

Fluorescent Lights' Mercury Poses Dim Threat

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for [National Geographic News](#)

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They're breakable, contain toxic material, and are becoming increasingly commonplace. But fears of mercury poisoning from new energy-efficient fluorescent bulbs are overplayed, experts say.

Long billed as a "green" product for environmentally conscious consumers, compact fluorescent light bulbs (CFLs) are quickly becoming the norm in household lighting—and may soon replace traditional incandescent bulbs altogether.

But CFLs' cool-burning illumination is made possible by a pinch of poison—about five milligrams of mercury sealed inside every glass tube—and the need for the element is unlikely to change anytime soon.

Mercury is a potent neurotoxin and long-lived environmental contaminant, and even the small amount present in CFLs poses a problem. When the bulbs break, either in the house or at a waste disposal site, their mercury content is released.

According to a few vocal CFL opponents, such as Fox News Web site's "Junk Science" correspondent Steve Milloy, that makes the bulbs unsafe.

These critics have charged environmentalists with being uncharacteristically "pro-mercury" when it comes to the lights.

The critics often cite the recent story of a resident of Ellsworth, Maine, who amassed a clean-up bill of more than 2,000 U.S. dollars by shattering a single CFL in her home. The story originally appeared in the *Ellsworth American* and quickly spread to other newspapers, such as Canada's *National Post* and the *Washington Times*.

But the enormous bill came about as a result of bad advice—a fact often omitted in follow-ups to the original article.

"There's a lot of misleading information out there," said Joel Hogue, president of Elemental Services and Consulting, an Ohio-based company specializing in the cleanup of sites contaminated with mercury. "But when people learn the facts, the level of hysteria dies down."

Like with many other household products, Hogue said, the use of CFLs requires some commonsense precautions. But if a bulb breaks, his company's clean-up services are not required.

"There's an extremely small amount of mercury in those bulbs," Hogue said. "It's a very minimal risk" and can easily be cleaned up at home.

One CFL contains a hundred times less mercury than is found in a single dental amalgam filling or old-style glass thermometer, according to the U.S. Environmental Protection Agency (EPA).

(See a [Green Guide report on which light bulbs are environmentally friendly](#).)

Lighting Up the Future

The concerns over mercury have not resulted in any significant dimming of support for CFLs.

The governments of Canada and Australia recently announced plans to phase out the sale of incandescent bulbs by 2012, and similar "ban the bulb" efforts are taking place in countries around the world.

In March a coalition of environmental groups joined Philips Lighting, the world's largest lighting manufacturer, in a new initiative aimed at transitioning the U.S. to CFLs by 2016.

Philips has announced plans to discontinue marketing incandescents in the U.S. and Europe by that date, and major retailers such as Wal-Mart have plans for greatly increasing their sale of CFLs.

The switch is occurring because CFLs are proven cost and energy-savers. Traditional incandescent bulbs are highly inefficient—about 90 percent of the energy they consume produces heat rather than illumination.

A compact fluorescent bulb can produce the same amount of light for less than quarter of the energy and last eight to ten times as long. A switch to CFLs would save an average household about 50 U.S. dollars a year in electricity bills, according to government estimates.

Because of these benefits, CFLs are widely seen as an "easy" first step for nations seeking to reduce global warming. The burning of coal for electrical power is a major source of atmospheric carbon dioxide, which is now widely believed to be changing the earth's climate (see [interactive overview of climate change](#)).

According to a recent report by the Washington, D.C.-based Earth Policy Institute, a worldwide shift to CFLs would permit the closing of more than 270 coal-fired power plants. Switching to CFLs in the U.S. alone could save the energy output of 80 plants.

For environmentalists, the clincher is that by requiring less energy, CFLs will actually cut down on mercury pollution produced by coal burning, and EPA agrees.

"By using less electricity, CFLs help reduce mercury emissions from coal-burning power plants, which are the largest source of human-caused mercury emissions in the United States," said agency press officer Ernest Jones. (Related: ["Clean Coal? New Technology Buries Greenhouse Emissions"](#) [May 2, 2006].)

Reuse, Recycle—And Don't Vacuum

While their mercury doesn't make CFLs unsafe, experts say, it does place them alongside many other household products—from paint to batteries—that need to be used and disposed of in a responsible manner.

Michael Bender directs the Vermont-based Mercury Policy Project, an organization dedicated to reducing mercury pollution worldwide. He said up to 95 percent of the mercury contained in CFLs can be recovered if the bulbs are recycled properly.

"The best option for managing a spent CFL is to recycle it. Short of that, the next best option is to safely store the lamp until an opportunity for recycling becomes available," Bender said.

But many consumers don't know where to recycle the light bulbs—or remain oblivious to the need for special disposal in the first place.

Recycling opportunities, however, should soon be increasing as CFLs become established as mainstream household lighting. Retailers such as Ikea have store-based collection centers for used bulbs, and a similar program is being developed by Home Depot in Canada.

"Recycling programs are already in place in many areas," noted mercury clean-up expert Hogue. "Community leaders don't need to reinvent the wheel."

If recycling is not possible, used CFLs should be sealed inside a plastic bag and taken to a household hazardous waste disposal site, just as should batteries, oil-based paint, and motor oil, EPA recommends.

Web sites such as [Earth 911](#) and [Light Recycle](#) can provide local disposal options.

And if a CFL does shatter on the floor, the greatest danger may be the broken glass.

But to minimize exposure to mercury vapor, EPA and other experts advise a few precautions.

Children and pets should stay away from the area, the agency says, and windows should be opened for at least 15 minutes so that vapors may disperse. Cleanup can be done by hand using disposable materials, the experts add.

"Use rubber disposable gloves and scoop up the materials with stiff paper or cardboard," Bender said. "Use sticky tape to pick up small pieces and powder, clean the area with a damp paper towel, and dispose of the materials in an outside trash can."

"Never use a vacuum," Hogue added. This, he said, will only disperse the mercury vapor and leave particles trapped inside the cleaner bag.

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