

Recommendations for When a CFL or Other Mercury-Containing Bulb Breaks

Quick Cleanup Instructions

Before Cleanup

- Have people and pets leave the room.
- Air out the room for 5-10 minutes by opening a window or door .
- Shut off the central forced air heating/air-conditioning system, if you have one.
- **Collect materials needed to clean up broken bulb:**
 - stiff paper or cardboard;
 - sticky tape;
 - damp paper towels or disposable wet wipes (for hard surfaces); and
 - a glass jar with a metal lid or a sealable plastic bag.

During Cleanup

- **DO NOT VACUUM.** Vacuuming is not recommended unless broken glass remains after all other cleanup steps have been taken. Vacuuming could spread mercury-containing powder or mercury vapor.
- Be thorough in collecting broken glass and visible powder. Scoop up glass fragments and powder using stiff paper or cardboard. Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder. Place the used tape in the glass jar or plastic bag. See the detailed cleanup instructions for more information, and for differences in cleaning up hard surfaces versus carpeting or rugs.
- Place cleanup materials in a sealable container.

After Cleanup

- Promptly place all bulb debris and cleanup materials, including vacuum cleaner bags, outdoors in a trash container or protected area until materials can be disposed of. Avoid leaving any bulb fragments or cleanup materials indoors.
- Next, check with your local government about disposal requirements in your area, because some localities require fluorescent bulbs (broken or unbroken) be taken to a local recycling center. If there is no such requirement in your area, you can dispose of the materials with your household trash.
- If practical, continue to air out the room where the bulb was broken and leave the heating/air conditioning system shut off for several hours.

Detailed Cleanup Instructions

Cleanup Steps for Hard Surfaces

1. Carefully scoop up glass fragments and powder using stiff paper or cardboard and place debris and paper/cardboard in a glass jar with a metal lid. If a glass jar is not available, use a sealable plastic bag. (**NOTE:** Since a plastic bag will not prevent the mercury vapor from escaping, remove the plastic bag(s) from the home after cleanup.)
2. Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder. Place the used tape in the glass jar or plastic bag.
3. Wipe the area clean with damp paper towels or disposable wet wipes. Place the towels in the glass jar or plastic bag.
4. Vacuuming of hard surfaces during cleanup is not recommended unless broken glass remains after all other cleanup steps have been taken. [**NOTE:** It is possible that vacuuming could spread mercury-containing powder or mercury vapor, although available information on this problem is limited.] If vacuuming is needed to ensure removal of all broken glass, keep the following tips in mind:
 - Keep a window or door to the outdoors open;
 - Vacuum the area where the bulb was broken using the vacuum hose, if available; and
 - Remove the vacuum bag (or empty and wipe the canister) and seal the bag/vacuum debris, and any materials used to clean the vacuum, in a plastic bag.
5. Promptly place all bulb debris and cleanup materials, including vacuum cleaner bags, outdoors in a trash container or protected area until materials can be disposed of. Avoid leaving any bulb fragments or cleanup materials indoors.
6. Next, check with your local government about disposal requirements in your area, because some localities require fluorescent bulbs (broken or unbroken) be taken to a local recycling center. If there is no such requirement in your area, you can dispose of the materials with your household trash.
7. Wash your hands with soap and water after disposing of the jars or plastic bags containing bulb debris and cleanup materials.
8. Continue to air out the room where the bulb was broken and leave the HVAC system shut off, as practical, for several hours.

Cleanup Steps for Carpeting or Rugs

- Carefully scoop up glass fragments and powder using stiff paper or cardboard and place debris and paper/cardboard in a glass jar with a metal lid. If a glass jar is not available, use a sealable plastic bag. (NOTE: Since a plastic bag will not prevent the mercury vapor from escaping, remove the plastic bag(s) from the home after cleanup.)
- Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder. Place the used tape in the glass jar or plastic bag.

- Vacuuming of carpeting or rugs during cleanup is not recommended unless broken glass remains after all other cleanup steps have been taken. [**NOTE:** It is possible that vacuuming could spread mercury-containing powder or mercury vapor, although available information on this problem is limited.] If vacuuming is needed to ensure removal of all broken glass, keep the following tips in mind:
 - Keep a window or door to the outdoors open;
 - Vacuum the area where the bulb was broken using the vacuum hose, if available, and
 - Remove the vacuum bag (or empty and wipe the canister) and seal the bag/vacuum debris, and any materials used to clean the vacuum, in a plastic bag.
- Promptly place all bulb debris and cleanup materials, including vacuum cleaner bags, outdoors in a trash container or protected area until materials can be disposed of. Avoid leaving any bulb fragments or cleanup materials indoors.
- Next, check with your local government about disposal requirements in your area, because some localities require fluorescent bulbs (broken or unbroken) be taken to a local recycling center. If there is no such requirement in your area, you can dispose of the materials with your household trash.
- Wash your hands with soap and water after disposing of the jars or plastic bags containing bulb debris and cleanup materials.
- Continue to air out the room where the bulb was broken and leave the HVAC system shut off, as practical, for several hours.

