

Frequently Asked Questions about Hazardous Waste Lamps (e.g., fluorescent or other lights containing mercury)

I. Current Regulatory Status of Fluorescent Lamps in NC

What is the current regulatory status of fluorescent lamps in NC?

North Carolina has adopted the federal change to the universal waste rule and rescinded the March 1996 Hazardous Waste Section enforcement policy. This change allows lamps that would be considered hazardous waste to be managed as a universal waste. The rule (64 FR 36465) was issued on July 6, 1999 with an effective date of January 6, 2000. July 1, 2011, Session Law 2010-180, House Bill 1766, all state agencies are required by law to establish a program to collect and recycle the spent fluorescent lights and thermostats containing mercury that are generated in buildings which they own. This law affects all state agencies, including the General Assembly, the General Court of Justice, universities, community colleges, public schools and political subdivisions that use state funds to construct or operate public buildings.

How should fluorescent lamps be managed in NC?

Generator knowledge or testing to make a waste determination should be performed.

- If the lamps are non-hazardous,
 - they can be shipped to a recycler as non-hazardous waste, or
 - they can go to a municipal lined landfill if the landfill will accept them.
- If the lamps are hazardous,
 - they can be managed as any other hazardous waste, including shipment to a recycler as hazardous waste, or
 - they can be managed as a universal waste.
- Household hazardous waste retains its exemption.
- In North Carolina, hazardous waste from a Conditionally Exempt Small Quantity Generator is not allowed in landfills.

Does crushing (using filtered bulk crusher) and collecting vapor from hazardous waste lamps constitute treatment?

Yes.

Is a Resource Conservation and Recovery Act (RCRA) permit needed for this activity?

Treatment can be performed on-site by a generator without a permit if it is performed in containers or tanks that meet the hazardous waste requirements. A permit is required if treatment is performed off-site or if off-site waste is treated on-site. Lamps **cannot** be crushed if they are being managed as universal waste.

II. Background on Hazardous Waste Lamps

What are hazardous waste lamps?

Hazardous waste lamps are hazardous because they exhibit one or more hazardous waste characteristics. There are common types of hazardous waste lamps that may contain sufficient concentrations of mercury or other constituents to cause them to be hazardous. These include, but are not limited to, incandescent, fluorescent, high intensity discharge, metal halide, high-pressure sodium and neon lamps.

Why are used/spent fluorescent lamps considered hazardous waste lamps?

Fluorescent lamps and high intensity discharge lamps contain mercury as an essential component of operation. Studies have shown that a single four-foot fluorescent lamp contains approximately 30 to 40 milligrams of mercury. When a lamp is broken, disposed in a landfill or incinerated, the mercury can contaminate air, surface water or groundwater. Contamination is a concern because mercury is a highly toxic metal that accumulates in greater concentrations as it moves through the food chain (especially fish). When consumed, it harms different parts of the body, including the nervous system and kidneys.

When are used/spent fluorescent lamps considered hazardous waste?

Most fluorescent lamps contain large enough quantities of mercury, and sometimes lead, to fail the Toxicity Characteristic test. This makes them a hazardous waste under RCRA. The toxicity characteristic leaching procedure (TCLP) is a test that measures wastes' potential to leach in a landfill. It also defines whether or not a waste exhibits the toxicity characteristic. The TCLP regulatory limit is 0.2 mg/ L for mercury and 5.0 mg/L for lead. Many businesses are not aware that lamps can be hazardous waste. As a result, they do not recognize that they are generators who must manage lamps as hazardous waste.

Are all fluorescent lamps considered hazardous waste and regulated as such?

Not all lamps are hazardous, and not all hazardous waste lamps are subject to hazardous waste regulations. Lamps that do not fail the TCLP are not considered hazardous waste lamps. Household lamps are not subject to the hazardous waste regulations.

Where can I find information about low mercury-containing lamps on the market?

In addition to increasing efficiency, manufacturers of lights containing mercury have made significant strides in reducing the amount of mercury in their products. Energy Star Products can be reached on EPA's web site.

When does a used lamp become a waste?

A used lamp becomes waste on the date it is discarded. An unused lamp becomes a waste on the date the handler decides to discard it (40 CFR 273.5).

What analytical method is recommended for sampling hazardous waste lamps?

The National Electrical Manufacturers Association has created a standard for sampling and analyzing lights that contain mercury. The standard is called LL 1-1997, or *Procedures for Linear Fluorescent Lamp Sample Preparation and the TCLP Procedures for Linear Fluorescent Lamp Sample Preparation and the TCLP*. This standard demonstrates how to prepare linear

fluorescent lamps for TCLP. It also supplements the TCLP by supplying specific instructions for size reduction and other critical procedures specific to testing linear fluorescent lamps. You can order this standard from Global Engineering Documents and Information Handling Services. Global may be reached at (877) 413-5184 or through the NEMA web site.

