

UNDERSTANDING MERCURY IN CFLS AND LAMP RECYCLING



By Chris Primous
ICF International

Widespread use of CFLs in lighting fixtures can save a tremendous amount of our nation's resources. CFLs use three-quarters less energy than standard incandescent lamps, and if every American replaced just one incandescent lamp with an ENERGY STAR qualified CFL, it would be roughly the equivalent to preventing greenhouse gas emissions of 800,000 cars. However, by design, all CFLs contain trace amounts of mercury, an environmental hazard that can pose health risks upon exposure. What should consumers understand about mercury in a CFL, and what steps can consumers take to ensure proper disposal and recycling?

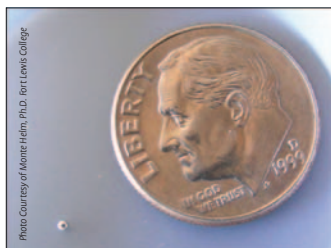
An essential element in any fluorescent lamp is mercury. To date, no reasonable substitute has been found to replace mercury in the operation of a fluorescent lamp.

Many CFL manufacturers have plans to reduce the amounts of mercury contained in their lamps, currently averaging five milligrams, by one to two milligrams over the next few years. The five milligrams of mercury in a CFL is roughly equivalent to the amount it would take to cover a ballpoint pen's tip. By comparison, older thermometers contain about 500 milligrams of mercury, 100 times the amount in a CFL.

Did you know that even though fluorescent light bulbs contain small amounts of mercury, they contribute less mercury to the environment than using incandescent light bulbs? Coal-fired power plants provide more than half of our nation's electricity and are the largest contributors of airborne mercury emissions. Fluorescent sources use less electricity than incandescent, therefore requiring less coal to be burned to power them, resulting in a net decrease in overall mercury emissions. Thus, CFLs can have a significant overall positive impact on the environment if they are used properly. Proper usage includes disposing of these lamps in a proper manner and recycling them at the end of their useful life.

Proper disposal and recycling of a CFL

When a CFL has reached the end of its useful life it should not be simply removed from the fixture and tossed into a trash receptacle. To do so would risk potential breakage of the lamp and releasing the mercury in the lamp into the environment. Additionally, such practices are against many state laws. Proper disposal of a CFL (which should include recycling) varies considerably by state. The proper steps to disposal and recycling can be found on the EPA's Web site www.epa.gov/bulbrecycling/ where state requirements and recycling information are shown. EPA recommends that consumers take advantage of local recycling options for CFLs which can be found on this Web site.



The amount of mercury in a CFL (approximately 5mg) is approximately the equivalent of a period at the end of a sentence, or approximately enough to cover the tip of a ballpoint pen. As shown in this photo, it is much smaller than a dime.

New Disposal Options

New services are becoming available that make CFL disposal and recycling for the consumers as easy as a trip to the mailbox. At least two new companies are offering pre-paid recycling packages that can be shipped to a consumer or a commercial site.

Lamps can be placed in the shipped container and mailed back to the company using the pre-paid mailing labels and they will recycle the products accordingly. The containers are typically boxes or buckets and come in various sizes to hold small or large quantities of fluorescent lamps. Veolia Corporation is one of the companies

offering such pre-paid CFL recycling services. The information regarding their services can be found at www.prepaidrecycling.com.

Another company offering CFL recycling is Air Cycle Corporation. Air Cycle information can be found



Air Cycle Corporation's EasyPak CFL pre-paid recycling container (lamprecycling.com)



Veolia RecyclePak CFL pre-paid recycling container (prepaidrecycling.com)

at www.lamprecycling.com. Air Cycle also offers a BulbEater® product that can be used on a job site to crush linear fluorescent lamps. This product claims to capture 99.99% of the hazardous vapors released from the crushing, and converts the lamp into 100% recyclable material.

WHAT TO DO IF A FLUORESCENT LIGHT BULB BREAKS

Source: epa.gov

Fluorescent light bulbs contain a very small amount of mercury sealed within the glass tubing. EPA recommends the following clean-up and disposal guidelines:

- 1. Open a window and leave the room for 15 minutes or more.**
- 2. Carefully scoop up the fragments and powder with stiff paper or cardboard and place them in a sealed plastic bag.**
 - ▶ Use disposable rubber gloves, if available (i.e., do not use bare hands). Wipe the area clean with damp paper towels or disposable wet wipes and place them in the plastic bag.
 - ▶ Do not use a vacuum or broom to clean up the broken bulb on hard surfaces.
- 3. Place all cleanup materials in a second sealed plastic bag.**
 - ▶ Place the first bag in a second sealed plastic bag and put it in the outdoor trash container or in another outdoor protected area for the next normal trash disposal.
Note: Some states prohibit such trash disposal and require that broken and unbroken lamps be taken to a local recycling center.
 - ▶ Wash your hands after disposing of the bag.
- 4. If a fluorescent bulb breaks on a rug or carpet:**
 - ▶ First, remove all materials you can without using a vacuum cleaner, following the steps above. Sticky tape (such as duct tape) can be used to pick up small pieces and powder.
 - ▶ If vacuuming is needed after all visible materials are removed, vacuum the area where the bulb was broken, remove the vacuum bag (or empty and wipe the canister) and put the bag or vacuum debris in two sealed plastic bags in the outdoor trash or protected outdoor location for normal disposal.