



UNIVERSAL WASTE MANAGEMENT REQUIREMENTS

*Authority Cited: Health and Safety Code (HSC); California Code of Regulations, Title 22, Div. 4.5 (CCR);
Code of Federal Regulations, Title 40 (CFR)*

Persons who manage Universal Wastes (UW) are responsible for complying with all applicable requirements. This document summarizes some requirements that apply, but it is not all-inclusive [e.g., different requirements apply to Cathode ray Tube (CRT) Material Handlers]. The sections of applicable state and federal law/regulations have been **briefly** described. For a complete citation of these laws and regulations, it is recommended that you use the Internet. Title 22 CCR is available at www.calregs.com; Health and Safety Code at www.leginfo.ca.gov/calaw.html; and Title 40 of the Code of Federal Regulations at www.gpoaccess.gov/cfr/retrieve.html. If you would like to discuss any interpretations of these laws or regulations, please call HMCD at (408) 918-3400 and ask for the Hazardous Materials Phone Duty Officer.

A. Definitions [CCR §§66260.10 and 66273.9]

For the purposes of this document, the following definitions apply:

- **Cathode Ray Tube (CRT)** - Means a vacuum tube or picture tube used to convert an electrical signal into a visual image.
- **CRT Glass** – Means glass related to or derived from the treatment or breakage of a CRT or CRT device and subsequently reclaimed at a CRT glass manufacturer, or a primary or secondary lead smelter.
- **Conditionally Exempt Small Quantity Generator (CESQG)** – Means a hazardous waste generator who generates no more than 100 kilograms (220 pounds) of waste per month as defined in 40 CFR §261.5.
- **Conditionally Exempt Small Quantity Universal Waste Generator (CESQUWG)** - Means a person who:
 1. Generates no more than 100 kilograms (220 pounds) of RCRA hazardous waste and Universal Waste (i.e., combined total for both types of wastes, excluding CRT materials) and no more than 1 kilogram (2.2 pounds) of acutely hazardous waste (AHW) in any calendar month; and
 2. Remains in compliance with 40 CFR §261.5 (i.e., Special Requirements for Conditionally Exempt Small Quantity Generators).
- **Household** – Means a private residence.
- **Mercury-Containing Equipment (MCE)** – Means a thermostat, mercury switch, thermometer, dental amalgam, pressure or vacuum gauge, mercury-added novelty, mercury counterweight or damper, dilator and weighed tubing, mercury-containing rubber flooring, or gas flow regulator.
- **Photovoltaic Cell**- Means a specialized semiconductor diode designed to convert solar radiation into electrical energy. Photovoltaic cells are individual cells that are not electrically connected or an integral part of photovoltaic modules that are electrically connected. Photovoltaic cells are also commonly referred to as solar cells. Photovoltaic cells are managed as photovoltaic modules.
- **Photovoltaic Module**- Means a device consisting of or containing one or more electrically connected photovoltaic cells that are designed to convert solar radiation into electrical energy. Photovoltaic module includes integrated components that cannot be separated without breaking the photovoltaic module glass. Examples of integrated components include, but not limited to, protective glass, conductive metal contact, metal

framing the photovoltaic cells, housing or pocket holding the photovoltaic cells/modules, and top and back layer. Photovoltaic modules are composed of, but are not limited to, monocrystalline silicon, polycrystalline silicon, amorphous silicon, cadmium telluride, copper indium gallium selenide, and gallium indium phosphide/gallium arsenide/gallium, and perovskite. Photovoltaic modules are also commonly referred to as photovoltaic panels or solar panels. Photovoltaic cells that are not electrically connected are managed as photovoltaic modules.

