

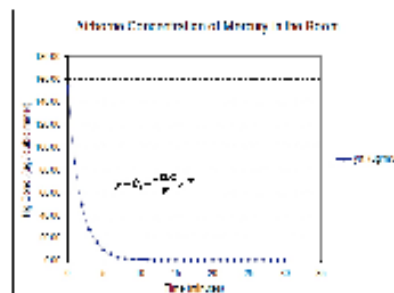
## What should I do if I break a CFL in my home – mercury clean-up.

### What Should I Do If I Break a CFL in My Home?

Although it should go without saying, an important strategy is to avoid breaking a CFL in the first place. For example, when installing or removing a CFL, turn it by gripping the base; where possible, don't twist the glass tubes. Also, be aware of the risks of breakage when a CFL's useful life is over and it is ready for disposal. A CFL that is simply thrown in the trash can easily break—in an indoor wastebasket, for example, which could result in household exposure to mercury vapor. Recommendations for proper end-of-life disposal appear at the end of this report. This section focuses on cleaning up after a more typical accidental breakage.

The advice given here is based on guidance offered by various state and federal agencies (Weiss 2007, Chandrasekhar 2007) and by the US EPA (2007). The advice is evolving as better data are developed, and the EPA has stated that it intends to update its advice frequently. This report synthesizes current advice; if you have further questions, we suggest you contact your state health department or environmental agency or visit their web sites (see Resources section for examples).

It makes sense to anticipate that you may break a CFL now and then, and to keep clean-up guidelines handy, just in case.

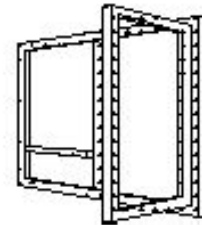


Chandrasekhar (2007) showed that opening a window and using a fan can reduce mercury vapor to safe levels in about 12 minutes

**The three most important points are: (1) Don't panic; (2) Ventilate the area; and (3) Clean up the breakage promptly, but do not use a vacuum cleaner, broom or dustpan.**

First, don't panic. While there is some risk from exposure to the mercury vapor a CFL breakage can release, the risk is comparatively small, and promptly and properly cleaning up the broken bulb can greatly reduce or eliminate the risk.

Second, ventilate the breakage area immediately. Open a window, or all the windows, in the room and let the air flow out, taking mercury vapor with it. If the air is cold,



heating the room will increase the rate at which mercury vaporizes and speed its removal. But if you have a forced hot air furnace, use plastic bags and duct tape to cover the vents in the room, to keep air flow from spreading mercury vapor throughout the building. Use a table fan or pedestal fan to blow air out the window. If the room has only one window, keep the door open a crack, to let clean air in to replace the contaminated air flowing out. If the room where the breakage occurred has multiple windows, open them all, and close the door to keep air flow from spreading mercury to other rooms.

Most expert agencies say to ventilate for at least 15 minutes. Chandrasekhar's modeling exercise (2007) found that with even a minimally effective fan to increase air flow, this strategy should reduce mercury vapor levels to below the ATSDR MRL within 12 minutes, and to background levels after 20-25 minutes.

He suggested that ventilating for longer times could provide an additional margin of safety, but no more than 45 minutes was needed in any case.

Third, once you have begun ventilating the area, clean up the debris from the broken CFL promptly. If you are pregnant, or think you might be pregnant, though, we recommend opening a window, then leaving the room, closing the door, and asking someone else to carry out the rest of the clean-up steps described below.



Children, pets and other family members should be kept away from the area where the breakage occurred until it has been cleaned up, to avoid exposure to mercury and to keep them from tracking mercury into other parts of the house. Pick up broken glass pieces and other debris, using disposable rubber gloves (sold in supermarkets) if you have them. You can also use tweezers to pick up glass shards, or they can be gently swept onto a stiff piece of paper or cardboard, using another piece of paper or similar disposable object.

**DO NOT USE A VACUUM CLEANER.** Vacuuming the spill site will vaporize any liquid mercury present and spread it through the air in the room. It can also contaminate the vacuum cleaner, which could then disperse mercury in other parts of your home. For the same reason, don't clean up with a broom, a brush, a dustpan or a mop, which could also get contaminated and transfer mercury to other surfaces. Use disposable objects to sweep up the smaller pieces.



When pieces that can be gathered up by the methods described above have been collected,

pat the carpet or floor with duct tape or masking tape (wrapped around a piece of cardboard, sticky-side-out), to pick up small particles. When you have removed all visible particles, wipe the affected area down carefully with a moist paper towel or commercial wet-wipe.

Place the pieces of the broken CFL in a container that can be tightly sealed, such as glass or plastic jar with a screw-on lid. Items that won't fit into a jar and don't have sharp edges (such as used gloves, paper towels and tape-wrapped cardboard) can be sealed inside a pair of zip-lock plastic bags, one inside the other. Wash your hands (and any tweezers or other tools you may have used) thoroughly, with soap or detergent.

In most areas, the debris from a single broken CFL, in its sealed container(s), can safely be disposed of in the household trash (but make sure this is allowed under your state's laws). If you have multiple broken bulbs, or if state law requires it for even a single bulb, take the debris to a local hazardous-household-waste collection site.

If the breakage occurred on a carpet, a rug or upholstered furniture, avoid subsequent vacuuming of the spill area, which is likely to retain mercury for some time. If the contaminated textile item is in a child's or pregnant woman's room, consider removing or replacing it, or if that is not feasible, moving the person's sleeping and play areas to another room.

This advice errs on the side of caution, which is appropriate, given the large scientific uncertainties involved in assessing this risk. Remember, the risk is relatively small to begin with, and if you follow these clean-up procedures, you should feel confident that you have reduced the risk substantially or virtually eliminated it.