UNIVERSITY OF WYOMING

Fluorescent Bulbs

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Common Questions

A. What is a fluorescent light bulb? A fluorescent light bulb (also referred to as a "lamp") is a gas-discharge bulb that uses electricity to excite mercury vapor. The excited mercury atoms produce short-wave ultraviolet light that causes a phosphor to fluoresce, producing visible light. Mercury is an essential component of all fluorescent light bulbs, and allows these bulbs to be energy-efficient light sources.

B. Types of fluorescent bulbs? The most widely used types of fluorescent light bulbs in the United States are the linear fluorescent light and the compact fluorescent light (CFL). Less common types of fluorescent bulbs sold in the United States include bug zappers, high output fluorescent lights and cold-cathode fluorescent lights. Additional information about the different types of fluorescent bulbs is available in a fact sheet on mercury use in lighting from the Northeast Waste Management Officials' Association (NEWMOA).

CFLs contain a very small amount of mercury (on average about five milligrams) sealed within the glass tubing. No mercury is released when the bulbs are intact (not broken) or in use, but CFLs can break and release mercury vapor if dropped or roughly handled. EPA encourages consumers to handle and use CFLs safely. Be careful when removing the bulb from its packaging, installing it, or replacing it.

C. How much mercury is in fluorescent bulbs? The following information on mercury content and mercury use is taken from a fact sheet on mercury use in lighting from the Northeast Waste Management Officials' Association (NEWMOA) . This data was provided to NEWMOA by lamp manufacturers.

Individual Fluorescent Bulbs - About 60 percent of all fluorescent lamps sold in the U.S. in 2004 contained 10 mg of mercury or less. The remaining 40 percent contained more than 10 mg and up to 100 mg of mercury. Four-foot linear fluorescent lamps contained an average of 13.3 mg, with a high of 70 mg and a low of 2.5 mg. Compact fluorescents (CFLs) had the least amount of mercury per lamp in 2004; two-thirds of CFLs contained 5 mg of mercury or less, while 96 percent contained 10 mg or less.

In recent years, government agencies, companies, and environmental organizations have heavily promoted the use of energy-efficient liner and compact fluorescent bulbs. The cost of CFLs has declined dramatically so that they are more affordable for consumers. These efforts and the growing sale of products with LCD screens will likely increase total mercury use.

UW uses Ecologic fluorescent bulbs manufactured by Sylvania, GE, and Philips. Please visit http://chppm-www.apgea.army.mil/documents/FACT/37-013-0203.pdf for more information on these environmentally friendly tubes that can pass the EPA's Toxicity Characteristic Leaching Procedure (TCLP).

D. What to do if a Fluorescent or Other Mercury-Containing Light Bulb Breaks (return to top)

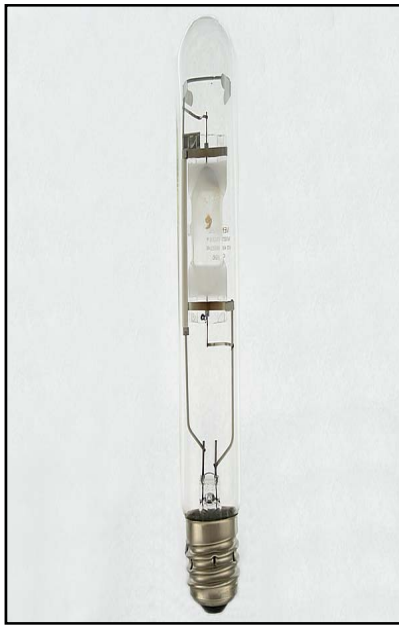
EPA is continually reviewing its clean-up and disposal recommendations for CFLs to ensure that the Agency presents the most up-to-date information for consumers and businesses. Maine's Department of Environmental Protection released a **CFL breakage study report** on February 25, 2008. EPA has conducted an initial review of this study and, as a result of this review, updated the CFL cleanup instructions below. As stated previously, fluorescent light bulbs contain a very small amount of mercury sealed within the glass tubing. EPA recommends the following clean-up and disposal below.

