

**Proposed Standards for Management of Waste Solar Panels**  
Department Reference Number: R-2010-01

**Legend:** Changes are shown from the existing text of the California Code of Regulations, title 22, as:

Underline	<u>underline</u>	Additions to existing text
Strikeout	<del>strikeout</del>	Deletions to existing text

For the convenience of the reader, existing text is shown as plain text and text deleted from existing text is shown as strikeout (~~strikeout~~). Added text is shown as underline (underline).

This document presents two, proposed (new) options for the management of hazardous waste solar panels at end-of-life. Both options are not mutually-exclusive, but are presented together so that a regulatory entity has a choice of management schemes. Absent these two regulatory conditional exemptions, hazardous waste solar panels must be managed under full hazardous waste regulations, which are California's current standards. Thus, as drafted, there would be three (3) options for management of hazardous waste solar panels:

1. Full hazardous waste regulations (current standard)
2. Conditional hazardous waste exemption (proposed)
3. Universal waste management (proposed)

It is also important to note that once a regulatory scheme is chosen for the management of a particular hazardous waste solar panel, that scheme must be followed or that waste may no longer be subject to that particular exemption.

**THIS SECTION PROVIDES THE REGULATORY EXEMPTION "OPTION" FOR SOLAR PANELS THAT ARE MANAGED AS PART OF A SOLAR PANEL RECLAMATION PROGRAM**

**Amend** California Code of Regulations, title 22, division 4.5, chapter 10, section 66260.10 to read:

**§ 66260.10. Definitions.**

When used in this division, the following terms have the meanings given below:

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"Soil-pore liquid" means the liquid contained in openings between particles of soil in the unsaturated zone.

"Solar panel" means any photovoltaic module, photovoltaic panel, or other photovoltaic device that collects energy from the sun for the purpose of converting light into electricity for general electricity grid use. "Solar panels" does not include physically damaged, deteriorated, or altered solar panels (or components thereof), that are no longer recognizable as intact or broken solar panels, nor does it include solar powered electronic devices that have solar cells incorporated into their structures.

"Solar Panel Vendor" means the manufacturer, producer, marketer or distributor of solar panels located within the United States and its territories, who administers a solar panel reclamation program and who accepts (for reclamation) one or more solar panels that are subject to the conditions for the exemption in section 66261.6 of chapter 11 of this division.

"Solid Waste Management Unit" means any unit at a hazardous waste facility from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of wastes, including but not limited to: containers, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators and underground injection wells.

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NOTE: Authority cited: Sections 25141, 25150, 25158.1, 25158.4, 25159, 25159.5, 25187.7, 25200.10, 25204, 25214.9, 25218.3(d), 25316, 25355.5, 25356.9, 25358.3, 25358.9 and 58012, Health and Safety Code; Governor's Reorganizational Plan #1 of 1991; and Section 42475, Public Resources Code. Reference: Sections 25110.02, 25110.1, 25110.5, 25111, 25112, 25112.5, 25113, 25114, 25115, 25117, 25117.1, 25117.3, 25117.8, 25117.9, 25117.11, 25118, 25119, 25120, 25121, 25121.5, 25122.7, 25123, 25123.3, 25123.5, 25123.6, 25141, 25150, 25158.2, 25159, 25159.5, 25187.7, 25200.10, 25201.6, 25204, 25214.9, 25218.1(f), 25218.3, 25229, 25316, 25354(b), 25355.5, 25355.6, 25356.9, 25358.1, 25358.9, 25359.8, 25361, 25501, 25529 and 58012, Health and Safety Code; 40 Code of Federal Regulations Sections 260.10, 261.1, 262.21, 264.551, 264.1031, 268.2, 270.2 and 273.6.

**Amend** California Code of Regulations, title 22, division 4.5, chapter 11, section 66261.6 to read:

**§ 66261.6. Requirements for Recyclable Materials.**

(a)(1) Recyclable materials are subject to the applicable requirements for generators, transporters and facilities of articles 1 and 2 of chapter 16 of this division, except as specified otherwise for the materials listed in subsections (a)(2), (a)(3), (a)(4), (a)(5), and (a)(6) of this section.

(2) The following recyclable materials are also regulated under the articles (of chapter 16 of this division) specified below, and all applicable provisions in chapters 20 and 21 of this division:

(A) [RESERVED];

(B) hazardous wastes burned for energy recovery in boilers and industrial furnaces that are not regulated under article 15 of chapter 14 or 15 of this division are regulated under article 8 of chapter 16 of this division.

(C) spent lead-acid storage batteries that are being reclaimed are regulated under article 7 of chapter 16 of this division;

(D) recyclable materials that are being used in agriculture are regulated under article 8.5 of chapter 16 of this division;

(E) waste elemental mercury that is being recycled is regulated under article 9 of chapter 16 of this division.

(3) The following are not subject to regulation under this division, and are not subject to the notification requirements of Health and Safety Code section 25153.6:

(A) materials that can be shown to be recycled by methods identified in subdivisions (b), (c) or (d) of Health and Safety Code section 25143.2; and

(B) scrap metal as defined in section 66260.10. However, scrap metal that meets the definition of a RCRA hazardous waste is not subject to regulation under this division and is not subject to the notification requirements of Health and Safety Code section 25153.6, only when the scrap metal is being recycled; and

(C) hazardous wastes that exhibit the characteristic of toxicity specified in section 66261.24(a)(1) and do not exhibit any other characteristic of a hazardous waste specified in article 3 of this chapter (commencing with section 66261.20), are not listed in article 4 of this chapter (commencing with section 66261.30), and that qualify as one of the materials specified in 40 CFR section 261.6(a)(3) (incorporated by reference in section 66260.11).