- **Photovoltaic Panel**- See “Photovoltaic Module”
- **Photovoltaic System**- Means a set of components consisting of one or more photovoltaic modules and includes any ancillary components that can be manually separated without breaking the photovoltaic module glass such as, but not limited to, metal frames used to support the photovoltaic module, connectors, junction boxes, batteries, inverters, wires, and cables that are connected to the photovoltaic module. Photovoltaic systems are also commonly referred to as solar systems.
- **PV Cell**- See “Photovoltaic Cell”
- **PV Module**- See “Photovoltaic Module”
- **PV Systems**- See “Photovoltaic Systems”
- **Solar Cell**- See “Photovoltaic Cell”
- **Solar Panel**- See “Photovoltaic Panel”
- **Solar Systems**- See “Photovoltaic Systems”
- **Universal Waste (UW)** - Means any waste listed in CCR §66261.9.
- **Universal Waste Handler** – Means:
 1. A generator (as defined in CCR§66260.10 or 66273.9) of Universal Waste; or
 2. The owner or operator of a facility that receives UW from other UW handlers; accumulates UW; and sends UW to another UW handler, to a destination facility, or to a foreign destination.

B. General Requirements

The following table summarizes general requirements for management of Universal Wastes:

Issue	Households and CESQUWG [CCR §66273.8(a) for Households] [CCR §66273.8(b) for CESQUWG]	Universal Waste Handler [CCR §§66273.30 through 66273.41]
Prohibitions	<ul style="list-style-type: none"> ➤ Do not dispose of to trash or landfill. ➤ Do not disassemble or treat, except per 22 CCR §66273.13. <p>[CCR §66273.8(b)(2) for Households] [CCR §66273.8(c)(2) for CESQUWG]</p>	<ul style="list-style-type: none"> ➤ Do not dispose of to trash or landfill. ➤ Do not treat, except in responding to releases as provided in 22 CCR §66273.37 and §66273.33.6 or by managing specific wastes as provided in §66273.33. <p>[CCR §66273.31]</p>
Notification	Not required.	<p>Sites must notify the USEPA prior to accumulating 5,000 Kg. or more of UW at any time.</p> <p>[CCR §66273.32(a)(1) and (e)]</p>
EPA ID Number	Not required.	<p>Required for sites that accumulate 5,000 kilograms or more of UW at any time.</p> <p>[CCR §66273.32(a)(1) or (b)]</p>
Uniform Hazardous Waste Manifest	Not required.	Unless managed as hazardous waste.
On-Site Accumulation Quantity Limits	None.	<ul style="list-style-type: none"> ➤ No limit for most UW. ➤ No more than 35 Kg. of mercury from gauges drained on-site. [CCR §66273.72(e)(2)(B)7.]
Accumulation Time Limits	None.	<ul style="list-style-type: none"> ➤ Maximum 1 year on-site. ➤ Must demonstrate accumulation time (e.g., inventory system, marking). <p>[CCR §66273.35]</p>
Labeling / Marking	Not required.	<p>Label or mark UW or containers of UW to identify UW type.</p> <p>[CCR §66273.34]</p>
Employee Training	Not required.	<p>Not required unless receiving UW from off-site. If receiving UW from off-site, see §66273.36.</p>
Employee Training	Not required.	<p>Not required unless receiving UW from off-site. If receiving UW from off-site, see §66273.36.</p> <p>[CCR §66273.36]</p>
Response to Releases	No specific requirements.	<ul style="list-style-type: none"> ➤ Immediately contain releases and residues from UW. ➤ May manage residues of leaking, broken, or damaged UW as UW, provided the waste is repackaged pursuant to CCR §66273.33 and §66273.33.6 ➤ Manage other hazardous wastes generated from cleanup according to results of hazardous waste determination. <p>[CCR §66273.33(c)(6)(C) and .37] and [66273.33.6]</p>