Before Clean-up: Air Out the Room

- Have people and pets leave the room, and don't let anyone walk through the breakage area on their way out.
- Open a window and leave the room for 15 minutes or more.
- Shut off the central forced-air heating/air conditioning system, if you have one.

Clean-Up Steps for Hard Surfaces

- Carefully scoop up glass pieces and powder using stiff paper or cardboard and place them in a glass jar with metal lid (such as a canning jar) or in a sealed plastic bag.
- Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder.
- Wipe the area clean with damp paper towels or disposable wet wipes. Place towels in the glass jar or plastic bag.
- Do not use a vacuum or broom to clean up the broken bulb on hard surfaces. (return to top)



Clean-up Steps for Carpeting or Rug

- Carefully pick up glass fragments and place them in a glass jar with metal lid (such as a canning jar) or in a sealed plastic bag.
- Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder.
- If vacuuming is needed after all visible materials are removed, vacuum the area where the bulb was broken.
- Remove the vacuum bag (or empty and wipe the canister), and put the bag or vacuum debris in a sealed plastic bag. (return to top)

Clean-up Steps for Clothing, Bedding and Other Soft Materials

- If clothing or bedding materials come in direct contact with broken glass or mercury-containing powder from inside the bulb that may stick to the fabric, the clothing or bedding should be thrown away. Do not wash such clothing or bedding because mercury fragments in the clothing may contaminate the machine and/or pollute sewage.
- You can, however, wash clothing or other materials that have been exposed to the mercury vapor from a broken CFL, such as the clothing you are wearing when you cleaned up the broken CFL, as long as that clothing has not come into direct contact with the materials from the broken bulb.
- If shoes come into direct contact with broken glass or mercury-containing powder from the bulb, wipe them off with damp paper towels or disposable wet wipes. Place the towels or wipes in a glass jar or plastic bag for disposal. (return to top)

Disposal of Clean-up Materials

- Immediately place all clean-up materials outdoors in a trash container or protected area for the next normal trash pickup.
- Wash your hands after disposing of the jars or plastic bags containing clean-up materials.
- Contact RMMC at 766-3697 to dispose of your bulbs.

Future Cleaning of Carpeting or Rug:

- Air out the room for 15 minutes before you vacuum. The next several times you vacuum, shut off the central forced-air heating/air conditioning system and open a window before vacuuming. Keep the central heating/air conditioning system shut off and the window open for at least 15 minutes after vacuuming. (Return to Top) (return to top)

E. What Never to Do After a Mercury Spill

Never use a vacuum cleaner to clean up mercury. The vacuum will put mercury into the air and increase exposure.

Never use a broom to clean up mercury. It will break the mercury into smaller droplets and spread them.

Never pour mercury down a drain. It may lodge in the plumbing and cause future problems during plumbing repairs. If discharged, it can cause pollution of the septic tank or sewage treatment plant.

Never wash clothing or other items that have come in direct contact with mercury in a washing machine, because mercury may contaminate the machine and/or pollute sewage. Clothing that has come into direct contact with mercury should be discarded. By "direct contact," we mean that mercury was (or has been) spilled directly on the clothing.

You can, however, wash clothing or other materials that have been exposed to the mercury vapor from a broken CFL, like the clothing you happened to be wearing when you cleaned up the broken CFL, as long as that clothing has not come into direct contact with the materials from the broken bulb.

Never walk around if your shoes might be contaminated with mercury. Contaminated clothing can also spread mercury around. (return to top)

F. Fluorescent Bulb Recycling and Disposal

EPA encourages the recycling of burned out fluorescent bulbs rather than disposing of them in regular household trash. Recycling of burned out fluorescents is one of the best ways to help prevent the release of mercury to the environment by keeping mercury out of landfills and incinerators. Recycling of these bulbs also allows the reuse of the glass, metals and other materials that make up fluorescent lights. (return to top)