(D) solar panels destined for reclamation within the United States and its territories in a program administered by a Solar Panel Vendor provided that the conditions in subsection (a)(8) of this section are met. However, such solar panels are subject to regulation as described in subsection (a)(8)(H) of this section upon arrival at a designated facility located in California.

(4) The following are prohibited as specified:

(A) the use of material (e.g., waste, used oil or other material) which is contaminated with dioxin or any other hazardous waste (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment is prohibited;

(B) the use of used oil as a road oil, dust suppressant or weed control agent is prohibited, except as provided otherwise in Health and Safety Code section 25250.5.

(5) The following hazardous waste, when recycled, is exempt from the restrictions concerning the materials used in a manner constituting disposal or used to produce products that are applied to the land, as provided in Section 25143.2(e) of the Health and Safety Code.

(A) Spent catalyst generated from the Fluid Catalytic cracking (FCC) unit in a petroleum refinery when it is recycled at portland cement kilns as the substitute of alumina and silica in the kiln feed. The concentration of the extractable heavy metals in the FCC catalyst shall not exceed the values given in Table I-C CCWE, Section 66268.106(a) except for nickel and vanadium. The total concentration of nickel and vanadium in the FCC catalyst shall not exceed 3,000 mg/kg, combined.

(6) Hazardous wastes that meet all the following criteria are not subject to regulation under this division but, instead, are subject to regulation as specified in 40 CFR section 261.6(a)(2) (incorporated by reference in section 66260.11):

(A) the hazardous waste exhibits the characteristic of a hazardous waste specified in section 66261.24(a)(1);

(B) the hazardous waste does not exhibit any other characteristic of a hazardous waste specified in article 3 of this chapter (commencing with section 66261.20);

(C) the hazardous waste is not listed in article 4 of this chapter (commencing with section 66261.30);

(D) the hazardous waste is not listed in article 4.1 of this chapter (commencing with section 66261.50); and

(E) the hazardous waste qualifies for regulation pursuant to 40 CFR section 261.6(a)(2) (incorporated by reference in section 66260.11).

(7) Hazardous waste that is exported to or imported from designated member countries of the Organization for Economic Cooperation and Development (OECD) (as defined in 40 CFR section 262.58(a)(1) or section 66262.58(a)(1)) for purpose of recovery is subject to the requirements of 40 CFR Part 262, Subpart H or this article, if it is subject to either the Federal manifesting requirements of 40 CFR Part 262, or to the universal waste management standards of 40 CFR Part 273.

(8)(A) Solar panels shall be managed in a manner that prevents releases of any solar panels or any hazardous component of a solar panel to the environment under reasonably foreseeable conditions pursuant to the requirements of this section.

(B) Only intact solar panels shall be managed. Any solar panel or container of solar panels that shows evidence of leakage or damage that could cause a release of hazardous constituents to the environment shall be managed in accordance with article 8 of chapter 23 of this division.

(C) A solar panel or container of solar panels shall be labeled with one of the following phrases: "Solar Panels Not Scrap Metal", or "Solar Panels Not CRT Glass".

(D) Any spills or releases of a solar panel or components thereof shall be cleaned up immediately.

(E) A transporter of solar panels shall manage solar panels in compliance with the requirements of article 5 of chapter 23 of this division.

(F) A transporter of solar panels shall not deliver solar panels to a place other than to a reclamation facility within the United States and its territories designated by the Solar Panel Vendor who is administering the solar panel reclamation program.

(G) A person is prohibited from exporting solar panels unless export is conducted

in accordance with applicable export requirements for hazardous waste as described in chapter 12 of this division.

(G) The solar panels shall be recycled by being reclaimed at the designated facility, including recovery of the hazardous constituents.

(b) Owners and operators of facilities that store recyclable materials before they are recycled are regulated under all applicable provisions of articles 1 through 12, 27, 28, and 28.5 of chapters 14 and 15 and any applicable provisions of chapters 16, 18, and 20 and the notification requirements under section 3010 of RCRA, except as provided in subsection (a) of this section.

(c) Owners or operators of facilities subject to RCRA permitting requirements with hazardous waste management units that recycle hazardous wastes are subject to the requirements of articles 27 and 28 of chapters 14 or 15.

NOTE: Authority cited: Sections 25143.2(e), 25150, 25159, 25159.5, 25170, 25179.6, 25201, 25245, 25250.22 and 58012, Health and Safety Code. Reference: Sections 25143, 25143.2, 25150, 25159, 25159.5, 25163, 25170, 25179.6, 25250.5 and 25250.22, Health and Safety Code; and 40 CFR Sections 261.6 and 266.23.

DRAFT --- For Discussion Only; Do Not Cite or Reference

**TEXT FROM THIS PORTION OF THE DOCUMENT TO THE END INCLUDES THE  
UNIVERSAL WASTE "OPTION" FOR MANAGEMENT OF WASTE SOLAR PANELS  
SO THAT THE WASTE CAN BE MANAGED SEPARATE FROM  
A SOLAR PANEL RECLAMATION PROGRAM [66261.6(a)(3)(D)]**

**Amend** California Code of Regulations, title 22, division 4.5, chapter 11, section 66261.9 to read:

**§66261.9. Requirements for Universal Waste.**

(a) The hazardous wastes listed in this section are exempt from the management requirements of chapter 6.5 of division 20 of the Health and Safety Code and its implementing regulations except as specified in chapter 23 and, therefore, are not fully regulated as hazardous wastes. The wastes listed in this section are subject to regulation pursuant to chapter 23 and shall be known as "universal wastes."