Issue	Households and CESQUWG [CCR §66273.8(a) for Households] [CCR §66273.8(b) for CESQUWG]	Universal Waste Handler [CCR §§66273.30 through 66273.41]
Waste Management	No specific requirements, but see “Prohibitions,” above. [CCR §§66273.8(b) for Households] [CCR §66273.8(c) for CESQUWG]	<ul style="list-style-type: none"> ➤ Properly contain wastes (see Section C, below). [CCR §66273.33] and [66273.33.6] ➤ Classify and properly manage wastes generated during cleanup of releases. [CCR §66273.33(e)(6)(C)] ➤ Treat only as specified (see Section E, below). [CCR §66273.33]
Off-site Shipments	Transport UW only to another UW handler or to a destination facility. [CCR §66273.8(b)(3) for Households] [CCR §66273.8(c)(3) for CESQUWG]	<ul style="list-style-type: none"> ➤ Send only to other handlers, destination facilities, or foreign destinations. ➤ Comply with applicable DOT requirements for labeling, marking, placarding, and shipping papers. ➤ Follow requirements for rejected shipments. [CCR §66273.38]
Shipment Tracking / Record Keeping	Not required.	<ul style="list-style-type: none"> ➤ Keep a record (e.g., log, invoice, manifest, bill of lading, or other shipping document) of each UW shipment to or from the facility which records the: <ol style="list-style-type: none"> 1. Name and address of the originating/destination UW handler/facility; 2. Quantity (count or weight) of each type of UW received/shipped; 3. Date of receipt/shipment. ➤ Retain UW shipping records for at least 3 years. [CCR §66273.39]
Record Keeping for Draining of Mercury from Gauges	N/A	Develop and implement a written procedure detailing how to drain mercury from gauges. For each container used to hold drained mercury, keep records of draining of mercury from gauges which include: dates accumulation began and ended, description of gauges drained, and cumulative amount of mercury drained. [CCR §66273.72(e)(2)(B)2.-7.]
Record Keeping for Removal of Mercury Switches and Ampules	N/A	<ul style="list-style-type: none"> ➤ Keep records of removal of mercury switches from vehicles or appliances which include the total number of: vehicles crushed, baled, sheared, or shredded; appliances destined for shredding; vehicles/appliances destined for crushing, baling, shearing, or shredding determined to contain mercury switches; switches removed; and switches that could not be removed. ➤ Retain records for at least 3 years. [CCR §§66273.72(d) and 66273.74(c)(2)]

Issue	Households and CESQUWG [CCR §66273.8(a) for Households] [CCR §66273.8(b) for CESQUWG]	Universal Waste Handler [CCR §§66273.30 through 66273.41]
<p>Notification, Annual Reporting, and Record Keeping Associated With Handling of UW Electronic Devices, CRTs' and PV modules</p>	<p>N/A</p>	<ul style="list-style-type: none"> ➤ Submit a notification to DTSC by certified mail with return receipt requested, no later than 30 days prior to accepting any UW electronic device, which includes all information specified in CCR §66273.74(a)(1)(A) – (J) and §66273.32 ➤ Submit a report to DTSC by February 1 each year describing handling of UW electronic devices and CRTs as required by CCR §66273.74(b)(1). ➤ Retain copies of notification and annual report for at least 3 years as specified in CCR §66273.39 [CCR §66273.74] [Note: these requirements do not apply if the handler is only removing user-replaceable components (e.g., ink cartridges) or items normally removed for replacement during routine operation of the device (e.g., batteries).]
<p>Foreign Exports</p>	<p>Not allowed. [CCR §66273.8(a)(2) for Households] [CCR §66273.8(b) for CESQUWG]</p>	<p>Requirements are numerous and vary based on whether receiving country is a member of OECD. General requirements include:</p> <ul style="list-style-type: none"> ➤ Consent of receiving country; ➤ Reporting; ➤ Record keeping; ➤ Special notification requirements for exporting UWED. <p>[CCR §66273.40]</p>
<p>Notification to CUPA Regarding On-Site Processing of Aerosol Cans (Pressurized/Not Empty)</p>	<p>N/A</p>	<p>Submit a notification to HMCD by certified mail with return receipt requested, no later than the date on which processing commences, which includes:</p> <ul style="list-style-type: none"> ➤ The name, site address, mailing addresses, telephone number, and EPA ID number of the handler; ➤ A description of the aerosol can processing activities, including: type and estimated volumes or quantities of aerosol cans to be processed monthly, treatment processes, equipment description and design capacities; ➤ Characteristics and management of hazardous treatment residuals. <p>[HSC §25201.16]</p>
<p>Accumulation of Mercury-Containing Equipment Received From Other Handlers</p>	<p>Not allowed (household and CESQUWG exemptions apply only to the generator's own UW) [CCR §66273.8(c) for Households] [CCR §66273.8(b) for CESQUWG]</p>	<p>UW handlers that accumulate mercury-containing equipment received from other handlers are subject to special requirements concerning:</p> <ul style="list-style-type: none"> ➤ Land use and zoning restrictions; ➤ Handling hazardous materials; ➤ Disclosure in business permit and use permit applications; ➤ Location standards specified in CCR §66265.18; ➤ Seismic and precipitation design standards specified in CCR §66265.25; ➤ Restrictions regarding sensitive habitat areas. <p>[CCR §66273.33(c)(1)(A) – (E)] [Note: There are no special requirements for non-mercury UW.]</p>

