

## SAFE RECYCLING OF MERCURY CONTAINING LAMPS

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### I. Background

Fluorescent lamps (including compact fluorescent lamps or CFLs – primarily used by households to replace incandescent bulbs and fluorescent tubes – used predominantly in commercial, industrial and institutional settings) save significant amounts of energy, but may also pose environmental and health risks at the end of their useful life if managed improperly.

- **Energy Savings.** Fluorescent lamps use only 25% of the electricity used by incandescent bulbs and last up to 10 times longer.
- **Health Risks.** However, fluorescent lamps contain a small amount of mercury (a harmful neurotoxin), that could pose a health and environmental risk if released from lamps that are broken during discard, storage, transport or disposal.

Beginning in 2012, federal law prohibits the production and sale of 100-watt incandescent bulbs with other wattages and types being phased out over the next few years. Fluorescent lamp use has greatly expanded as a result and large numbers of fluorescent lamps are entering the waste stream. Spent lamps should be stored, transported and recycled or disposed of in a manner that minimizes the release of mercury.

### II. Discussion

#### *Health and Environmental Benefits of Recycling*

The U.S. Environmental Protection Agency (EPA) encourages recycling all mercury-containing lamps to prevent the release of mercury into the environment and to reuse valuable materials.<sup>1</sup> Recycling not only reduces health and safety risks, it also enables separation, processing and reuse of virtually all components of a fluorescent lamp, including metal end caps, glass tubing, phosphor powder, and mercury.

#### *Federal & State Requirements*

**Handling Lamps as Universal Waste.** In 1999, EPA added mercury-containing lamps to the list of hazardous wastes subject to the **Universal Waste Rules (UWR)**. UWR replace and streamline

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<sup>1</sup> U.S. EPA Web site on Recycling Mercury-Containing Lamps,  
<http://www.epa.gov/osw/hazard/wastetypes/universal/lamps/>

more stringent hazardous waste rules for generators collecting, storing and transporting fluorescent lamps. They were designed to discourage generators' improper handling by reducing costs and administrative burden.

The federal UWR applies only if *both* of the following conditions are met:

- lamps fail a mercury leaching test that determines whether the lamps are hazardous waste , and
- Lamps are generated by a *business* in amounts greater than 220 pounds per month.

**Small quantity generators** and **households** are **exempt**. They may dispose of their lamps as solid waste in their trash *unless* their state law is more stringent than the federal UWR. As of the date of this Technical Policy:

- **small quantity (business) generators** are subject to the UWR requirements in more than half of the states; and
- **households** in six states may not dispose of mercury-containing bulbs in their household trash.

Whether lamps are discarded by small businesses, households, or by larger businesses as universal waste, once lamps reach the destination facility for recycling or disposal, they are subject to federal hazardous waste handling rules.

**Landfill Disposal Bans.** As of the date of this Technical Policy, about 20% of states have banned disposal of all mercury-containing lamps in landfills, whether or not they fail the federal hazardous waste mercury leaching test.

**Federal Canadian Requirements.** The Canada Wide Standards (CWS) for mercury-containing lamps take a pollution prevention approach by calling for an 80% reduction in the average mercury content of lamps sold in Canada as of 2010. The CWS also require provinces to assess the feasibility of recycling/recovery of lamps and to implement initiatives to encourage these types of activities.

### ***Fluorescent Lamp Packaging***

**Lack of Protective Standards.** Fragile lamps can easily break unless properly packaged during discard, storage, and transport to their ultimate recycling or disposal facility. When fluorescent lamps break, they release mercury vapors in sufficient amounts to exceed personal exposure safety limits. Nonetheless, federal and state regulations (with the exception of Washington as of the date of this Technical Policy) do not require storage and shipment of spent fluorescent lamps in containers designed to prevent mercury vapors from leaking into the environment. The federal UWR for fluorescent lamps simply requires that containers:

1. “remain closed,” and

2. "lack evidence of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions."

**Product Responsibility:** mail-back "mercury vapor packaging". The State of Washington has set a goal to recycle all fluorescent lamps by 2020. Some recycling programs collect spent lamps by mail-back. Washington has adopted packaging standards requiring all recycling mail-back programs to use containers with "mercury vapor packaging":

*"sealable containers that are specifically designed for the storage, handling and transport of mercury-containing lights in order to prevent the escape of mercury into the environment by volatilization or any other means."*

### ***Collection of Lamps from Households & Businesses***

Typical household solid waste and recycling services that efficiently manage large quantities of consumer recyclables cannot readily segregate small, fragile lamps during curbside pickup. The mercury lamp recycling industry in conjunction with retailers, manufacturers and local governments, is developing specialized methods to collect lamps for recycling from households and businesses.

The following types of programs represent common approaches that have been used to ensure proper collection and recycling of fluorescent lamps from consumers:

- **Mail-back programs** provide pre-addressed containers for storage and shipment of spent bulbs through the U.S. Postal Service or common carrier, that are convenient to consumers who do not have access to a collection site, collection program, or other recycling services.
- Collection programs at participating **retail and wholesale locations** allow consumers to recycle their spent fluorescent lamps at designated locations at no or minimal cost.
- **Publicly-sponsored programs** such as household hazardous waste collection facilities, municipal collection sites, and curbside services.

Small businesses often take advantage of mail back programs that supply boxes for storing spent lamps, with pre-paid mailing to a recycler via common carrier, such as UPS or FedEx. Small businesses tend to ship spent bulbs when the storage/shipment box is full or within one year after storing the first lamp (required by federal regulation).

Larger generators of lamps can store spent lamps in fiber barrels and ship them routinely or when they aggregate a trailer load. Businesses ship the barrels to consolidation centers for further accumulation, or directly to a recycler.

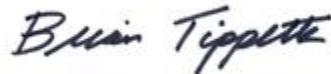
### **III. Policy Position**

SWANA, as an organization of solid waste professionals, supports the following policy positions on responsible recycling of mercury lamps:

- **Required Recycling:** Governments at all levels should require safe recycling of all mercury-containing lamps from households, and small and large quantity generators. Recycling programs should:
  1. Include enforceable worker safety, public health and environmental protection standards;
  2. Provide flexible and cost-effective options for households, small and large quantity generators; and
  3. Require the use of protective, mercury vapor packaging to prevent releases to the environment.
- **Implement Recycling Prior to Disposal Bans:** As part of an integrated solid waste management system, ensure recycling infrastructure is in place prior to banning disposal of mercury-containing lamps.

Approved by the International Board

on February 10, 2012

A handwritten signature in black ink that reads "Brian Tippette".

International Secretary

Dated February 22, 2012