- (1) Batteries, as described in section 66273.2, subsection (a);
- (2) Electronic devices, as described in section 66273.3, subsection (a);
- (3) Mercury-containing equipment, as described in section 66273.4, subsection (a);
- (4) Lamps, as described in section 66273.5, subsection (a) (including, but not limited to, M003 wastes);
- (5) Cathode ray tubes, as described in section 66273.6, subsection (a);
- (6) Cathode ray tube glass, as described in section 66273.7, subsection (a); and
- (7) Aerosol cans, as specified in Health and Safety Code section 25201.16; and
- (8) Solar panels, as described in section 66273.7.1, subsection (a).

(b) Unless specified otherwise in section 66273.60, universal wastes shall be managed as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division upon arrival at a destination facility.

NOTE: Authority cited: Sections 25141, 25150, 25150.6, 25201, 25214.9, 25214.10.1, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code. Reference: Sections 25117.2, 25141, 25150, 25159.5, 25180 – 25196, 25214.5, 25214.9, 25219, 25219.1 and 25219.2, Health and Safety Code; 40 CFR Section 261.9.

**Amend** California Code of Regulations, title 22, division 4.5, chapter 23, article 1, section 66273.1 to read:

## **Chapter 23. Standards for Universal Waste Management**

### **Article 1. General**

#### **§66273.1. Scope.**

(a) This chapter establishes requirements for managing universal wastes, as defined in section 66273.9. The following universal wastes are subject to regulation pursuant to this chapter:

- (1) Batteries, as described in section 66273.2, subsection (a);
- (2) Electronic devices, as described in section 66273.3, subsection (a);
- (3) Mercury-containing equipment, as described in section 66273.4, subsection (a);
- (4) Lamps, as described in section 66273.5, subsection (a) (including, but not limited to, M003 wastes);
- (5) Cathode ray tubes, as described in section 66273.6, subsection (a);
- (6) Cathode ray tube glass, as described in section 66273.7, subsection (a); ~~and~~
- (7) Aerosol cans, as specified in Health and Safety Code section 25201.16; ~~and~~
- (8) Solar panels, as described in section 66273.7.1, subsection (a).

(b) This chapter provides an alternative set of management standards in lieu of regulation as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division. The alternative management standards of articles 1 through 3 of this chapter do not apply to destination facilities, as defined in section 66273.9, except as otherwise specified in section 66273.60, subsections (b) or (c).

NOTE: Authority cited: Sections 25141, 25150, 25150.6, 25201, 25214.9, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code.

Reference: Sections 25141, 25150, 25159.5, 25201, 25212, 25214.6, 25214.9, 25219, 25219.1 and 25219.2, Health and Safety Code; 40 CFR Section 273.1.

Add California Code of Regulations, title 22, division 4.5, chapter 23, section 66273.7.1 to read:

**§66273.7.1. ~~[Reserved.]~~ Applicability—Solar Panels.**

(a) Solar panels covered pursuant to chapter 23. The requirements of this article apply to solar panels, as defined in section 66273.9, except those listed in subsection (b) of this section.

(b) Solar panels not covered pursuant to this chapter. The requirements of this chapter do not apply to the following solar panels:

(1) Solar panels that are not yet wastes pursuant to chapter 11 as provided in subsection (c) of this section;

(2) Solar panels that do not exhibit a characteristic of a hazardous waste as set forth in article 3 of chapter 11 of this division;

(3) Solar panels that are destined for recycling (or are recycled) by being “used in a manner constituting disposal,” as described in section 66266.20, or that are destined for disposal (or are disposed) to a class I landfill. Such solar panels shall be managed as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division;

(4) Solar panels that are managed as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division;

(5) Solar panels managed pursuant to section 66261.6(a)(3)(D).

(c) Generation of waste solar panels.

(1) A used solar panel becomes a waste on the date when the earlier of the following occurs:

(A) The owner discards the solar panel; or

(B) The solar panel is physically cracked, broken, or shattered, or otherwise removed from service without intent to re-install it.

(2) Unused solar panels.

(A) An unused solar panel that is not a retrograde material becomes a waste on the date it is discarded (e.g., when stored prior to being sent for reclamation).

(B) An unused solar panel that is a retrograde material becomes a waste on the date that it becomes a recyclable material pursuant to subsection (e) of the definition of “recyclable materials” in section 66260.10.

NOTE: Authority cited: Sections 25150 and 58012, Health and Safety Code. Reference: Sections 25150, Health and Safety Code.

**Amend** California Code of Regulations, title 22, division 4.5, chapter 23, section 66273.8 to read:

**§66273.8. Exemptions.**

(a) Household universal waste generator exemption.