C. Container Requirements for Specified Universal Wastes

The following table indicates whether or not containers are required for specified Universal Wastes, and in cases where containers are required, summarizes requirements for such containers:

Universal Waste Type	Is a container required?	Standards for Containers, When Required				Comments/Other Container Requirements
		Must the container be closed, structurally sound, compatible, lacking evidence of leakage, spillage, and damage?	Must the waste be packaged with packing materials adequate to prevent breakage?	Must the container be Airtight?	Is a plastic bag required?	
<p>Aerosol Cans (Pressurized/Not Empty) [HSC §25201.16(g)]</p>	Yes	<p>Yes, but prior to processing or shipping cans off-site, containers only need to be covered at the end of each work day. [HSC § 25201.16(f)(1)(B)]</p>	No	No	No	<p>Containers must be:</p> <ul style="list-style-type: none"> ➤ Placed in a location that has sufficient ventilation to avoid formation of an explosive atmosphere; [HSC §25201.16(f)(2)] ➤ Designed, built, and maintained to withstand pressures reasonably expected during storage and transportation; [HSC §25201.16(f)(2)] ➤ Placed on or above a floor or other surface that is free of cracks or gaps and is sufficiently impervious and bermed to contain leaks and spills (not applicable prior to processing or shipping cans off-site); [HSC §25201.16(f)(3)(A)] ➤ Incompatible materials must be kept segregated in separate containers; [HSC §25201.16(f)(4)] ➤ Containers holding flammable wastes must be kept at a safe distance from heat and open flames. [HSC §25201.16(f)(5)]
<p>Batteries Regulated as UW [CCR §66273.33(a)(1)]</p>	Yes, if batteries are broken, damaged, leaking	Yes	No	No	No	

Universal Waste Type	Is a container required?	Standards for Containers, When Required				Comments/Other Container Requirements
		Must the container be closed, structurally sound, compatible, lacking evidence of leakage, spillage, and damage?	Must the waste be packaged with packing materials adequate to prevent breakage?	Must the container be Airtight?	Is a plastic bag required?	
CRT Materials [CCR §66273.33.5]	Yes	Yes	No	No	No	Intact CRT devices managed in a way that prevents breakage (e.g., shrink-wrapped on a pallet) meet this requirement.
Dental Amalgam Containing Mercury [CCR §66273.33(c)(4)(A)]	Yes	Yes	No	Yes	No	Traps can not be rinsed to the sink. Amalgam may not be mixed with medical waste.
Electronic Devices Regulated as UW [CCR §66273.33(d)(1)]	No	No	No	No	No	Intact UW Electronic Devices managed in a way that prevents breakage (e.g., storage in a room on a pallet) meet this requirement.
Gas-Flow Regulators Containing Mercury [CCR §66273.13(l)] [CCR §66273.33(l)]	Yes	Yes	Yes	Yes	No	Regulators must be kept upright during accumulation and transportation.
Gauges Containing Mercury [CCR §66273.33(c)(5)(D)]	Yes	Yes	Yes	No	Yes	<ul style="list-style-type: none"> ➤ All gauge openings must be closed. ➤ Gauges must be kept upright during handling, accumulation, and transportation. ➤ Drainage of mercury must be done over or in a containment device. ➤ Drained mercury must immediately be placed in a sealed container.
Lamps Regulated as UW [CCR §66273.33(b)(1)]	Yes	Yes	Yes	No	No	
Mercury-Containing Equipment Not Described Elsewhere (i.e., Thermometers, Thermostats, etc.) [CCR §66273.33(c)(5)(B)]	Yes	Yes	Yes	No	Yes, if evidence of leakage, spillage, or damage	

