



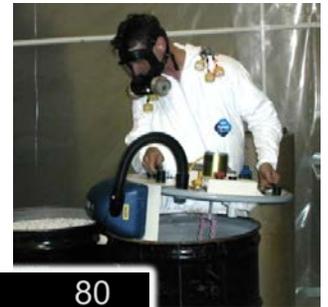
FLUORESCENT LAMP DRUM TOP CRUSHERS

Guidance for Schools

A fluorescent lamp drum top crusher is a unit typically comprised of a 55-gallon drum that has been retrofitted with a cover and a chute for feeding fluorescent lamps into the drum. The bulb crushing unit operates under negative pressure and with filters to capture air pollutants. The purpose of the unit is to crush the lights, reducing the space needed for storing them before recycling.

Drum Top Bulb Crushers and Mercury

Mercury, a toxic metal, is an essential component of all currently manufactured fluorescent lights and some HID (high intensity discharge) light bulbs. When these lights break, whether during storage, transport, disposal, or crushing, most of the mercury contained in the lights is released as mercury vapor. If the mercury vapor is not controlled or contained, it can be readily inhaled. Additionally, mercury released from broken lights can be transported in the air and deposited into lakes where it can enter the food chain. Mercury in fish, at high enough levels, pose a risk to wildlife and humans that [consume the fish](#).



Drum Top Bulb Crusher Usage in Schools

These bulb crushers should not be used in a building with a student population due to the potential exposure to mercury vapor. Facilities that have bulb crushers are required to have a [permit to install](#) from the Michigan Department of Environmental Quality, [Air Quality Division \(AQD\)](#). If you have a bulb crusher located on the school property, such as in a maintenance area, with no student population, the AQD will evaluate it on a "case-by-case" basis. The bulb crusher must meet setback distances and health-based screening levels for mercury. These limits will be determined as part of the permit to install application review.

Management of Unwanted Fluorescent Lamps/Bulbs

Michigan's waste regulations allow fluorescent lamps and high-intensity discharge light bulbs containing mercury to be handled under the universal waste rule. Meeting the rule is much simpler than managing bulbs containing mercury as a hazardous waste. It also eliminates the need for each site generating fluorescent lamps to count the weight of intact fluorescent lamps when determining the site's hazardous waste generator status. When using the universal waste rule, intact fluorescent lamps can be shipped without using a hazardous waste manifest to a universal waste destination facility or universal waste handler.

Storage of Lamps/Bulbs

Keep Safety Data Sheet(s) that identify the health hazards associated with the bulbs and store bulbs in containers that are kept closed and handle in a way that minimizes breakage:

- ✓ Use original boxes or similar containers that are sturdy enough to prevent damage during storage.
- ✓ Close and secure boxes/containers with tape and store in a designated area away from heavy traffic areas.
- ✓ Do not wrap multiple bulbs together with tape.
- ✓ Label boxes/containers clearly as "universal waste lamps," "waste lamps," or "used lamps" and the date that bulbs were first placed in box/container.
- ✓ Establish employee training for the proper handling, storage and cleanup of spent bulbs.
- ✓ Store bulbs less than one year and [notify](#) the DEQ if storing 11,000 lbs. of all universal waste.

Don't throw them in
the trash!



Shipping of Lamps/Bulbs

- ✓ Self-transport or ship universal wastes through a conventional carrier.
- ✓ Send to a universal waste handler or universal waste destination facility after making prior arrangements with the receiving company.
- ✓ Characterize your broken bulbs, unless you know that they did not contain toxic metals or you can verify that the site meets the [conditionally exempt small quantity generator](#) exemption. Ensure this practice is acceptable to the receiving landfill.
- ✓ If other light bulbs are mixed with universal waste lamps, they are all considered universal waste.

Off-site Recycling Options

- **Pick-Up Services**
Used lamps can be packed into boxes or fiber drums, and a pick-up is scheduled with a recycling service. To find recyclers, search the [Michigan Recycling Directory](#) and see the list of [vendors](#) that assist with Municipal Household Hazardous Waste Collections.
- **Mail-In Recycling Services**
A mail-in recycling prepaid service usually includes the container, shipping to your door, return freight, recycling of the materials and a recycling certificate. Pay careful attention to the requirements of the shipping company's waste handling rules and manifesting procedure. For more information on mail-in services, go to:
 - www.epa.gov/cfl/cflrecycling.html#mail
 - <http://lamprecycle.org/Recyclers.php>.
- **Household Hazardous Waste Collection Programs**
Schools, independently or through their intermediate school district coordinators, may be able to work with county [household hazardous waste coordinators](#) to ensure proper handling and recycling of bulbs at reduced costs.

In Case of Breakage

If a fluorescent bulb breaks, follow these steps:

1. Close off the area where breakage occurred so nobody steps in broken glass, powder, or mercury.
2. Wear gloves and clean up the debris as soon as possible.
 - If the bulb broke in a fixture, turn off power to the fixture before removing any pieces.
 - If the bulb broke on a hard surface, use stiff paper or cardboard to pick-up glass and dust.
 - If the bulb broke on carpeting, use sticky tape to pick up as much of the debris as you can.
3. Place clean-up materials and debris in a plastic bag, then a puncture-resistant, sealed container along with gloves and any other materials used to clean debris.
4. Wipe down hard surfaces with a damp and disposable cloth. If carpeted, vacuum and dispose of the bag or empty and wipe out bagless collection compartment. Place clean-up materials in container used under Step 3.
5. Do not throw the container from Step 3 in regular trash. It must be managed as hazardous waste unless your site meets the [conditionally exempt small quantity generator](#) exemption from hazardous waste regulation.
6. For any questions about exposure to the contents of the broken bulb, contact the Michigan Department of Community Health at 800-648-6942.
7. See www.epa.gov/cfl/cflcleanup.html and www.michigan.gov/mercury for handling more than one bulb.

More Information

View the [Waste Management and Regulations Webinar Series](#) (available at www.michigan.gov/deqevents under for help in understanding the waste regulations. These webinars are introductory in nature, free, and feature firsthand experience from inspection staff.

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