A person who maintains a household, as defined in section 66273.9, and who produces universal waste derived from that household, is a generator, as defined in section 66273.9, of household universal waste. Such a generator is exempt from the requirements of this chapter applicable to a universal waste handler, as defined in section 66273.9, with respect to the management of that generator's household universal waste, provided that:

(1) The generator does not dispose of the universal waste;

(2) The universal waste is relinquished to another universal waste handler, a universal waste transporter (e.g., for curbside collection), a destination facility, or an authorized curbside household hazardous waste collection program;

(3) The generator does not treat the universal waste, except as follows:

(A) The generator treats the universal waste pursuant to one or more of the following provisions of this chapter and complies with subsection (a)(3)(B) of this section:

1. Section 66273.33, subsections (a)(2), (b)(3), (c)(5)(C)1.a., and/or (c)(7) as referenced in section 66273.33, subsections (c)(4)(B)2., (c)(5)(B)2.b., and/or (c)(5)(C)4.b.; and/or

2. Sections: 66273.71, subsection (b); 66273.72, subsections (b)(1), (c)(1), (d)(1), and /or (e)(1).

(B) The generator ensures that all materials produced from treating the universal waste are properly classified and managed in accordance with any applicable requirements of this division.

(b) Conditionally exempt small quantity universal waste generator exemption.

A conditionally exempt small quantity universal waste generator, as defined in section 66273.9, is exempt from the requirements of this chapter applicable to a universal waste handler, as defined in section 66273.9, with respect to the management of that generator's universal waste, provided the conditions set forth in subsections (a)(1) through (a)(3) of this section are met.

(c) The exemptions provided for in subsections (a) and (b) of this section shall not be applicable to the management of universal waste solar panels.

NOTE: Authority cited: Sections 25141, 25150, 25150.6, 25201, 25214.9, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code.

Reference: Sections 25141, 25150, 25159.5, 25201, 25214.9, 25219, 25219.1 and 25219.2, Health and Safety Code; 40 CFR Sections 261.4, 261.5 and 273.8.

**Amend** California Code of Regulations, title 22, division 4.5, chapter 23, section 66273.9 to read:

**§66273.9. Definitions.**

When used in this chapter, the terms listed in this section have the meanings given below. Unless otherwise specified, listed terms that cross-reference the definitions of other listed terms refer to the definitions set forth in this section for those other terms. Terms that are also defined in chapter 10 of this division are duplicated here solely for convenience of the regulated community. Terms used in this chapter that are not defined in this section but are defined in chapter 10 of this division and/or chapter 6.5 of division 20 of the Health and Safety Code have the meanings given in those sources.

“Ampule” means an airtight vial made of glass, plastic, metal, or any combination of these materials.

“Battery” means a device consisting of one or more electrically connected electrochemical cells that is designed to receive, store, and deliver electric energy. An electrochemical cell is a system consisting of an anode, a cathode, and an electrolyte, plus such connections (electrical and mechanical) as may be needed to allow the cell to deliver or receive electrical energy. The term battery also includes an intact, unbroken battery from which the electrolyte has been removed.

“Cathode ray tube” means a vacuum tube or picture tube used to convert an electrical signal into a visual image.

“CESQUWG” see “Conditionally exempt small quantity universal waste generator.”

“Closure” means the act of closing a universal waste handler’s facility pursuant to the requirements of article 7 of this chapter.

“Conditionally exempt small quantity universal waste generator” means a generator of universal waste who:

- (a) generates no more than 100 kilograms (220 pounds) of RCRA hazardous wastes, including universal wastes that are RCRA hazardous wastes, and no more than 1 kilogram (2.2 pounds) of acutely hazardous waste in any calendar month; and
- (b) remains in compliance with 40 CFR section 261.5.

“CRT” see “Cathode ray tube.”

“CRT glass” means any glass released or derived from the treatment or breakage of one or more CRTs or CRT devices and subsequently reclaimed at a CRT glass manufacturer, or a primary or secondary lead smelter.

“Current closure cost estimate” means the most recent of the estimates prepared in accordance with article 7 of this chapter.

“Dental amalgam” means dental amalgam chunks, dental amalgam fines, mixtures containing dental amalgam fines, single-use dental amalgam traps that contain dental amalgam, dental amalgam sludge, vacuum pump filters that contain dental amalgam, and extracted teeth with amalgam restorations.

“Destination facility” means a facility that treats, disposes of, or recycles a particular category of universal waste pursuant to section 66273.60. A facility at which a particular category of universal waste is only accumulated is not a destination facility for purposes of managing that category of universal waste.

“Dilators and weighted tubing” means mercury-containing dilators and weighted tubing used in medical procedures. “Dilators and weighted tubing” include, but are not limited to, bougie tubes, Canter tubes, and Miller-Abbot tubes.

“Electronic device” means any electronic device that is identified as hazardous waste because it either exhibits the characteristic of toxicity as specified in article 3 of chapter 11 of this division, and/or is a listed hazardous waste as specified in article 4.1 of chapter 11 of this division. Examples of electronic devices include: computer monitors, televisions, cash registers and oscilloscopes (CRT devices), computers, computer peripherals, telephones, answering machines, radios, stereo equipment, tape players/recorders, phonographs, video cassette players/recorders, compact disc players/recorders, calculators, and some appliances. Electronic device does not mean a major appliance, as defined in Public Resources Code section 42166, or other devices which are comprised largely of metals, qualify as “scrap metal” as defined in section 66260.10, and are recycled.

“Flame sensor” means a device, usually found in a gas-fired appliance, that uses the expansion and contraction of liquid mercury contained in a probe to open and shut a valve.

“Foreign Destination” means the ultimate recycling, treatment or disposal facility in a receiving country to which universal waste will be sent.