Universal Waste Type	Is a container required?	Standards for Containers, When Required				Comments/Other Container Requirements
		Must the container be closed, structurally sound, compatible, lacking evidence of leakage, spillage, and damage?	Must the waste be packaged with packing materials adequate to prevent breakage?	Must the container be Airtight?	Is a plastic bag required?	
PV Modules [66273.33.6(a)(1)(B)]	No	No	No	No	No	Intact PV Modules that are managed in a manner that prevents breakage of the PV module and releases of constituents of the PV module to the environment under reasonably foreseeable conditions.
Novelties Whose Only Mercury is in Batteries [CCR §66273.33(c)(5)(C)1.]	No	N/A	N/A	N/A	N/A	Manage per standards for UW Batteries (see above).

D. Universal Waste Marking/Labeling Requirements

The following table indicates where Universal Waste markings/labels can be placed (i.e., on the waste itself, on a container or pallet holding the waste, or marking the boundaries of accumulation areas) and lists required wording for markings/labels:

Universal Waste Type	Label May Be On				Wording Allowed on Label
	Waste/Unit	Container	Pallet	Area	
Aerosol Cans (Pressurized/Not Empty)		X			“Universal Waste—Aerosol Cans,” “Waste Aerosol Cans,” or “Used Aerosol Cans” [HSC §25201.16(f)(6)]
Batteries Regulated as UW	X	X			“Universal Waste—Batteries” [CCR § 66273.34(a)]
Cathode Ray Tube (CRT) Materials					
CRTs	X	X	X	X	“Universal Waste—CRTs” [CCR §66273.34(e)]
CRT Glass	X	X	X	X	“Universal Waste—CRT Glass” [CCR §66273.34(f)]
Electronic Devices Regulated as UW	X	X	X	X	“Universal Waste—Electronic Devices” [CCR § 66273.34(d)]
Lamps Regulated as UW	X	X			“Universal Waste—Lamps” [CCR § 66273.34(c)]
Mercury-Containing Equipment		X			“Universal Waste—Mercury-Containing Equipment” [CCR § 66273.34(b)]

PV Modules	X	X	X	X	“Universal Waste-PV Module(s)” [CCR 66273.34(f)]
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E. Universal Waste Treatment Activities

The following table lists treatment activities that may be conducted by Universal Waste handlers without obtaining a Permit or Other Authorization from the California Department of Toxic Substances Control (DTSC):

