

MERCURY AND COMPACT FLUORESCENT LIGHT BULBS

What You Need To Know

Over the last three decades, greater attention has been paid to indoor air quality. As homes become more energy efficient, air is exchanged with less frequency. This creates problems with common household products including paints, cleaners, household cleaners, insect repellants, fuels, building materials and personal care products that can contain volatile organics that concentrate in poorly ventilated areas.

A potential contributor to in-home pollution is the new compact fluorescent light (CFL) bulb. CFL bulbs are designed to replace incandescent bulbs and fit into most existing home light fixtures. Compared to general service incandescent bulbs, CFLs generally use less power and have a longer rated life. CFL bulbs save energy and, therefore, reduce the pollution inherent in the production of electricity. The problem is that these bulbs contain small amounts of elemental mercury, a known human neurotoxin. Mercury contained in CFLs can be released in the home if the bulb is broken. When a bulb breaks, mercury escapes as both a solid and as a vapor. The vapor can be inhaled and the solid, as small liquid beads, can settle into carpets and other textiles. State and federal agencies say that breakages can usually be cleaned up inexpensively with household goods.

Because the dose of any chemical generally determines its toxicity, it is important to reduce exposures to mercury. It is important to remember that any chemical can be toxic if you eat, drink, inhale or absorb too much of it. Even chemicals naturally present in food and drinks can be toxic if consumed in sufficiently large quantities. For example, the caffeine in a normal human diet does not cause illness, but increasing it by just 50 times could cause death.

Mercury is a known neurotoxin, which means that it can affect the human brain; especially brains of infants and small children. The neurotoxic effects of mercury are exacerbated in children because they tend to spend time in close proximity to the floor where mercury vapors tend to accumulate. It is, therefore, important to properly handle CFL bulbs to prevent breakage and if breakage does occur, homeowners should follow safe cleanup precautions provided in Appendix E. Broken CFL Cleanup Guidance, Maine Department of Environmental Protection, Maine Compact Fluorescent Light Study, February 2008 (<http://www.maine.gov/dep/rwm/homeowner/cflreport.htm>)

Maine's Department of Environmental Protection insists that mercury should not be touched. The room where the bulb breaks should be vacated immediately for at least 15 minutes and ventilated by opening windows and doors. After ventilating the room, the larger pieces of the bulb should be scooped off of hard surfaces with stiff paper or cardboard or picked up off carpeted surfaces with gloves to avoid contact. Tape should be used to pick up smaller fragments. On hard surfaces such as hardwood floors or tile, the area should be wiped down with a damp paper towel or a wet wipe. All cleanup materials and bulb debris should be placed in a sealable plastic bag or preferably a glass jar with a metal lid. Vacuums or brooms should generally be avoided, as they will likely disperse mercury in indoor air and spread mercury to other parts of the house.

CFL bulbs, broken or otherwise, can be difficult to dispose of. In many locales it is illegal to throw fluorescents out with regular trash, but recycling or take-back centers may be miles away. If you are using CFLs or planning to use them, it's a good idea to identify potential disposal centers. Many municipal waste facilities and some vendors will accept broken CFLs or fluorescents. U.S. EPA (<http://www.epa.gov/epaoswer/hazwaste/id/univwast/lamps/live.htm>) and Earth 911 (<http://earth911.org>) also maintain online directories of possible collection sites. Among major retailers of fluorescents, IKEA offers to take back compact fluorescent bulbs in its stores free of charge.

The Healthy Roots Project® is concerned with identifying common household products that can adversely affect the quality of life in the home. Common household products, their handling, use and misuse, can cause unacceptable human health risks especially among children. Knowledge is power and understanding what common household products can cause problems in the home is the first step in preventing unwanted exposures by you and your family.