“Gas flow regulator” means a piece of mercury-containing equipment used to regulate the flow of gas through a gas meter.

“Gauge” see “Pressure or vacuum gauge.”

“Generator” means:

(a) Any person, by site, whose act or process produces hazardous waste identified or listed in chapter 11 of this division or whose act first causes a hazardous waste to become subject to regulation.

(b) Any person, by site, whose act or process produces universal waste or whose act first causes a universal waste to become subject to regulation.

“Handler of universal waste” see “Universal waste handler.”

“Household” means a single detached residence or a single unit of a multiple residence unit and all appurtenant structures. For the purposes of this section, household does not mean a hotel, motel, bunkhouse, ranger station, crew quarters, campground, picnic ground, or day-use recreation facility.

“Lamp” means the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

“Management” means the handling, storage, transportation, processing, treatment, recovery, recycling, transfer and disposal of hazardous waste (including universal waste).

“Mercury-added lamp” means a lamp to which elemental mercury has been added as an essential part of the manufacturing process used to create that lamp. Examples of common mercury-added lamps include, but are not limited to, fluorescent lamps and mercury vapor lamps.

“Mercury-added novelty” means a mercury-added product intended mainly for

personal or household enjoyment or adornment. A "mercury-added novelty" includes, but is not limited to, any item intended for use as a practical joke, figurine, adornment, toy, game, card, ornament, yard statue or figure, candle, jewelry, holiday decoration, and item of apparel, including footwear.

"Mercury-containing equipment" means a thermostat, mercury switch, thermometer, dental amalgam, pressure or vacuum gauge, mercury-added novelty, mercury counterweight and damper, dilator and weighted tubing, mercury-containing rubber flooring, and gas flow regulator.

"Mercury-containing motor vehicle light switch" means any light switch found in the hood or in the trunk lid of a motor vehicle, if the light switch contains mercury.

"Mercury-containing motor vehicle switch" means any motor vehicle switch that contains mercury including, but not limited to, a mercury-containing motor vehicle light switch.

"Mercury-containing rubber flooring" means any rubber flooring material formulated with intentionally added mercury.

"Mercury counterweights and dampers" means enclosed devices that use liquid mercury for weight or dampening; "mercury counterweights and dampers" includes, but is not limited to, a mercury bow stabilizer used in archery, a mercury recoil suppressor used in shooting, and a mercury counterweight used in a clock.

"Mercury gas flow regulator" see "Gas flow regulator."

"Mercury switch" means an electrical switch that employs mercury to make an electrical contact. "Mercury switch" includes, but is not limited to, the following mercury-containing switches: mercury-containing motor vehicle switches, tilt switches, vibration-sensing switches, off-balance switches, float switches, silent light switches, and relays.

"Mercury thermometer" see "Thermometer."

"Non-automotive mercury switch" means any mercury switch other than a mercury-containing motor vehicle switch.

"Onsite" means the same or geographically contiguous property which may be divided by public or private right-of-way, provided that the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along the right-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way which the person controls and to which the public does not have access, are also considered onsite property.

"Pressure or vacuum gauge" means any device in which pressure or vacuum is measured using the height of a column of liquid mercury. "Pressure or vacuum gauge" includes, but is not limited to, barometers, manometers, and sphygmomanometers.

"Producer" see "Generator."

"Scrap metal" means (a) any one or more of the following, except as provided in subsection (b) of this section:

- (1) manufactured, solid metal objects and products;
- (2) metal workings, including cuttings, trimmings, stampings, grindings, shavings and sandings;
- (3) solid metal residues of metal production; or
- (4) printed circuit boards that are recycled [except for printed circuit boards referenced in subsec. (b)(7) of this section].

(b) "Scrap metal" excludes all of the following:

- (1) lead-acid storage batteries, waste elemental mercury, and water-reactive metals such as sodium, potassium and lithium;
- (2) magnesium borings, trimmings, grindings, shavings and sandings and any other forms capable of producing independent combustion;
- (3) beryllium borings, trimmings, grindings, shavings, sandings and any other forms capable of producing adverse health effects or environmental harm in the opinion of the Department;
- (4) any metal contaminated with a hazardous waste, such that the contaminated metal exhibits any characteristic of a hazardous waste under article 3 of chapter 11 of this division;
- (5) any metal contaminated with an oil that is a hazardous waste and that is free-flowing;
- (6) sludges, fine powders, semi-solids and liquid solutions that are hazardous wastes; and
- (7) any printed circuit board that has been removed from a universal waste electronic device by a universal waste handler as a result of the handler's conduct of activities authorized by sections 66273.71, 66273.72, and/or 66273.73 of chapter 23 of this division and is subject to management as a hazardous waste pursuant to sections 66273.71, 66273.72 and/or 66273.73.

"Solar panel" means any photovoltaic module, photovoltaic panel, or other photovoltaic device that collects energy from the sun for the purpose of converting light into electricity for general electricity grid use. "Solar panels" does not include physically damaged, deteriorated, or altered solar panels (or components thereof), that are no longer recognizable as intact or broken solar panels, nor does it include solar powered electronic devices that have solar cells incorporated into their structures.

"Thermometer" means any thermometer that uses the expansion and contraction of a column of mercury to measure temperature.

"Thermostat" means a temperature control device that contains metallic mercury in an ampule attached to a bimetal sensing element, and mercury-containing ampules that have been removed from these temperature control devices in compliance with the requirements of section 66273.33(c)(5).

