



The Hazards of Use and Disposal of Compact Fluorescent Bulbs

Compact fluorescent lights (aka. CFLs) work by exciting a phosphorous coating within the tube to emit light. This process requires very small amounts of mercury sealed within the glass tubing - an average of 5 milligrams (roughly equivalent to the tip of a ball-point pen). Mercury is an essential, irreplaceable element in CFLs and is what allows the bulb to be an efficient light source. By comparison, older home thermometers contain 500 milligrams of mercury and many manual thermostats contain up to 3000 milligrams. It would take between 100 and 600 CFLs to equal those amounts. There is currently no substitute for mercury in CFLs; however, manufacturers have taken significant steps to reduce mercury used in their fluorescent lighting products over the past decade.

Because there is such a small amount of mercury in CFLs, the greatest hazard exposure is from getting cut by glass shards. Research indicates that there is no immediate health risk to people should a bulb break and it's cleaned up properly. You can minimize any risks by following these proper clean-up and disposal guidelines:

How should I clean up a broken fluorescent bulb?

Because CFLs contain a small amount of mercury, the following clean-up and disposal guidelines apply:

1. Before Clean-up: Ventilate the Room

- Have people leave the room, and don't let anyone walk through the breakage area on their way out.
- Open a window, if possible and leave the room for 15 minutes or more.

2. Clean-Up Steps for Hard Surfaces

- Carefully scoop up glass fragments 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 and place them in the glass jar or plastic bag. Place first bag in a second plastic bag as an added precaution.
- Do not use a vacuum or broom to clean up the broken bulb on hard surfaces.

3. 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 is 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.

4. Clean-up Steps for Clothing, Bedding, etc.:

- 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 discarded. 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 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.
- 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.

5. Disposal of Clean-up Materials

Immediately place all cleanup materials in two, separate plastic bags (referred to as double – bagging) or other sealed container, for disposal through EHS. Filling out a pick up request at the URL below will bring EHS, at no cost, to the area to pick up the broken bulb.

http://www.ehs.psu.edu/hazmat/chem_manifest/chem_manifest.cfm.

- Wash your hands after disposing of the jars or plastic bags containing clean-up materials.

6. Future Cleaning of Carpeting or Rug: Ventilate the Room During and After Vacuuming

- The next several times you vacuum the carpet, open windows if possible.

At Penn State, proper cleanup and disposal is handled by housing or technical service employees and is covered by Safety Policy [SY31 Lamp Use and Disposal](#). The University is required by Federal Regulations, 40 CFR 273 (Universal Waste Regulations), to ensure the proper handling and disposal of these wastes.

LEARN MORE AT
[energystar.gov](http://www.energystar.gov)

http://www.energystar.gov/ia/partners/promotions/change_light/downloads/Fact_Sheet_Mercury.pdf

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