

Management of Fluorescent Lamps For Businesses



SOLID WASTE SECTION

IMPACT ON THE ENVIRONMENT

Fluorescent and high intensity discharge (HID) lamps (including mercury vapor, high-pressure sodium, and metal halide bulbs) are the two most common types of lamps that use mercury. Both of these lamps are typically 3 to 4 times more efficient than incandescent lamps and can last up to 10 times longer. The use of energy efficient mercury-containing lamps can play a significant role in decreasing the nation's energy consumption. However, fluorescent lamps contain mercury which poses a threat to human health and the environment, even in small amounts. Mercury is a bio-accumulative toxin, which means that it accumulates in the food chain, and does not break down in the environment. While fluorescent lamps offer tremendous environmental advantages through energy savings, the disposal of used fluorescent lamps needs to be carried out properly to eliminate mercury emissions.

WHAT ARE "GREEN" LAMPS?



A number of manufacturers have started marketing fluorescent lamps with lower mercury content. These "Green" lamps can be identified by their green markings or green end caps. Green fluorescent lamps may not be disposed of in a landfill unless

the generator can document that the waste is non-hazardous by using one of the methods described under proper disposal. Although the mercury level in many of these lamps is low enough to be non-hazardous, they still contain some mercury and the department encourages recycling rather than disposal. Small amounts of mercury add up, and even small amounts of mercury deposited into lakes and other water bodies can cause environmental and health concerns. Contact your local solid waste agency for disposal guidance.

Note: Even if the lamps are considered non-hazardous, some landfills may not accept any type of waste which contains mercury, regardless of the amount.

RULES FOR MANAGEMENT/DISPOSAL

Iowa businesses are prohibited from disposing of hazardous materials in a sanitary landfill. Other than "Green" lamps, fluorescent lamps typically are hazardous due to mercury levels. It is the legal responsibility of all waste generators to determine whether or not their solid waste is also a hazardous waste. Ideally you should purchase lamps that are both highly efficient and have low mercury content. Consider using fluorescent lamps whenever possible.

The Toxicity Characteristic Leaching Procedure (TCLP) test, as outlined in SW-846, will determine if your lamps can be landfilled. Recycling may be more economical than testing.

SO WHAT ARE THE CHOICES FOR PROPER DISPOSAL?

Businesses and Institutions

1. Manage the lamps as hazardous waste following all hazardous waste regulations.
2. Recycle lamps, for a list of fluorescent lamp recyclers see the Iowa Waste Reduction website at: www.iwrc.org/ search under vendor list, universal waste, and fluorescent bulb recyclers.
3. Provide your solid waste agency with laboratory documentation that the lamps pass the toxicity characteristic leaching procedure, or TCLP. This is a laboratory analysis that determines if the mercury level is below the EPA regulatory limits of 0.2mg/L.
4. Provide your solid waste agency a manufacturer's documentation that the lamps pass the TCLP test and are not considered hazardous waste.
5. Federal Universal Waste Management Standards for lamps (40 CFR 273) can be found at:

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<http://www.epa.gov/epawaste/hazard/wastetypes/universal/lamps/index.htm>

6. For more information about compact fluorescent lamps, visit www.energystar.gov/

Households and CESQG--Contact your local Regional Collection Center (RCC) to see if they will accept spent lamps. For a map to the RCC's in Iowa see: www.iowadnr.gov/Environment/HouseholdHazardousMaterials/RegionalCollectionCenters/RCCLocations.aspx

HOW SHOULD USED (SPENT) BULBS BE MANAGED?

- Store lamps indoors and in a manner that will prevent them from breaking. The box that a new fluorescent lamp was packaged in can be used for the spent fluorescent lamp. Or contact your local recycler to have them provide you with an appropriate container.
- Do not tape lamps together.
- The containers should be labeled in accordance with 40 CFR 273.14(d), "Universal Waste-lamps", "Waste Lamps" or Used Lamps", unless the facility is managing them as hazardous waste, then the label should read "hazardous waste".
- Label the storage container with the date the first lamp was placed in the container.
- Some lamp recyclers offer transportation services, check with your local lamp recycler.
- Make sure all employees know your fluorescent lamp management policy.
- Educate your employees about the dangers of mercury in fluorescent lamps and of your decision to recycle all fluorescent lamps.

