

# Safe Management of Mercury Lights: Minimizing the Risk of Exposure



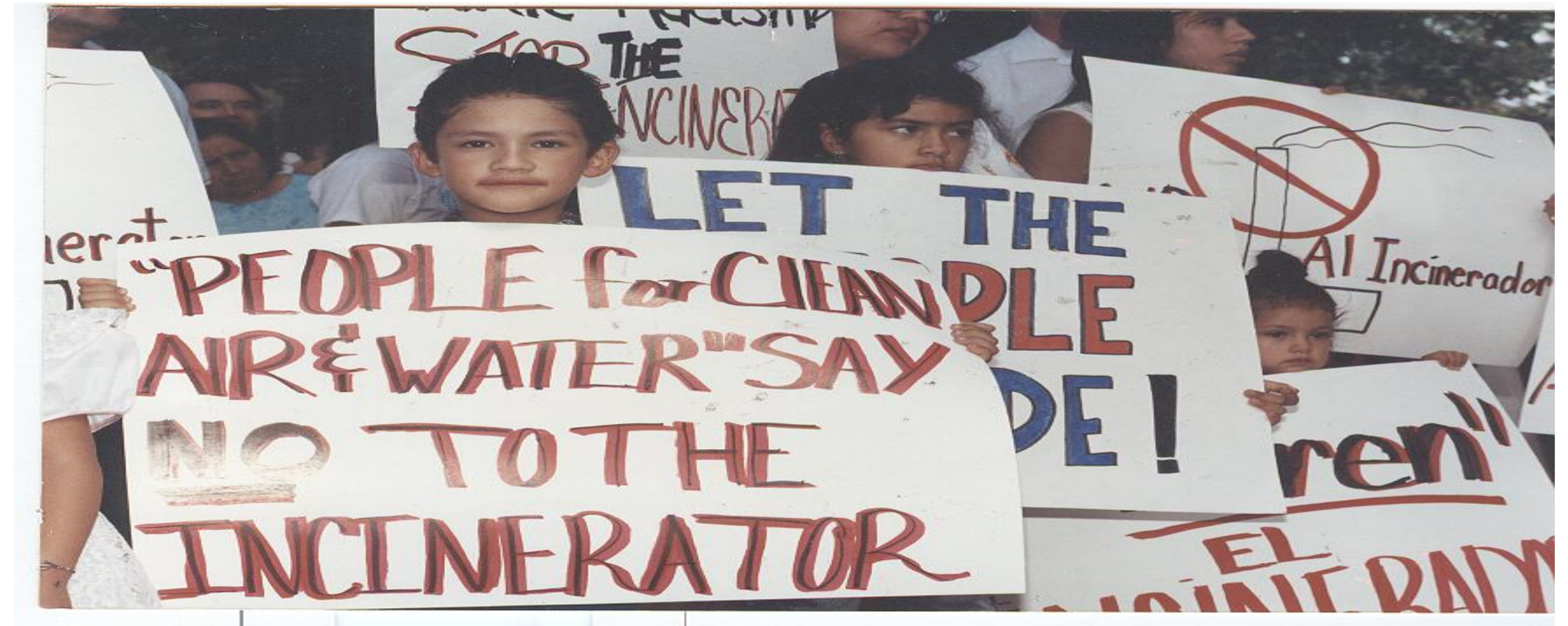
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**Environmental Racism &  
Waste Disposal:  
Why we need safer  
products & safe recycling,  
not dumping or  
incineration!**

Low income and working class communities and communities of color continue to bear the disproportionate and harmful burden of waste disposal in California.



# Kettleman City & Buttonwillow



- The two hazardous waste landfills in California are both in Spanish-speaking Latino farmworker communities in the San Joaquin Valley.
- Chemical Waste Management/Waste Management's Kettleman Hills Facility and Clean Harbors' Buttonwillow hazardous waste landfill are operating on expired permits that were approved using racially discriminatory permit processes including police intimidation.
- The State of California's CalEnviroScreen confirms both communities are highly vulnerable and at risk from pollution.