Future Cleaning of Carpeting or Rugs: Air Out the Room During and After Vacuuming

1. The next several times you vacuum the rug or carpet, shut off the HVAC system if you have one, close the doors to other rooms, and open a window or door to the outside before vacuuming. Change the vacuum bag after each use in this area.
2. After vacuuming is completed, keep the HVAC system shut off and the window or door to the outside open, as practical, for several hours.

Which Bulbs Contain Mercury?

You should follow the recommendations on this page if you've broken either a CFL or another type of mercury-containing light bulb, such as:

- **Fluorescent bulbs:**
 - Linear, U-tube and circline fluorescent tubes
 - Bug zappers
 - Tanning bulbs
 - Black lights

- Germicidal bulbs
- High output bulbs, and
- Cold-cathode fluorescent bulbs.
- **High intensity discharge bulbs:**
- Metal halide
- Ceramic metal halide
- High pressure sodium, and mercury vapor.
- **Mercury short-arc bulbs;** and
- **Neon bulbs.**

Actions You Can Take to Prevent Broken CFLs

- You can switch off and allow a working CFL bulb to cool before handling.
- You can handle CFL bulbs carefully to avoid breakage.
 - If possible, screw/unscrew the CFL by holding the plastic or ceramic base, not the glass tubing.
 - Gently screw in the CFL until snug. Do not over-tighten.
 - Never forcefully twist the glass tubing.
- You can choose not to install CFLs in table lamps and floor lamps that can be easily knocked over, in unprotected light fixtures, or in locations where they can easily be broken, such as play spaces.
 - Other available options for these areas:
 - LEDs (super-efficient, with very low energy costs; pricey, although prices are dropping rapidly), and
 - halogens (inexpensive, more efficient than incandescents, but not as efficient as CFLs or LEDs).
- You can purchase CFL bulbs that have a glass or plastic cover over the spiral or folded glass tube, if available. These types of bulbs look more like incandescent bulbs and may be more durable if dropped.
- You can consider using a drop cloth (e.g., plastic sheet or beach towel) when changing a fluorescent light bulb in case a breakage should occur. The drop cloth will help prevent mercury contamination of nearby surfaces and can be bundled with the bulb debris for disposal.

THE BIGGEST PROBLEM WITH E-WASTE ? WHATS WE DONT KNOW



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February 8, 2018 — When your phone stops working or you trade up for a newer model, where does it go? Like any electronic device — from laptops to lamps, washing machines to flat screen TVs — it doesn't just disappear. It becomes electronic waste, or e-waste — a fast-growing category of trash that in 2016 alone added up to a hefty 44.7 million metric tons (49.3 million tons) worldwide, according to [The Global E-waste Monitor – 2017](#), a new report published by the United Nations University, the International Telecommunication Union and the International Solid Waste Association. That's the weight equivalent of close to 25 million passenger cars.

Even though that e-waste contains billions of dollars' worth of precious metals and other valuable components, just 20 percent was officially tracked and properly recycled in 2016, according to the new report. The remaining 80 percent? It's not consistently documented, and most of it is likely dumped, traded or recycled in haphazard, potentially harmful ways. When disposed of incorrectly, for instance by open burning, e-waste can harm people and the environment.

The three organizations produced *The Global E-waste Monitor – 2017* to draw attention to the threat of e-waste, which they project will climb to 52.2 million metric tons (57.5 million tons) by 2021. By building awareness of the nature and scope of the problem, they aim to increase global reporting on e-waste as a first step toward minimizing waste production, reducing illegal disposal and boosting recycling and the economic benefits it offers.

The report notes that of the more than 190 countries on Earth, only 41 collect international statistics on e-waste, leaving much of the world's people with little more than anecdotal awareness of where their e-waste ends up. And while experts know that wealthier nations dump lots of e-waste [in lower income countries](#), there are no decent statistics tracking exact numbers.

| Indicator | Africa | Americas | Asia | Europe | Oceania |
|--|--------|----------|-------|--------|---------|
| Countries in region | 53 | 35 | 49 | 40 | 13 |
| Population in region (millions) | 1,174 | 977 | 4,364 | 738 | 39 |
| WG (kg/inh) | 1.9 | 11.6 | 4.2 | 16.6 | 17.3 |
| Indication WG (Mt) | 2.2 | 11.3 | 18.2 | 12.3 | 0.7 |
| Documented to be collected and recycled (Mt) | 0.004 | 1.9 | 2.7 | 4.3 | 0.04 |
| Collection Rate (in region) | 0% | 17% | 15% | 35% | 6% |

Because global data aren't available, the report's findings are estimates based on a series of statistical procedures. After noting the total weight of all electronic devices sold since 1980, the researchers calculated when products were likely discarded based on their estimated lifespan. By comparing estimates of discarded devices with recorded e-waste statistics, they approximated how much waste is generated and recycled in each of five regions — Asia, Europe, the Americas, Africa and Oceania.

Some governments are responding. By 2017, 66 percent of the world's population was covered by some sort of national e-waste regulation, compared to 44 percent just three years prior — a jump largely due to India, which tightened its [e-waste management rules](#) in 2016. The report notes, however, that no guarantee exists that regulations are enforced effectively, and even among countries with rules on the books, many don't cover all kinds of e-waste. It calls for enhanced efforts to develop e-waste policies and improve e-waste reporting as key steps toward correcting these deficits.