



Frequently Asked Questions about Compact Fluorescent Light Bulbs

from Ecology's Hazardous Waste and Toxics Reduction Program

Compact fluorescent light bulbs (CFLs) are an energy-saving substitute for traditional light bulbs. Know how to dispose of them properly.

Q: Why should people switch to CFLs?

A: Switching from traditional incandescent bulbs is an effective, accessible change that we can make right now to reduce energy use at home and prevent greenhouse gas emissions that likely contribute to climate change. Lighting accounts for close to 20 percent of the average home's electric bill. CFLs may cost more initially than traditional bulbs, but provide a quick return on the investment.

Q: How much less energy does a CFL use compared to a traditional bulb?

A: CFLs are up to four times more efficient – using 50 to 80 percent less energy – and last up to 10 times longer than incandescent bulbs. A 22-watt CFL has the same light output as a 100-watt incandescent.

Q: Aren't CFLs more expensive than incandescent bulbs?

A: Although initially more expensive, CFLs save money in the long run because they use only about one-third the electricity and last 10 times as long as incandescent bulbs. A single, 18-watt CFL used in place of a 75-watt incandescent will save about 570 kilowatt hours (kWh) over its lifetime.

Q: Is it true that CFLs contain mercury? Why and how much?

A: CFLs contain a very small amount of mercury sealed inside the glass. CFLs have an average of 5 milligrams of mercury – roughly the equivalent to the ink on the tip of a ballpoint pen. By comparison, older home thermometers contain about 500 milligrams of mercury and many manual thermostats contain up to 3,000 milligrams. It would take between 100 and 600 CFLs to equal these amounts.

The mercury in a CFL creates a mercury vapor inside the bulb when electricity passes through it. This mercury vapor gives off ultraviolet (UV) particles called photons that hit the phosphor coating inside the bulb. The phosphor coating then “fluoresces” and creates visible light. (This mercury vapor can escape when the bulb breaks, however, so these bulbs must be carefully recycled.) Incandescent bulbs, on the other hand, make light by heating a small wire until it glows ‘white hot.’ However, much of the energy (90 percent) is wasted as heat, making incandescent bulbs much less efficient.

Q: Are there any other benefits to using CFLs besides energy savings?

A: The environmental benefits are significant. Replacing a single incandescent bulb with a CFL will result in the reduction of a half-ton of CO₂ from the atmosphere over the life of the bulb. Saving electricity also reduces the emission of nitrogen-oxides, sulfur-oxides, and other pollutants from power plants. Mercury is a pollutant from coal-fired power plants, but the mercury saved by use of a CFL is much greater than the small amount of mercury in the bulb. If you combine the amount of mercury in a CFL bulb with the mercury emissions from a coal fired plant that produces the energy to run the bulb, the result is a 25 percent decrease in the amount of mercury used to light an incandescent. Not only is the CFL producing less gaseous mercury contamination than the incandescent, but in a CFL the mercury remains in a form that can be recycled.

Q: How should I dispose of a burned-out CFL?

A: Never throw CFLs into the trash. In the trash, it is easy for them to break and to spill mercury into the environment. Wrap burned out bulbs in newspaper so that they won't break and drop them off the next time you visit your local household hazardous waste facility or go to a household hazardous waste collection event. The household hazardous waste program can safely recycle these bulbs. If you need more information about CFL recycling, call Ecology's recycling information line at 1-800-RECYCLE (732-9253).

Q: Why should I recycle CFLs?

A: Mercury is poisonous. Mercury vapors from broken CFLs can enter the environment and then be deposited in surface waters, where they can turn into highly toxic methylmercury. Fish and wildlife can then eat the mercury and pass it up the food chain to humans. Once in the food chain, mercury cannot be removed.

Q: What should I do if a CFL breaks?

A: Clean up broken CFLs with care:

- Open a window and close off the room for 15 minutes to let mercury vapors escape. Use a fan to increase ventilation.
- Put on disposable nitrile or neoprene gloves and carefully gather up all of the glass fragments and any powder with stiff paper (and an old paintbrush, if handy).
- Wipe the area clean with a damp paper towel or disposable wet wipe. Duct tape can be used to pick up small pieces and powder.
- Never use the vacuum cleaner, because you would contaminate your vacuum, and the mercury could pollute your indoor air.
- Place the pieces of broken glass and all clean-up materials in a rigid plastic container with a sealing lid. Place the container inside a second plastic container or sealable bag for further protection. Take the container to your local household hazardous waste facility or collection event.
- Wash your hands after you are done with the clean-up procedure.

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