# Kettleman City Families Demand Justice!





# Recycle, Don't Dump or Incinerate!



- Incineration is not a safe technology and emits harmful toxic pollutants into the air.
- Incineration cannot destroy the mercury in these lamps, and the mercury will end up in the air and ash.
- California's two municipal waste (garbage) incinerators are both located in/next to low-income/working class communities of color  
(Long Beach in southern California, and Crow's Landing in Stanislaus County)



## Agenda

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- I. Purpose: What is this Project About?
- II. Why is this Important?
- III. Types of Lights
- IV. Mercury Lights Recycling in CA
- V. Best Management Practices
- VI. Examples of Outreach Materials
- VII. Additional Resources
- VIII. How You Can Help







# Product Stewardship Institute

## *National Non-profit*

Building the capacity for product stewardship and extended producer responsibility (EPR) in the U.S. for **20 years**



**Members** from  
47 **state** gov't agencies  
hundreds of **local** gov'ts

> 100 **Partners** representing  
producers, recyclers, waste management,  
retailers, NGOs, academics, international gov'ts





# Product Stewardship Institute

## *Our Mission*

Reduce the health + environmental impacts of products across their lifecycle

## *How we accomplish it:*

Work to advance **EPR** laws that include **manufacturer responsibility** for post-consumer management of their products by:

- Shifting **financial and management responsibility**, with government oversight, to manufacturers
- Providing incentives to manufacturers to **incorporate environmental considerations** into product design





# Product Categories



Solar Panels



Electronics



HHW



Mattresses



Packaging



Batteries



Pharmaceuticals



Thermostats



Phone Books



Medical Sharps



**Fluorescent  
Lamps**



Textiles



# Product Categories



Appliances w/  
Refrigerants



Framework



Tires



Gas Cylinders



Carpet



Radioactive  
Devices



Pesticides



Auto Switches



Paint



Used Motor Oil



# What is the Project About?



## What?

- Raise **awareness** of the **dangers** of mercury lights + **safe management**
- Increase the **number** of lights **safely recycled**
- Reduce **health threats** posed by mismanaged lights



## How?

- Educational **flyers** for residents and businesses
- Educational worker safety **poster**
- How-To **Guide** to Advance Safe Lights Recycling
- **Webinar** on safe lights management



# Why is This Important?



CA laws **prohibit trash disposal** of mercury lights...

...yet many lamps are **illegally thrown in the trash** where they are often **broken** and pose risks of **worker exposure** to **mercury**

**Education** to address this **health threat** often overlooks **maintenance staff** and **low-income tenants**

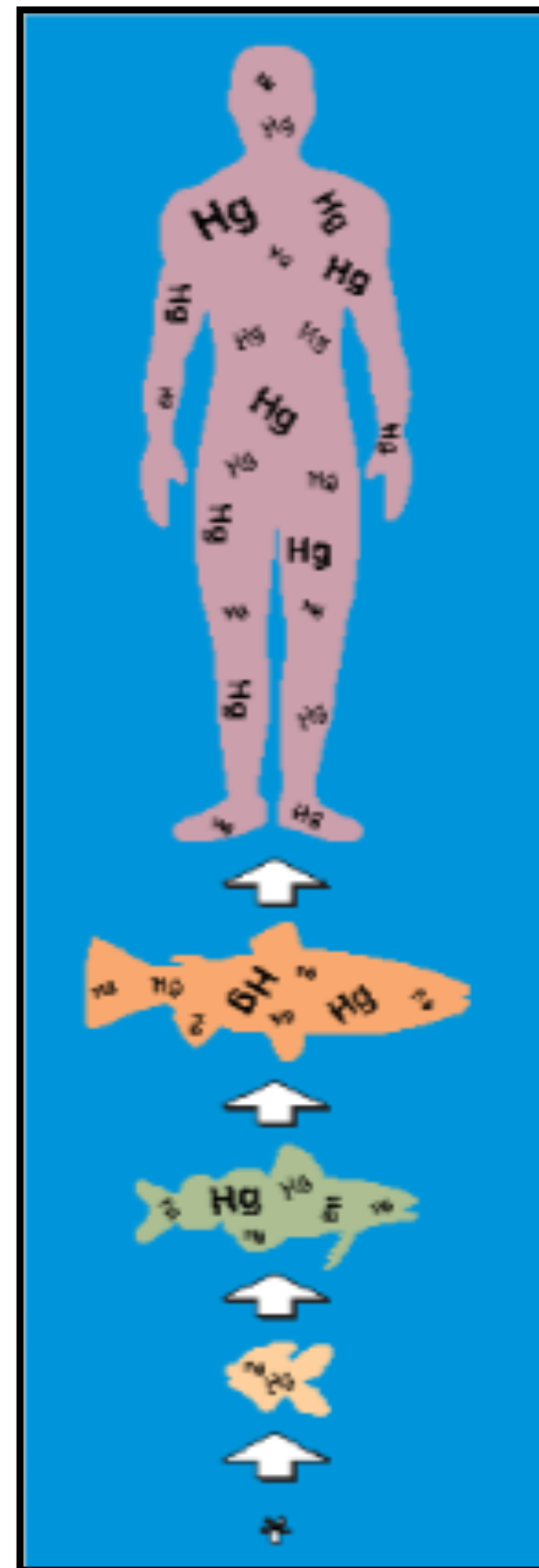
Estimated **>8,200 tons** of residential/commercial lights (mercury and LED) **disposed** in CA (2014)