Universal Waste Type	Allowed Treatment Activity	Status of Resultant Material
Aerosol Cans (Pressurized/Not Empty) [HSC §25201.16(b)]	Provided that the handler meets all requirements of HSC §25201.16(h) and (i), aerosol cans may be processed to remove and collect their contents. <i>[Note: An off-site commercial processor may not process aerosol cans as a UW handler. Such a processor needs a HazWaste facility permit to operate. A household hazardous waste (HHW) collection facility is not considered to be an off-site commercial processor.]</i>	<ul style="list-style-type: none"> ➤ The drained contents, if characteristically hazardous,¹ must be managed as hazardous waste. ➤ Drained cans, if empty per CCR §66261.7(m), are not regulated as hazardous waste.
Batteries Regulated as UW [CCR §66273.33(a)(2)]	Sorting, mixing, or discharging batteries; disassembling battery packs; removing batteries from consumer products. ----- Regenerating used batteries. ----- Removing electrolyte.	The batteries are UW. ----- Regenerated batteries are not wastes, but regeneration process could generate fully-regulated hazardous waste(s). ----- Removed electrolyte, if characteristically hazardous, ¹ is a hazardous waste.
Electronic Devices Regulated as UW	Refer to CCR §66273.70 – 77	Refer to CCR §66273.70 – 77
CRT Materials	Refer to CCR §§66273.70 – 77	Refer to CCR §§66273.70 – 77
Gauges Containing Mercury [CCR §66273.72(e)]	Elemental mercury may be drained from gauges at the site where the waste gauges are generated.	<ul style="list-style-type: none"> ➤ Drained mercury is UW. ➤ Drained gauges, if characteristically hazardous,¹ are UW.
Lamps Regulated as UW [CCR §66273.33(b)(3)]	Lamps may be removed from products or structures.	Removed lamps are UW.
MCE Not Described Elsewhere	N/A	N/A
Mercury Thermostats [CCR §§66273.13 and 66273.33(b)(2)]	Ampules may be removed.	Removed ampules are UW.
Novelties Containing Mercury Switches [CCR §66273(e)(5)(C)4.]	Mercury switches may be removed.	<ul style="list-style-type: none"> ➤ Removed mercury switches are UW. ➤ After switches are removed, novelties that contain no mercury, and which are not characteristically hazardous,¹ are non-hazardous waste.

¹ A waste is characteristically hazardous if it is hazardous for any characteristic (i.e., ignitability, corrosivity, reactivity, or toxicity) as defined in CCR §§66261.21 through 66261.24).

Universal Waste Type	Allowed Treatment Activity	Status of Resultant Material
Novelties Whose Only Mercury is in Batteries [CCR §66273.33(c)(5)(C)]	Mercury-containing batteries may be removed.	<ul style="list-style-type: none"> ➤ Removed batteries are UW. ➤ After batteries are removed, novelties that contain no mercury, and which are not characteristically hazardous,¹ are non-hazardous waste.
PV Modules	Refer to CCR §66273-73	Refer to CCR §66273-73
Products/Vehicles Containing Mercury Switches [CCR §66273.33(c)(5)(B)2.]	Mercury switches may be removed from motor vehicles and other products.	Removed switches are UW.

F. Destination Facility Requirements

The following table specifies the types of facilities to which various Universal Wastes must eventually be shipped for recycling/disposal:

Waste Type	Type of Destination Facility Required for Waste to be Managed as UW
Aerosol Cans (Pressurized/Not Empty)	HazWaste disposal or authorized recycling facility.
Batteries Regulated as UW	HazWaste disposal or authorized recycling facility.
Counterweights and Dampers Containing Mercury	Authorized recycling facility <u>only</u> . [CCR §66273.7.4(b)(5)]
CRT Materials	Authorized recycling facility <u>only</u> . [CCR §66273.4(b)(5)]
Electronic Devices Regulated as UW	Authorized recycling facility <u>only</u> . [CCR §66273.4(b)(5)]
Lamps Regulated as UW or Per CCR §66261.50	Authorized recycling facility <u>only</u> . [CCR §66273.4(b)(5)]
Mercury-Containing Equipment Not Otherwise Noted	Authorized recycling facility <u>only</u> .
Mercury Thermometers	Authorized recycling facility <u>only</u> . [CCR §66273.4(b)(5)]
Mercury Thermostats	HazWaste disposal or authorized recycling facility.
Novelties Containing Mercury	HazWaste disposal or authorized recycling facility. (Exception: Novelties containing liquid mercury must be sent to an authorized recycling facility.) [CCR §66273.7.4(b)(5)]
PV Modules	HazWaste disposal or authorized recycling facility
Rubber Flooring Containing Mercury	HazWaste disposal or authorized recycling facility (if available).

