

Mercury in Compact Fluorescent Light Bulbs (CFLs)



Installing ENERGY STAR qualified CFLs is a great way to save energy in the home. CFLs produce the same light output as regular incandescent bulbs but use about one-quarter of the energy. For example, a regular 60 Watt incandescent bulb can be replaced with a 13 Watt CFL without any reduction in light output.

All fluorescent lamps contain a small amount of mercury in order to operate efficiently. This mercury is sealed within the glass tubing and is not released when the bulbs are intact or in use, but its presence has raised questions about the safety and environmental impact of CFLs over their lifecycle.



All CFLs must be tested for safety, but their performance and quality will vary between different manufacturers.

ENERGY STAR qualified CFLs are the only products that you can be sure meet high performance standards.

Qualified CFLs are required to meet strict standards, are laboratory tested, and must not exceed set mercury limits.

How Much Mercury is in a CFL?

The average mercury content in a CFL is 3.5 milligrams (mg) – roughly the amount it would take to cover the tip of a ballpoint pen. There is currently no substance that can serve as an alternative to mercury to produce light in fluorescent lamps. Effective September 30, 2014, ENERGY STAR qualified CFLs will contain 2.5 mg or less mercury.

Are CFLs Safe?

CFLs are safe to use in your home. No mercury is released when the bulbs are in use and they pose no danger to you or your family when used properly. However, they should be handled with care. CFLs are made of glass tubing and can break if dropped or handled roughly. Always screw and unscrew the lamp by its base and never forcefully twist the CFL into a light socket by its glass tubes.

Disposal of Used CFLs

Like batteries, paint, computers and other products that contain hazardous elements, CFLs should not be thrown in the garbage. They should be disposed of safely through available recycling programs.

Many municipalities and provincial governments have implemented programs to handle products that contain hazardous elements, including CFLs. Contact your municipality to find out about local disposal options. Many retailers such as RONA, IKEA and London Drugs also accept used CFLs.

Almost 98% of CFL components can be recycled, including the small amount of mercury they contain, preventing this mercury from accumulating in our environment.

Breakage concerns in general can also be alleviated by using covered or shatter-proof CFLs, in which the spiral tube is enclosed, resembling a standard incandescent bulb.

CFLs and the Environment

Despite the presence of small amounts of mercury, CFLs provide significant environmental benefits compared to incandescent bulbs. Here's why:

- CFLs use far less energy, so they reduce greenhouse gas emissions from electrical generating stations powered by fossil fuels. By decreasing the demand for electricity from coal-fired generation plants produced in some provinces (one of the largest sources of mercury emissions in Canada), CFLs can reduce mercury levels in the environment.
- CFLs last up to 10 times longer, so fewer bulbs and less packaging ends up in landfills.

Mercury in Perspective

Mercury is an element found naturally in the environment. Mercury emissions in the air can come from both natural and human-made sources such as coal-fired power plants and mercury-containing products. Environment Canada estimates that Canada is responsible for approximately 6.3 tonnesⁱ of atmospheric mercury emissions each year. Mercury released into the air is the primary way that mercury gets into water and bio-accumulates in fish. Eating fish contaminated with mercury is the main way that humans are exposed.

Most mercury vapour inside fluorescent light bulbs becomes bound to the inside of the light bulb as it is used. It is estimated that the rest of the mercury within a CFL is released into air or water when it is sent to a landfill. So, it is very important to recycle CFLs to prevent the small amount of mercury they contain from accumulating in our environment.

The bottom line? CFLs are the most cost-effective, energy-efficient lighting option currently available to Canadian homeowners. Provincial and territorial utilities and environmental groups have encouraged the use of CFLs due to their environmental benefits.

For more information about:

- Energy-efficient lighting, visit <http://www.nrcan.gc.ca/energy/products/categories/lighting/13730>.
- Mercury and the environment, visit Environment Canada's Web site at www.ec.gc.ca/mercury.
- Mercury and human health, visit Health Canada's Web site at <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/merc-eng.php> and *Mercury: Your Health and the Environment* at www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/contaminants/mercury/mercur_e.pdf.
- *The Safety of Compact Fluorescent Lamps*, consult Health Canada's factsheet at <http://healthycanadians.gc.ca/consumer-consommation/home-maison/cfl-afc-eng.php>.

Disposal of Broken CFLs

Proper use and proper disposal of a CFL will prevent harm to you or your family.

No mercury is released when the bulbs are unbroken or in use.

Proper clean up and disposal, however, is required to minimize any risk of mercury contamination from a broken CFL.

Follow these basic guidelines:

1. Open windows (if possible) to ventilate the room for a few minutes.
2. Wear rubber gloves to remove as much debris as possible with stiff paper or cardboard and place in a plastic bag.
- 3a. If a CFL breaks on a hard surface, wipe the area with a damp paper towel and place it in the plastic bag.
- 3b. If a CFL breaks on a carpet, use sticky tape (such as duct tape) to pick up any small pieces of glass and fine particles and place it in the plastic bag. If necessary, vacuum the area and place the disposable vacuum bag in the plastic bag.
 - If the vacuum does not have a disposable bag, wipe the inside of the vacuum with a damp paper towel and place it in the bag.
4. Dispose of the sealed bag as you would a used CFL.

This is a simple and effective procedure that you can do yourself without expert help.

ⁱ Source: Environment Canada, National Pollutant Release Inventory, 2009