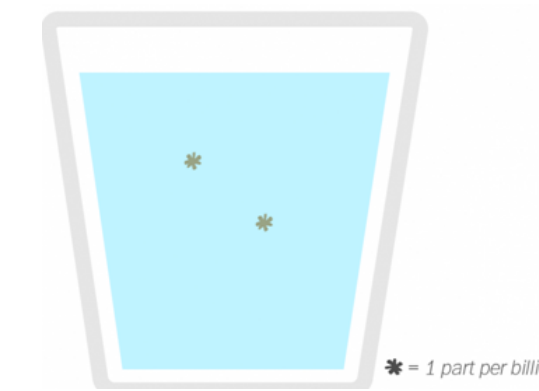


# Health Risks

mercury can **harm** the human **brain, heart, and immune and nervous systems.**



drinking water limit  
2.0  
**parts per billion**



when **improperly managed**, mercury products **contaminate** drinking water, fish populations, **soil, and air.**



# Other Reasons to Recycle Lights!

**Recycling**, rather than disposing can:

- Recover **valuable materials** (**glass** and **aluminum**) to make other products;
- Create recycling **jobs**; and
- **Reduce the need** for virgin materials to be extracted.







### HIGH INTENSITY DISCHARGE LAMPS



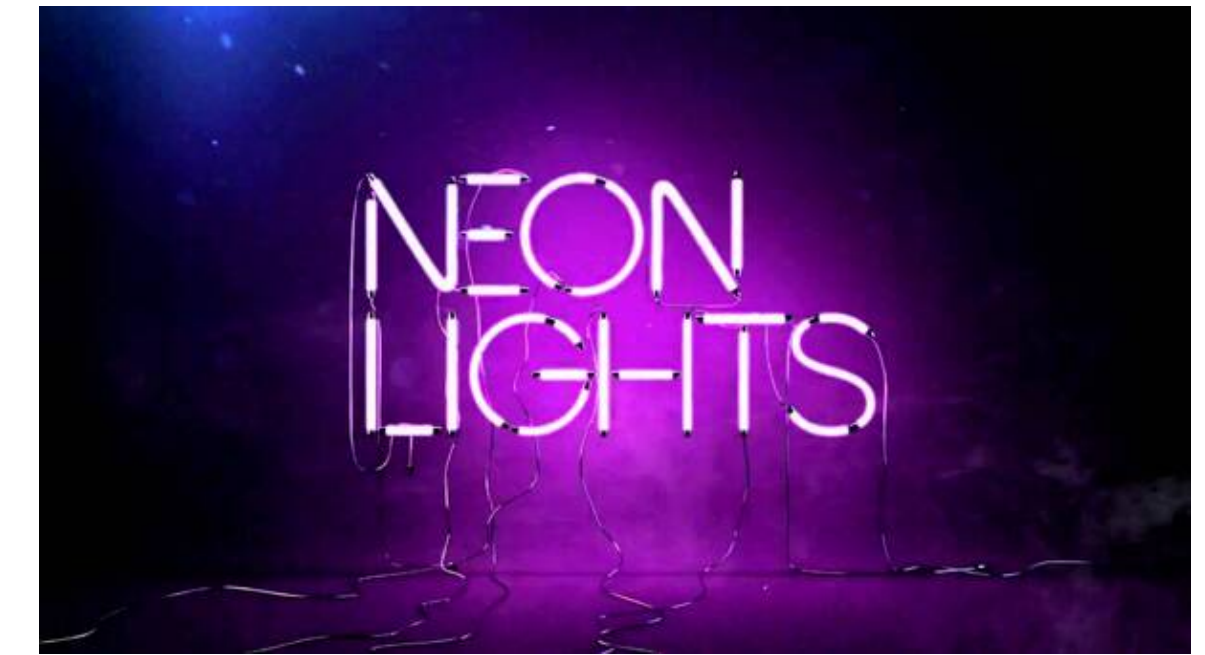
mercury vapor



high pressure sodium



metal halide



# Types of Lights

Lights that contain **mercury**:

- **Fluorescent** bulbs (linear, U-tube, and circline fluorescent tubes; bug zappers, tanning bulbs, black lights, germicidal bulbs, fluorescent induction bulbs, high output bulbs, and cold-cathode fluorescent bulbs);
- **High intensity discharge (HID)** bulbs (metal halide, ceramic metal halide, induction, plasma, high pressure sodium, and mercury vapor);
- Mercury **short-arc/ultraviolet** bulbs
- **Neon** bulbs





# Types of Lights (continued)

Energy efficient **light emitting diode (LED)** lights:

- Don't contain mercury **BUT**
- Do contain heavy metals like lead, copper, nickel, and arsenic, as well as chemicals that have been linked to **cancer, neurological damage, kidney disease, hypertension, and skin rashes.**

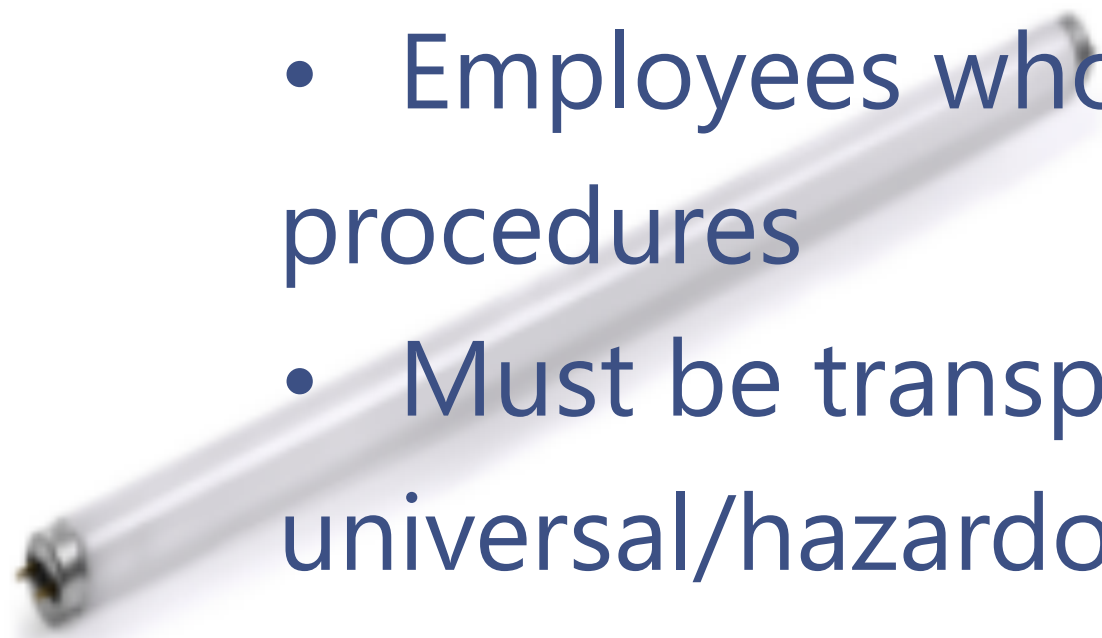
These lights also need to be **safely managed.**