III. Management of lamps under the Universal Waste Rule

Do hazardous waste lamps that are managed as universal waste under 40 CFR 273 have to be included in a facility's determination of hazardous waste generator status [40 CFR 261.5(c)(6)]?
No.

Can lamps be consolidated from several locations at a facility?
Yes.

How should conditionally exempt small quantity generators manage their hazardous waste lamps?

CESQGs can choose to manage their hazardous waste lamps in accordance with either the CESQG regulations under 40 CFR 261.5 or as universal waste under 40 CFR 273.8 (a)(2).

How long can lamps be stored/accumulated under the universal waste rule?

Handlers may accumulate universal waste lamps for one year. Handlers must comply with one of the following measures to demonstrate compliance with the accumulation time limit.

- Mark the container holding the lamp.
- Mark the individual lamp.
- Maintain an inventory system.
- Place the lamps in a specific storage area marked with the earliest date a lamp is placed in the area identified.
- Use any other method that demonstrates the length of time the lamp has been accumulated from the date the lamp became waste or was received.

Can fluorescent lamps be crushed and stored in drums under the universal waste rule?

No. Lamps **cannot** be crushed if they are being managed as universal waste.

How should a handler respond when lamps get broken?

Handlers must immediately contain and clean up all releases. They must also place any lamp that is broken in a container (40 CFR 273.13 (d), 273.17, 273.37). Handlers must also contain any universal waste lamps that show evidence of breakage, leakage or damage. These could cause the release of mercury or other hazardous constituents to the environment. One example of appropriate containment is placing unintentionally broken lamps in closed wax fiberboard drums. A determination must be made whether any material resulting from the release is hazardous waste. If so, it must be managed in compliance with all applicable requirements of 40 CFR, parts 260 through 272. Any release of universal waste that is not cleaned up can constitute illegal disposal. If this is the case, you are eligible for enforcement action under RCRA. Universal wastes are hazardous wastes; therefore they are considered hazardous substances. Any release of

a hazardous substance must be reported under the Comprehensive Environmental Response, Compensation, and Liability Act if it is above reportable quantity thresholds. To examine the list of hazardous substances and reportable quantities visit 40 CFR 302.4 table for reportable quantities.

Is training required for handling lamps under the universal waste rule?

Employee training requirements for small quantity handlers of universal waste (SQHUW) and large quantity handlers of universal waste (LQHUW) are found in 40 CFR 273.16 and 273.36 respectively. LQHUW must ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures related to their responsibilities during normal facility operations and emergencies. SQHUW must inform all employees that handle or have responsibilities for managing UW lamps of the proper handling and emergency procedures appropriate for such lamps.

What are the tracking requirements for lamps under the universal waste rule?

A small quantity handler of universal waste is not required to keep records of shipments of universal waste (273.19). A large quantity handler of universal waste must keep a record of each shipment of universal waste received at or sent from the facility (273.39).

What are the packaging/container standards for lamps under the universal waste rule?

Lamps must be stored in containers or packages that remain closed, are structurally sound, adequate to prevent breakage, and compatible with contents of lamps. Containers must lack of evidence of leakage, spillage or damage that could cause leakage under reasonable foreseeable conditions [273.13 (d) & 273.33(d)]. One example is to place the lamps, evenly spaced, in double or triple-ply cardboard containers with closed lids.

Are universal waste lamps subject to land disposal restriction (LDR) requirements?

Generators, transporters and facilities that consolidate universal waste are exempt from the notification requirements in 40 CFR 268.7 and the storage prohibition in 268.50. Destination facilities are subject to the full LDR program.

What are the large quantity handler requirements for managing fluorescent lamps under the universal waste rule?

LQHUW must obtain an EPA ID number if they don't already have one. They also need to provide notification of universal waste management to the EPA or authorized state. They must also track waste lamp shipments by maintaining records that document shipments received by and sent from the facility. Records may take the form of a log, invoice, manifest, bill of lading or other shipping document. Records must be retained three years from the date lamps are received or shipped.

What are the small quantity handler requirements for managing fluorescent lamps under the universal waste rule?

SQHUW are not required to manifest wastes, notify the EPA or state of their universal waste management activities. They are also exempt from obtaining an EPA identification number and keeping records of universal waste shipments. However, North Carolina recommends that shipping papers, which are required by the destination facility, be retained for at least three years.

IV. Disposal and Recycling of Hazardous Waste Lamps

Where can I find a list of disposal and recycling facilities?

For a list of recyclers, refer to the Directory of Markets for Recyclable Materials. Fluorescent lights, fluorescent tubes and ballasts are listed under STEP-1 FLUORESCENT LIGHTS category.

V. Useful Links

- The NC Hazardous Waste Regulations can be found on the internet;
- a DDPEA fact sheet for used fluorescent lamp management is available on the internet;
- DDPEA Focus articles on LCMs are the web;
- DPPEA Markets for Recyclable Materials;
- the Federal Register notice for fluorescent lamps added to the universal waste rule; and
- EPA OSW RCRA online database.