

Mercury in Compact Fluorescent Lights

Installing ENERGY STAR® qualified compact fluorescent lamps (CFLs), also known as compact fluorescent light bulbs, 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 15 Watt CFL's without any reduction in light output.

All fluorescent lamps contain a small amount of mercury to operate efficiently. Since CFLs are simply small or compact versions of the common fluorescent lamp, they contain a very small amount of mercury which is sealed within the glass tubing. While no mercury is released when the bulbs are intact

or in use, the presence of mercury has raised questions about the safety and environmental impact of these products over their lifecycle.

Note: CFLs built by different manufacturers will vary in performance and quality. However, if they are ENERGY STAR qualified, they are required to meet stricter standards including mercury content, and must be tested in laboratory. ENERGY STAR qualified CFLs are the only products we can be sure meet these performance standards. On the other hand, all CFLs must be tested for “safety”; this is a mandatory requirement for ALL CFLs.

CFLs contain varying quantities of mercury - typically between 2 and 5 mg, where linear fluorescents contain generally between 5 and 25 mg depending of the quality and the length of the tubes.

How much mercury is in a CFL?

The average mercury content in a CFL is about 3 milligrams – roughly the amount it would take to cover the tip of a ball-point pen. By comparison, older thermometers contain 500 milligrams of mercury – the equivalent of more than 100 CFLs. A common wristwatch battery contains five times more mercury than a CFL.

Although there is currently no substance that can replace the efficiency properties of mercury to produce light in fluorescent lamps, manufacturers have reduced the amount of mercury used in lamps (some manufacturers have voluntarily reduced the mercury content in CFLs by up to 80% to as little as 2 mg per bulb). Research is ongoing to achieve further reductions and, ultimately, to develop a mercury-free fluorescent lamp.

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.

CFLs and the Environment

CFLs provide a net environmental benefit compared with incandescent products.

CFLs require only approximately one-quarter of the energy consumed by incandescent bulbs. If every household in Canada changed one incandescent light bulb to an ENERGY STAR qualified CFL, greenhouse gas emissions would be reduced by approximately 400,000 tonnes – the equivalent of taking about 70,000 cars off the road for one year. Since ENERGY STAR qualified CFLs are required to last 6 to 10 times longer than incandescent bulbs, fewer bulbs and much less packaging go to landfill sites.

Coal-fired power plants are the country's largest source of human-made mercury emissions. In 2003, coal-fired power generation accounted for about 34 percent of Canada's mercury emissions¹. The less power these facilities produce, the less mercury is released into the environment.

CFLs can actually reduce the amount of mercury introduced into the environment because of their greater efficiency when compared to incandescent lighting.

The bottom line? CFLs are the most energy-efficient lighting option currently available to Canadian homeowners. Provincial and territorial utilities in Canada, the David Suzuki Foundation and other environmental groups have endorsed the use of CFLs due to their environmental benefits.

For more information about:

- CFLs and energy-efficient lighting in general, visit Natural Resources Canada's ENERGY STAR Web site at www.energystar.gc.ca
- 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 www.hc-sc.gc.ca/iyh-vsv/environ/merc_e.html or see 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.

¹ Source: "Mercury and the Environment" web site; Environment Canada; www.ec.gc.ca/mercury.