# Mercury Lights Recycling in CA

- **Must be recycled or disposed as hazardous waste**
- **Cannot be disposed in household trash, commercial solid waste, or landfills.**
- Are considered “**universal waste**” (a subset of hazardous waste) according to CA + federal law and have **streamlined standards** for handling, storage, and transport to encourage recycling (but full hazardous waste requirements for final recycling, treatment, and disposal). For example:
  - Can be stored for up to a year and are not required to be shipped with a manifest;
  - Must be labeled and managed to prevent releases into the environment;
  - Employees who handle universal waste must be trained on proper handling + emergency procedures
  - Must be transported to a facility that is permitted for recycling or disposal of universal/hazardous waste.







# Best Management Practices

- If a light breaks at home:

- Open doors and windows to ventilate the area for at least 15 minutes.
- Turn off AC/Fan/Heater to avoid circulating mercury vapor.
- Young children and pregnant women should leave the area during cleanup.
- Wear a dust mask and gloves to keep bulb dust and glass from being inhaled or contacting your skin.
- Remove large pieces and place them in a secure closed container.
- Collect smaller pieces and dust. Use two stiff pieces of paper such as index cards or a mercury spill kit, if available.
- Put material into a sealed container. Pat the area with the sticky side of duct, packing or masking tape. Wipe the area with a damp cloth.
- Put all waste and materials used to clean up in a secure closed container and label it “Universal Waste – broken lamp”.
- Take the container to a household hazardous waste facility.

[For further guidance: [epa.gov/cfl](http://epa.gov/cfl), [calrecycle.ca.gov/ReduceWaste/FluoresLamps/#CleanBreak](http://calrecycle.ca.gov/ReduceWaste/FluoresLamps/#CleanBreak) or [dtsc.ca.gov/universalwaste/fluorescent-lights/](http://dtsc.ca.gov/universalwaste/fluorescent-lights/)]







## ¿Sus Luces Fluorescentes Están Quemadas?

Recíclalos de forma segura y gratis!

No bote luces fluorescentes u otras luces que contengan mercurio en la basura o contenedores de reciclaje. Las descargas de alta intensidad, los halógenos metálicos, el sodio y las luces de neón también contienen mercurio. **Es ilegal y la exposición al mercurio puede dañar** el cerebro, el corazón y el sistema inmunológico y nervioso. Los productos de mercurio contaminan el agua potable, los pescados, la tierra y el aire de California cuando no se administran adecuadamente.

Para encontrar ubicaciones de reciclaje, comuníquese con:

- Departamento de Control de Sustancias Tóxicas de CA
  - Sitio Web de Luces Fluorescentes | [dtsc.ca.gov/universalwaste/fluorescent-lights/](http://dtsc.ca.gov/universalwaste/fluorescent-lights/)
  - Sitio Web de Eliminación de Lámparas de Mercurio | [ccelearn.csus.edu/mercurylamp/content/resources5.htm](http://ccelearn.csus.edu/mercurylamp/content/resources5.htm)
- Earth 911 | [search.earth911.com/](http://search.earth911.com/)
- RecycleWhere | [recyclewhere.org/](http://recyclewhere.org/) (Al servicio de los condados de Alameda, Contra Costa y San Francisco, y la ciudad de Palo Alto)

¿Cómo se reciclan las luces? Las luces normalmente se triturar y los materiales se separan. El vidrio se recicla y se deposita en vertederos, el metal recuperado se recicla y el mercurio se envía para su reutilización.