What if lamps get broken?

Inhaling mercury or mercury compounds in vapor or powder form can lead to health problems. Mercury can also be absorbed through the skin, broken tubes can be recycled so do not throw them in the trash. If a fluorescent lamp is broken:

- Avoid inhalation of the mercury vapor. Evacuate the room and allow it to ventilate for 30 minutes.
- Liquid mercury can be cleaned up with a mercury spill kit available where safety items are purchased. Broken glass and powder should be cleaned up with stiff paper or cardboard. Wipe up the area with a damp paper towel. Wash your hands.
- Avoid contact with the skin by using disposable gloves.
- Immediately clean up and place broken lamps in an airtight, container labeled "Broken Florescent Lamps".
- The container should be labeled with the date and sent to a recycler within one year.
- If you cannot locate a recycler who will accept them, manage broken bulbs as hazardous waste. Ask your recycler about protocols for broken lamps.

Facilities that break fluorescent tubes to process them for recycling are subject to regulations for hazardous waste treatment facilities.

FACTS

Each year, an estimated 600 million fluorescent lamps are disposed of in US landfills amounting to 30,000 pounds of mercury waste.



One teaspoon of mercury can contaminate a 20 acre lake forever.

LEDs

LEDs do not contain mercury, but they do contain lead and trace amounts of arsenic. If waste generators do not have manufacturer's data showing it passes TCLP, they have to obtain it themselves in order to make a hazardous waste determination. If the lamps fail TCLP, they may be managed as universal waste.

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Questions and Answers

Q. Why should people use CFLs?

A. Switching from traditional light bulbs (called incandescent) to (compact fluorescents) CFLs is an effective, simple change everyone can make right now. They use approximately 66-75% less energy than an incandescent bulb and they last up to 6-10 times longer than a standard incandescent bulb. If every home in America replaced just one incandescent light bulb with an ENERGY STAR qualified CFL, in one year it would save enough energy to light more than 3 million homes. That would prevent the release of greenhouse gas emissions equal to that of about 800,000 cars.

Q. Should I use incandescent bulbs that don't contain mercury instead of CFLs in order to be safe?

A. No mercury is released when CFLs are in use. The risk of exposure to mercury from the occasional broken CFL bulb is very small. Using CFLs reduces the amount of mercury in the environment by reducing the amount of electricity that power companies need to produce.

Q. Can CFLs be used outside in cold temperatures?

A. Yes, there are CFLs that can be used outdoors in temperatures as low as -30C. However, check the low temperature rating on the package to make sure it suits your local climate. If your CFL is used outdoors with a motion detector, the life or your CFL may be shortened.

Q. Do CFLs work with dimmer and three-way switches?

A. Some CFLs are specially designed to work with dimmers and three way switches. Check the package to make sure.

Q. Why do CFLs use less energy than incandescent bulbs?

A. Fluorescent technology is much more efficient at converting energy to light. Standard incandescent bulbs, which have been produced the same way using the same materials for more than 100 years, waste 90% of their energy by producing heat, not light.

Different fixtures need different types of bulbs/lamps. Using the chart, find your fixture and then see which will work best.

For this fixture	Choose this bulb
Harp Shade 	  
Clamp Shade 	
Pendant Fixture 	   
Ceiling Fixture 	   
Ceiling Fan 	   
Wall Sconce 	 
Recessed Can 	  
Track Lighting 	
Outdoor Covered 	  
Outdoor Exposed 	

DISCLAIMER:

This fact sheet is not intended as a substitute for the regulations and statues that apply. Rather, it is a helpful guideline on the topic.