW in containers or packages that are
 - Structurally sound
 - Compatible with the contents of the waste
 - Shall remain closed (lamps)

Labeling / Marking

UW handler shall

- label or mark the universal waste
- to identify the type of universal waste

Example:

Universal waste batteries are labeled or marked clearly as
“Universal Waste – Battery(ies) or
“Waste Battery(ies),” or
“Used Battery(ies)”



UW Treatment: Batteries

UW handler may conduct following activities:

- Sorting batteries
- Mixing battery types
- Discharging batteries
- Disassembling batteries
- Removing batteries from consumer products
- Removing electrolyte from batteries (drained electrolyte is HW)

Broken Lamps

- Intentionally breaking lamps (e.g., using a drum-top crusher) not allowed for UW
- Accidentally broken/received lamps may be managed as UW
- Closed, sealed container required
- Further breakage for efficient storage not allowed

Treatment of CRT/ UWEDs

is conducted without the use or application of:

- Chemicals, including water
- External heat

Managing Major Appliances

Major Appliances

- May be found in solid waste facilities
- Includes, but is not limited to:
 - Washing machine
 - Clothes dryer
 - Hot water heater
 - Dehumidifier
 - Conventional oven or microwave oven
 - Stove
 - Refrigerator or freezer
 - Air-conditioner

Major Appliances

Major appliances are generally not universal wastes, but may contain items (e.g., mercury switches) that are universal waste...

Certified Appliance Recycler (CAR)

- Certain Materials that Require Special Handling (MRSH) must be removed from appliance before they may be processed for scrap, including:
 - Mercury
 - Ozone-depleting chemicals
 - Used oil
 - PCB and or DEHP capacitors
- Effective January 1, 2006, only a CAR may remove MRSH.
- The certification program, incorporated in DTSC requirements, ensures consistency of removal procedures