### ¿QUÉ PASA CON LOS LED?

Las luces LED (o diodos emisores de luz), que son de alta eficiencia energética y su uso está aumentando, no contienen mercurio. Sin embargo, se ha descubierto que estas luces contienen otros metales tóxicos (es decir, cobre, plomo, níquel y cromo) que son dañinos para la salud humana y el medio ambiente. Devuelva los LED a su instalación HHW más cercana (consulte la lista anterior).



## LUCES FLUORESCENTES CONTIENEN MERCURIO TÓXICO

**SIGUA LA LEY Y PROTEGA SU SALUD.**

ASÍ ES CÓMO:

- 1 Cuando remueven una bombilla, guárdala en una caja cerrada, con fecha y etiquetada.
- 2 Si se rompe una bombilla, abra una ventana para dispersar el vapor de mercurio, recoja el vidrio, y coloquelos en un recipiente cerrado. No aspire.
- 3 Recicle los productos de mercurio, por lo menos, anualmente.



**SI VE A ALGUIEN QUE NO ESTÁ SIGUIENDO ESTOS PASOS:**

Comuníquese con la agencia de **Protección Ambiental de California** ([calepa.ca.gov/enforcement/complaints/](http://calepa.ca.gov/enforcement/complaints/)) o con la línea directa de alerta de desechos de la **Oficina de Asistencia Regulatoria para el Control de Sustancias Tóxicas de California** (quejas) al 800-69-TOXIC (800-698-6942).

## FLUORESCENT LIGHTS CONTAIN TOXIC MERCURY

**PROTECT YOUR HEALTH AND FOLLOW THE LAW.**

HERE'S HOW:

- 1 When you remove a bulb, store it in a closed, dated, and labeled box or cushioned drum.
- 2 If a bulb breaks, open a window to disperse mercury vapor, collect the shards, place in a closed container, and recycle with other bulbs. Do not vacuum!
- 3 Recycle mercury products yearly, at minimum.



**IF YOU SEE SOMEONE WHO ISN'T FOLLOWING THESE STEPS:**

Contact the **California Environmental Protection Agency** ([calepa.ca.gov/enforcement/complaints/](http://calepa.ca.gov/enforcement/complaints/)) or the **California Department of Toxic Substances Control** Regulatory Assistance Office's ([dtsc.ca.gov/regulatory-assistance-office/](http://dtsc.ca.gov/regulatory-assistance-office/)) Waste Alert Hotline (Complaints) at 800-69-TOXIC (800-698-6942).



## Fluorescent Lights Burnt Out? Safely Recycle Them for Free

Do **not** throw fluorescent or other mercury-containing lights in the trash or recycling bins. High intensity discharge, metal halide, sodium and neon lights all contain mercury as well. **It's illegal and mercury exposure can harm** the brain, heart, and immune and nervous systems. Mercury products contaminate California's drinking water, fish, soil, and air when they are not managed properly.

To find recycling locations, contact:

- CA Department of Toxic Substances Control
  - Fluorescent Lights Website | [dtsc.ca.gov/universalwaste/fluorescent-lights/](http://dtsc.ca.gov/universalwaste/fluorescent-lights/)
  - Mercury Lamp Disposal Website | [ccelearn.csus.edu/mercurylamp/content/resources5.htm](http://ccelearn.csus.edu/mercurylamp/content/resources5.htm)
- Earth 911 | [search.earth911.com/](http://search.earth911.com/)
- RecycleWhere | [recyclewhere.org](http://recyclewhere.org/) (Serving the counties of Alameda, Contra Costa, and San Francisco, and the City of Palo Alto)

How are lights recycled? Lights are typically crushed and materials are separated. Glass is recycled or landfilled, recovered metal is recycled, and mercury is sent for reuse.



**What About LEDs?** LED (or light-emitting diode) lights, which are highly energy-efficient and increasing in use, do not contain mercury. However, these lights have been found to contain other toxic metals (e.g., copper, lead, nickel, and chromium) that are harmful to human health and the environment. Recycle LEDs at the same locations that take back fluorescent lights.



# Outreach Materials





## RECYCLE FLUORESCENT LIGHTS: It's the Law!

Do not throw fluorescent or other **toxic mercury**-containing lights in the trash or recycling bins. High intensity discharge, metal halide, sodium and neon lights all contain toxic mercury as well. It is **illegal** to throw mercury lights in the trash.