"Treatment" or "treat" or "treating" means any method, technique, or process which changes or is designed to change the physical, chemical, or biological character or composition of any hazardous waste or any material contained therein, or removes or reduces its harmful properties or characteristics for any purpose including, but not limited to, energy recovery, material recovery or reduction in volume.

"Universal waste" means any of the wastes that are listed in section 66261.9.

"Universal waste dental amalgam" see "Dental amalgam."

"Universal waste dilators and weighted tubing" see "Dilators and weighted tubing."

"Universal waste gas flow regulator" see "Gas flow regulator."

"Universal waste gauge" see "Pressure or vacuum gauge."

"Universal waste handler":

(a) Means:

(1) A generator (as defined in section 66260.10 and this section) of universal waste; or

(2) The owner or operator of a facility, including all contiguous property, that receives universal waste from other universal waste handlers, accumulates universal waste, and sends universal waste to another universal waste handler, to a destination facility, or to a foreign destination; or

(3) The owner or operator of a facility who is authorized to treat universal waste pursuant to article 7 of this chapter.

(b) Does not mean:

(1) A person who treats or recycles (except as allowed/authorized in this chapter), or disposes of, universal waste; or

(2) A person engaged in the offsite transportation of universal waste by air, rail, highway, or water, including a universal waste transfer facility; or

(3) The owner or operator of a destination facility.

“Universal waste lamp” see “Lamp.”

“Universal waste mercury counterweights and dampers” see “Mercury counterweights and dampers.”

“Universal waste mercury switch” see “Mercury switch.”

“Universal waste rubber flooring” see “Mercury-containing rubber flooring.”

“Universal waste thermometer” see “Thermometer.”

“Universal waste transfer facility” means any transportation-related facility including loading docks, parking areas, storage areas and other similar areas where shipments of universal waste are held during the normal course of transportation for ten days or less.

“Universal waste transporter” means a person engaged in the offsite transportation of universal waste by air, rail, highway, or water.

“Universal waste treatment unit” means a contiguous area of a universal waste handler’s facility on or in which universal waste is managed pursuant to section 66273.73, subsection (a)(2) or section 66273.73, subsection (b). Examples of universal waste treatment units include a disassembly or removal area, a shredder and associated equipment, a glass crusher, an accumulation area, or a container staging or storage area. A container alone does not constitute a universal waste treatment unit. A universal waste treatment unit includes containers and the land or pad upon which they are placed.

NOTE: Authority cited: Sections 25141, 25150, 25214.6, 25150.6, 25201, 25214.9, 25219.1 and 58012, Health and Safety Code; and Section 42475, Public Resources Code. Reference: Sections 25141, 25150, 25159.5, 25201, 25212, 25214.6, 25214.9, 25219, 25219.1 and 25219.2, Health and Safety Code; 40 CFR Sections 261.4, 261.5 and 273.9.

**Add** California Code of Regulations, title 22, division 4.5, chapter 23, article 8 and section 66273.80 to read:

**Article 8. Standards for the Management of Universal Waste Solar Panels**

**§66273.80. Applicability.**

This article applies to handlers of universal waste solar panels (as defined in section 66273.9).

NOTE: Authority cited: Sections 25150 and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.

DRAFT --- For Discussion Only; Do Not Cite or Reference

Add California Code of Regulations, title 22, division 4.5, chapter 23, article 8 and section 66273.81 to read:

**§ 66273.81. Prohibition.**

A handler of universal waste solar panels is:

(a) Prohibited from disposing of the solar panels; and

(b) Prohibited from diluting or treating the solar panels, unless the handler is responding to a release as provided in 66273.83.

(c) Prohibited from exporting solar panels unless export is conducted in accordance with article 4 of this chapter, or with applicable export requirements for hazardous waste exports as described in chapter 12 of this division.

NOTE: Authority cited: Section 25150, and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.

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Add California Code of Regulations, title 22, division 4.5, chapter 23, section 66273.82 to read:

**§ 66273.82. Notification Requirements for Handlers of Universal Waste Solar Panels.**

(a) USEPA notification requirements.

(1) Except as provided in subsections (a)(2) and (b) of this section, a handler of universal waste solar panels shall have sent written notification of universal waste solar panel management to the Regional Administrator, and received a federal ID Number, before accumulating 5,000 kilograms of universal waste solar panels.

(2) A universal waste handler who has already notified the USEPA of the universal waste solar panel handler's hazardous waste management activities and has received an EPA Identification Number is not required to renotify pursuant to this section.

(b) A handler of universal waste solar panels who accumulates 5,000 kilograms of universal waste solar panels, but who would not be required to notify the Regional Administrator pursuant to 40 Code of Federal Regulations section 273.32(a)(1) because the universal waste solar panels handled are non-RCRA hazardous waste shall send written notification to the Department, and shall obtain an ID Number, as defined in section 66260.10, from the Department.

(c) The notifications made pursuant to sections (a) and (b) of this section shall include:

(1) The universal waste solar panel handler's name and mailing address;

(2) The name and business telephone number of the person at the universal waste solar panel handler's site who should be contacted regarding universal waste solar panel management activities;

(3) The address or physical location of the universal waste solar panel management activities;

(4) A list of all of the types of universal waste solar panels managed by the handler (e.g., thin-film, crystalline silicon);

(5) A statement indicating that the handler of universal waste solar panels is accumulating more than 5,000 kilograms of universal waste solar panels at one time and the types of universal waste solar panels (e.g., thin-film, crystalline silicon) the handler of universal waste solar panels is accumulating above this quantity.

