

Mercury in new light bulbs not being recycled, escaping to environment

Susan Bohan, Bay Area News Group, 4-3-11

The nation's accelerating shift from incandescent bulbs to a new generation of energy-efficient lighting is raising an environmental concern -- the release of tons of mercury every year.

The most popular new light -- the curly cue, compact fluorescent light bulbs, or CFLs -- account for a quarter of new bulb sales and each contains up to 5 milligrams of mercury, a potent neurotoxin that's on the worst-offending list of environmental contaminants.

Demand for the bulbs is growing as federal and state mandates for energy-efficient lighting take effect, yet only about 2 percent of residential consumers and one-third of businesses recycle them, according to the Association of Lighting and Mercury Recyclers.

"If the recycling rate remains as abysmally low as it is, then there will certainly be more mercury released into the environment," said Paul Abernathy, executive director of the Napa-based recycling association. "Until the public really has some kind of convenient way to take them back, it's going to be an issue."

As a result of discarded fluorescent lights, including CFLs, U.S. landfills release into the atmosphere and in stormwater runoff upward of 4 tons of mercury annually, according to a study in the Journal of the Air and Waste Management Association.

A San Francisco hardware store owner sees the recycling dilemma firsthand.

"They're promoting them and giving them away, but there's nowhere to drop them off," said Tom Tognetti, co-owner of Fredricksen's Hardware.

Lighting the future

The federal Clean Energy Act of 2007 established energy efficiency standards for light bulbs that dimmed the future for old-fashioned incandescent lights, which do not meet the new standards. By 2014, incandescent lights will be phased out in the United States. California passed more stringent rules, clearing store shelves of the bulbs by 2013.

The familiar orbs are just too wasteful, converting to light only 10 percent of the energy they consume, with the rest squandered as heat.

Instead, sales of energy-efficient alternatives like CFLs, halogen bulbs and LEDs have increased in recent years. The low-cost CFLs have been the most popular.

If every California household replaced five incandescent light bulbs with CFLs, it would save 6.18 billion kilowatt-hours and prevent the annual release of 2.26 million tons of the heat-trapping gas carbon dioxide, according to the California Energy Commission. That's equivalent to taking 414,000 cars off the road.

However, no federal law mandates recycling of household fluorescent lights. Federal rules exempt some businesses, Abernathy said, based in part on the number of light bulbs used. Several states, including California,

Massachusetts, Maine, Vermont and Minnesota, do require fluorescent light recycling for all households and businesses, although Abernathy's recycling association believes that compliance is low because of a lack of convenient drop-off options.

Tognetti's store is part of a pilot project run by San Francisco to increase recycling of fluorescent lights and other hazardous waste. Since 2009, a city-financed truck has regularly stopped by his store, and about a dozen other independently owned hardware stores, to pick up toxic discards left by customers.

"I've had people say, 'I'm glad you take them, because I don't know where to drop them off,' " Tognetti said.

The principle behind the program is shared responsibility for managing toxic products at the end of their lives, said Debbie Raphael, a program manager with San Francisco's Department of the Environment. Shared responsibility, she explained, links consumers, retailers, the government and manufacturers.

"In San Francisco, we've got three out of four," Raphael said, with manufacturers the missing party.

"The most cost-effective collection and recycling programs are run by the producers that make the products," she said. "They really understand their product and the distribution."

Options exist

Raphael said that to reduce the environmental toll of products like batteries and paint, manufacturers have formed nonprofits that develop solutions. Five major manufacturers, for example, created the Washington, D.C.-based Portable Rechargeable Battery Association to develop recycling programs.

The National Electrical Manufacturers Association in Washington, D.C., offers information on fluorescent light recycling at www.lamprecycle.org.

Home Depot, Ikea, Lowes and many Ace Hardware stores, among other outlets, have free fluorescent light recycling, even for noncustomers.

The website Earth911.com provides list of recyclers by ZIP code, or by phone at 800-CLEAN-UP (253-2687).

For about a decade, Bill Wygal, owner of four Bill's Ace Hardware Stores in the East Bay, has accepted spent fluorescent bulbs at his stores. And each week, his staff leaves about 60 fluorescent tubes and 30 CFLs at the Contra Costa County-run household hazardous waste facility in Martinez.

They're sent to lighting recyclers, who reclaim the mercury for reuse. All of the 11 tons of mercury used each year in the United States to manufacture lights comes from recycled mercury or by-products of other industrial processes, said David Lennett, a senior attorney with the Natural Resources Defense Council.

But Wygal estimated that only 1 in 10 independently owned hardware stores take old fluorescent lights. "For some people, there's just not a feasible way for them to handle it," he said.

Better than before

Even with mercury worries about CFLs, they still ultimately lead to fewer mercury emissions than incandescent lights, according to the California Energy Commission. Although the old-style bulbs contain no mercury, they're often powered by coal-fired electricity plants -- which release mercury as a pollutant. The end result is about 40 percent less mercury emissions per bulb when using energy-efficient CFLs, according to EPA figures.

CFLs aren't the only energy-efficient alternatives to incandescent lights, noted Brad Paulsen, national lighting merchant with Home Depot.

"You really have three options," he said. "Halogens, LEDs (light emitting diodes) and CFLs." Halogen lights are essentially energy-efficient incandescent bulbs. "They're very similar to a person's experience with incandescents," he said, and are 30 percent more energy efficient.

Paulsen, along with many others, sees LEDs taking center stage in the coming years. The lights contain no mercury, are 85 percent more energy efficient than incandescent bulbs, and burn for 25 years.

The main drawback now with LEDs is the cost -- sometimes \$30 or more a bulb -- but Paulsen said those prices are sure to plunge in coming years as demand and production increase.

"LEDs in my mind are the way of the future," Paulsen said.