### Prevent Exposure + Comply with the Law

Mercury-containing lights from your business or rental property must be managed according to California's Universal Waste Requirements.

- As lights are removed: Store them in a closed box or cushioned drum to prevent breakage. Label the container "Universal Waste - Lamps." Write the date you first put a light in the collection container (the "accumulation start date")
- If a bulb breaks, open a window to disperse mercury vapor, collect the shards with tape, and place in a closed and sealed container—do **not** vacuum! See EPA guidance for cleanup ([epa.gov/cfl](http://epa.gov/cfl)).
- Recycle mercury-containing lights annually, at a minimum.
- Manage mercury-containing lamps in a way that prevents releases to the environment.
- Train employees who handle or have responsibility for managing universal waste on proper handling and emergency procedures initially and annually and keep training records for at least 3 years.
- Track waste shipments and keep records of shipments for at least 3 years.



### Protect Human Health and the Environment

**Protect your Employees & Tenants:** Mercury exposure can harm the brain, heart, and immune and nervous systems of your employees, contractors, and tenants. Mercury exposure is especially dangerous to children, pregnant women, and the elderly.

**Protect the Environment:** When improperly managed, mercury products contaminate California's drinking water, fish populations, soil, and air. The mercury limit in drinking water is 2 parts per billion in California, since even low quantities are extremely hazardous.

#### What About LEDs?



LED (or light-emitting diode) lights, which are highly energy efficient and increasing in use, do not contain mercury. However, these lights have been found to contain other toxic metals (e.g., copper, lead, nickel, and chromium) that are harmful to human health and the environment. Manage these lights as hazardous waste.

### Recycling Solutions

To identify recyclers or collection locations, contact:

- **CA Department of Toxic Substances Control**
  - Fluorescent Lights Website | [dtsc.ca.gov/universalwaste/fluorescent-lights/](http://dtsc.ca.gov/universalwaste/fluorescent-lights/)
  - Mercury Lamp Disposal Website | [ccelearn.csus.edu/mercurylamp/content/resources5.htm](http://ccelearn.csus.edu/mercurylamp/content/resources5.htm)
- **Earth 911** | [search.earth911.com/](http://search.earth911.com/)
- **RecycleWhere** | [recyclewhere.org](http://recyclewhere.org) (Serving the counties of Alameda, Contra Costa, and San Francisco, and the City of Palo Alto)
- **Your local waste hauler**

# Outreach Materials



# Additional Resources

- **Department of Toxic Substances Control** - [dtsc.ca.gov/universalwaste/fluorescent-lights/](https://dtsc.ca.gov/universalwaste/fluorescent-lights/)
- **CalRecycle** - [calrecycle.ca.gov/ReduceWaste/FluoresLamps/](https://calrecycle.ca.gov/ReduceWaste/FluoresLamps/)
- **U.S. Environmental Protection Agency**
  - ✓ [epa.gov/hw/universal-waste](https://epa.gov/hw/universal-waste)
  - ✓ [epa.gov/cfl](https://epa.gov/cfl)
- **Product Stewardship Institute**
  - ✓ [Recyclamps: Safely Managing Lights in California Communities](https://www.productstewardship.us/page/Safely-Managing-Fluorescent-Other-Lamps-CA)  
[<https://www.productstewardship.us/page/Safely-Managing-Fluorescent-Other-Lamps-CA>]
  - ✓ [Lights Product Page](https://productstewardship.us/page/Lighting)  
[[productstewardship.us/page/Lighting](https://productstewardship.us/page/Lighting)]
  - ✓ [On-Demand Webinars](https://www.productstewardship.us/page/Webinar-Recordings)  
[<https://www.productstewardship.us/page/Webinar-Recordings>]





# How You Can Help



Post educational materials to your organization's website



Distribute information on social media



Share fact sheets with other interested parties



*Share the outreach you have done with PSI so we can track our project's impact  
([suna@productstewardship.us](mailto:suna@productstewardship.us))*



# Thank You!

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