NOTE: Authority cited: Section 25150 and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.

Add California Code of Regulations, title 22, division 4.5, chapter 23, section 66273.83 to read:

**§66273.83. Waste Management and Response to Releases.**

(a) A handler of universal waste solar panels shall manage the solar panels in a manner that prevents releases of any solar panels or any hazardous component of a solar panel to the environment under reasonably foreseeable conditions, as follows:

(1) A handler of universal waste solar panels shall contain any solar panel in a container or package that is structurally sound, adequate to prevent breakage of the solar panel, and compatible with the contents of the solar panel. Such a container or package shall lack evidence of leakage, spillage or damage that could cause leakage under reasonable foreseeable conditions.

(2) Intact solar panels that are managed in a manner that prevents breakage of the solar panels and release of components of the solar panels to the environment under reasonably foreseeable conditions (e.g., stretch-film on a pallet) shall be deemed to comply with subsection (a)(1) of this section.

(3) A handler of universal waste solar panels shall immediately clean up and place in a container any solar panel that is broken and shall place in a container any solar panel that shows evidence of breakage, leakage, or damage that could cause the release of solar panel glass or other hazardous constituents to the environment under reasonably foreseeable conditions. The containers shall be structurally sound, compatible with the contents of the solar panels and shall lack evidence of leakage, spillage or damage that could cause leakage or releases of solar panel glass or other hazardous constituents to the environment under reasonably foreseeable conditions.

(4) A handler of universal waste solar panels shall place solar panels in a container with packing materials, if such material is necessary to prevent breakage during handling, storage and transportation.

(b) A handler of universal waste solar panels shall immediately contain all releases of solar panels and of residues from solar panels to the environment.

(1) A solar panel generator shall determine whether any material resulting from such a release is a hazardous waste, and if so, shall manage the hazardous waste in compliance with all applicable requirements of this division. The handler of universal waste solar panels is the generator of the hazardous waste resulting from the release, and is subject to the requirements of chapter 12.

(c) Hazardous waste consisting only of broken, or otherwise damaged solar panels, but that still satisfy the definition of solar panel in section 66273.9 may be managed as universal waste provided that the broken, or otherwise damaged solar panel is repackaged according to the standards of this section.

NOTE: Authority cited: Section 25150 and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.

**Add** California Code of Regulations, title 22, division 4.5, chapter 23, article 8 and section 66273.84 to read:

**§ 66273.84. Labeling/ Marking.**

(a) A handler of universal waste solar panels shall clearly label or mark solar panels (i.e., each solar panel), or a container or pallet in which solar panels are contained with the following phrase: "Universal Waste—Solar Panel(s)".

(b) In lieu of labeling individual solar panels and/or containers or pallets of solar panels pursuant to subsection (a) of this section, a handler of universal waste solar panels may accumulate universal waste solar panels within a designated area demarcated by boundaries that are clearly labeled with the following phrase: "Universal Waste—Solar Panel(s)".

NOTE: Authority cited: Section 25150 and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.

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Add California Code of Regulations, title 22, division 4.5, chapter 23, article 8 and section 66273.85 to read:

**§ 66273.85. Personnel Training.**

(a) A handler of universal waste solar panels ensure that all personnel who manage solar panels at the handler's facility are thoroughly familiar with proper solar panel management and emergency response procedures relative to those persons' responsibilities, as specified in subsections (b) and (c) of this section.

(b) A handler of universal waste solar panels shall initially train and provide annually, thereafter, training to all personnel who manage or who supervise those who manage solar panels. Training materials shall be in the form of any written media (e.g., brochures, electronic mail, company letters, pamphlets, posters, etc.) and shall include the date of that material. This training shall include, at a minimum:

(1) The types and hazards associated with the solar panels that personnel may manage at the facility (e.g., hazards due to broken glass and cadmium in solar panels);

(2) The proper disposition of solar panels managed at the facility (e.g., the locations of solar panel containers, or the location of a centralized solar panel accumulation area);

(3) The proper procedures for responding to releases of solar panels (e.g., spilled solar panel glass) including the position titles and the means of contacting those personnel at the facility who are designated to respond to reports of releases (e.g., spilled solar panel glass) and/or to respond to questions received from other personnel at the facility; and

(4) The applicable requirements contained in this article regarding labeling, collecting, handling, consolidating, and shipping solar panels at the facility, including, but not limited to, the prohibition on the disposal of solar panels, and for personnel involved in shipping solar panels who are "hazmat employees", as defined in 49 Code of Federal Regulations section 171.8, the applicable requirements prescribed in 49 Code of Federal Regulations section 172.704.

(c) The handler of universal waste solar panels shall maintain a written record by date (e.g., a list of personnel who have received either initial or annual training information) indicating the names of personnel who received the information specified in subsection (b) of this section.

(d) The handler of universal waste solar panels shall maintain the record specified in subsection (c) of this section for at least three years from the date the person last managed any solar panels at the facility. The record of training for a "hazmat employee", as defined in 49 Code of Federal Regulations section 171.8, shall meet the applicable requirements of 49 Code of Federal Regulations section 172.704(d). The training record may accompany a person who is transferred within the same company.

NOTE: Authority cited: Section 25150 and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.

Add California Code of Regulations, title 22, division 4.5, chapter 23, article 8 and section 66273.86 to read:

**§ 66273.86. Accumulation Time Limits.**

(a) A handler of universal waste solar panels shall accumulate solar panels for no longer than one year from the date the solar panel was generated, or was received from another handler of universal waste solar panels.

(b) A handler of universal waste solar panels shall be able to demonstrate the length of time that the solar panel has been accumulated from the date it became a waste or was received. The handler of universal waste solar panels may make this demonstration by:

(1) Placing the solar panel in a container and marking or labeling the container with the earliest date that any solar panel in the container became a waste or was received;

(2) Marking or labeling the individual solar panel with the date it became a waste or was received;

(3) Maintaining an inventory system onsite that identifies the date the solar panel became a waste or was received;

(4) Maintaining an inventory system onsite that identifies the earliest date that any solar panel in a group of items of solar panels or a group of containers of solar panels became a waste or was received;

(5) Placing the solar panel in a specific accumulation area and marking or labeling the area to identify the earliest date that any solar panel in the area became a waste or was received; or

(6) Any other method which clearly demonstrates the length of time that the solar panel has been accumulated from the date it became a waste or was received.

NOTE: Authority cited: Section 25150 and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.

Add California Code of Regulations, title 22, division 4.5, chapter 23, article 8 and section 66273.87 to read:

**§ 66273.87. Offsite Shipments.**

(a) A handler of universal waste solar panels is prohibited from sending or taking solar panels to a place other than another handler of universal waste solar panels, a destination facility, or a foreign destination.

(b) If a handler of universal waste solar panels self-transport solar panels offsite, the handler becomes a universal waste transporter for those self-transportation activities and shall comply with the universal waste transporter requirements of article 5 of this chapter while transporting the solar panels.

(c) If a solar panel being offered for offsite transportation meets the definition of hazardous material pursuant to 49 CFR parts 171 through 180, a handler of universal waste solar panels shall package, label, mark and placard the shipment, and prepare the proper shipping papers in accordance with the applicable Department of Transportation regulations pursuant to 49 CFR parts 172 through 180;

(d) Prior to sending a shipment of solar panels to another handler of universal waste solar panels or to a destination facility, the originating handler of universal waste solar panels shall ensure that the receiving handler of universal waste solar panels or destination facility agrees (e.g., verbal or written communication) to receive the shipment.

(e) If a handler of universal waste solar panels sends a shipment of solar panels to another handler of universal waste solar panels or to a destination facility and the shipment is rejected by the receiving handler of universal waste solar panels or destination facility, the originating handler of universal waste solar panels shall either:

(1) Receive the solar panel(s) back when notified that the shipment has been rejected; or

(2) Agree with the receiving handler of universal waste solar panels on a destination facility to which the shipment will be sent.

(f) A handler of universal waste solar panels may reject a shipment containing solar panels, or a portion of a shipment containing solar panels that the handler has received from another handler of universal waste solar panels. If a handler of universal waste solar panels rejects a shipment or a portion of a shipment, the handler shall contact and notify the originating handler of universal waste solar panels of the rejection and to discuss reshipment of the load. The handler of universal waste solar panels shall:

(1) Send the shipment back to the originating handler of universal waste solar panels; or

(2) If agreed to by both the originating and receiving handler of universal waste solar panels, send the shipment to a destination facility.

(g) If a handler of universal waste solar panels receives as solar panels, a shipment containing hazardous waste that is not a solar panel, the handler of universal waste solar panels shall immediately notify the Department of the illegal shipment, and provide the name, address, and telephone number of the originating shipper. The Department will provide instructions for managing the hazardous waste.

(h) If a handler of universal waste solar panels receives as solar panels, a shipment of nonhazardous waste, the handler of universal waste solar panels shall manage the nonhazardous waste in any way that is in compliance with applicable federal, state and local solid waste regulations.

NOTE: Authority cited: Section 25150 and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.

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Add California Code of Regulations, title 22, division 4.5, chapter 23, section 66273.88 to read:

**§66273.88. Tracking Solar Panel Shipments.**

(a) Receipt of shipments. A handler of universal waste solar panels shall keep a record of each shipment of solar panels received at the handler's facility. The record may take the form of a log, invoice, manifest, bill of lading, or other shipping document. The record for each shipment of solar panels received shall include the following information:

(1) The name and address of the originating handler of universal waste solar panels from which the solar panels were sent;

(2) The quantity [count or weight] of solar panels received; and

(3) The date of receipt of the shipment of solar panels.

(b) Shipments offsite. A handler of universal waste solar panels shall keep a record of each shipment of solar panels sent from the handler's facility to another facility. The record may take the form of a log, invoice, manifest, bill of lading or other shipping document. The record for each shipment of solar panels sent shall include the following information:

(1) The name and address of the handler of universal waste solar panels or destination facility to which the solar panels were sent;

(2) The quantity [count or weight] of solar panels sent;

(3) The date of departure of the shipment of solar panels.

(c) Record retention.

(1) A handler of universal waste solar panels shall retain each record described in subsection (a) of this section for at least three years from the date of receipt of the corresponding shipment of solar panels.

(2) A handler of universal waste solar panels shall retain each record described in subsection (b) of this section for at least three years from the date of departure of the corresponding shipment of universal waste.

NOTE: Authority cited: Section 25150 and 58012, Health and Safety Code. Reference: Section 25150, Health and Safety Code.