



Waste Lamp Management

Division of Waste and Hazardous Substances, Compliance and Permitting Section

What are mercury containing lamps?

A mercury lamp is the bulb or tube of an electric lighting device that is designed to produce radiant energy. Examples of common lamps include, but are not limited to, tubular and compact fluorescent lamps (CFLs), high intensity discharge lamps, neon lamps, mercury vapor lamps, high-pressure sodium lamps, and metal halide lamps. A used lamp becomes a waste on the date it is taken out of service to be discarded. An unused lamp becomes waste on the date the generator no longer intends to use it.

Waste Lamp Generators

Waste lamps are routinely generated by commercial and industrial businesses and other entities such as hospitals, schools and universities, state and local governments, retail and convenience stores, and tanning salons. All entities, with the exception of households, that generate waste lamps are regulated under Delaware's *Regulations Governing Hazardous Waste* (DRGHW), regardless of whether the entity also generates other hazardous waste.

Households that generate hazardous waste lamps, while not subject to hazardous waste regulatory requirements are encouraged to recycle waste lamps to reduce mercury contamination in the environment. Households may recycle waste lamps at local retailers (e.g., Lowe's, Home Depot) or Delaware Solid Waste Authority (DSWA) household hazardous waste collection events. Collection events can be found by visiting www.dswa.com. Businesses are prohibited from using these events.

Environmental Concerns

Waste lamps often contain levels of mercury that pose a hazard to human health and the environment when improperly managed. Mercury is a toxic metal that can accumulate in living tissue and result in adverse health effects. When a lamp breaks, vapors and mercury-contaminated particles are released into the environment. To reduce environmental concerns, if a business elects to utilize fluorescent lamps, DNREC strongly encourages that once spent, businesses replace high-level mercury fluorescent lamps with low-level mercury fluorescent lamps. Low-level mercury lamps are often identified by their green end caps (i.e., "green tip") or by green writing on the lamps. Although low-level mercury fluorescent lamps contain less mercury than traditional fluorescent lamps, mercury remains an essential component and cannot be eliminated completely. Therefore, when low level-mercury lamps are spent or are ready to be disposed of, DNREC encourages the lamps be directed to a management company approved to reclaim the mercury

and recycle the glass and metal.

Options for Managing Waste Mercury Lamps

The first step in properly managing waste mercury lamps is to determine if the lamps are a hazardous waste. Generators of waste mercury containing lamps can make this determination through use of the Toxicity Characteristic Leaching Procedure (TCLP), EPA Method 1311, found in EPA's test methods of SW-846. The TCLP measures the leachability of certain metals, e.g., mercury, and organic constituents. If the leachate contains concentrations greater than those in §261.24 for the listed chemical constituents, the waste is a hazardous waste. In the case of mercury, that value is 0.2 milligrams per liter (mg/L). As an alternative to analytical testing, a hazardous waste determination can also be made using analytical data provided by the lamp's manufacturer, or documented generator knowledge of the lamp waste.

If a generator does not desire to make an accurate hazardous waste determination, or waste lamps cannot be determined to be non-hazardous, they must be managed as universal waste or as hazardous waste in accordance with the requirements applicable to the generator's hazardous waste generator category.

The requirements for managing waste lamps under the hazardous waste requirements of Parts 260-266 and 268 of DRGHW are found at de.gov/dwhs. Waste lamps, such as green tipped lamps or those demonstrated to be non-hazardous, can be managed as solid waste as discussed below.

Once a lamp is determined to be a hazardous waste, or if a generator desires to manage their lamps without first making a hazardous waste determination, the two options for managing waste lamps are:

- Management as universal waste
- Management as hazardous waste

Managing as Universal Waste (§273.5)

Universal waste is a special designation for certain hazardous wastes that are commonly generated by a variety of businesses. Universal wastes are afforded streamlined regulatory standards appropriate to the hazards they pose in order to ease the burden on the regulated community and encourage recycling. Under the Universal Waste Rule (UWR), small and large quantity handlers of universal waste lamps, as described in §273.5, may manage their waste in accordance with the universal waste regulations.

Depending on the amount of total universal waste that is accumulated on-site at any one time, a business will either be a small quantity handler of universal waste (SQHUW) or a large quantity handler of universal waste (LQHUW). A SQHUW must accumulate less than 5,000 kg (~11,000 lbs) of total universal waste on-site at one time. If 5,000 kg or greater is accumulated, then the handler is a large quantity handler of universal waste. This classification is completely separate from the generator status for hazardous waste. The [Universal Waste Management](#) fact sheet offers an overview of the UWR regulatory requirements.

There are several advantages of managing waste lamps under the UWR, including that universal wastes amounts are not counted towards hazardous waste generator category. Also, when compared to hazardous waste requirements, universal wastes are afforded a longer accumulation time period and reduced recordkeeping, training, and emergency preparedness requirements.

Requirements for managing waste lamps as universal waste:

- Place lamps in containers which are adequate to prevent breakage, such as cardboard boxes;
- Label each container with the words “Universal Waste-Lamps,” “Waste Lamps” or “Used Lamps;”
- Keep containers closed unless adding or removing waste lamps;
- Manage lamps in a way that prevents releases of wastes to the environment;
- Inform employees of types of universal wastes at your site, proper handling, and emergency procedures;
- Waste lamps cannot be accumulated on-site for longer than a year;
- Have an inventory/dating system to demonstrate compliance with the storage time limit;
- Keep records on-site of shipments of universal waste for a minimum of three years (log, invoice, manifest, bill of lading or other shipping document); and
- If a large quantity handler of universal waste, notify DNREC and obtain an EPA ID number.

Crushing lamps is prohibited by universal waste handlers. It is also prohibited to mix waste lamps with other wastes. Waste lamps must be sent to another universal waste handlers or to a treatment, storage, disposal, and recycling facility (TSDf) once shipped off-site.

Managing as Hazardous Waste

If a generator does not desire to manage hazardous waste mercury lamps as universal waste, the lamps must be managed per the regulatory requirements applicable to the site’s hazardous waste generator category. These requirements, found in Parts 260-266 and 268 of DRGHW, de.gov/dwhs, vary depending on a site’s generator category (i.e. VSQG, SQG, or LQG). The [Basic](#)

[Business Guide to Hazardous Waste Management](#) fact sheet offers an overview of the regulatory requirements for the three generator categories.

Some sites elect to crush their hazardous waste lamps instead of managing them intact as hazardous waste. If you accumulate intact lamps prior to crushing, the intact lamps must be managed as hazardous waste (e.g., kept in closed containers marked with the words “Hazardous Waste” and hazard indicators). Crushing lamps may cause human and environmental risks due to mercury vapor release and is strongly discouraged. However, should a generator desire to crush their lamps, the process is considered treatment, requiring both hazardous waste and air quality permits unless specific regulatory requirements are achieved. Please contact the CAPS for further information. Once crushed, the crushed lamps must continue to be managed as hazardous waste unless an accurate hazardous waste determination demonstrates the crushed lamps are no longer a hazardous waste. As a reminder, crushed lamps cannot be managed as universal waste.

Managing Non-Hazardous Lamps as Solid Waste

In order to manage waste lamps as a solid waste, as discussed above, the lamp generator must first make an accurate hazardous waste determination demonstrating the waste mercury lamps are not a hazardous waste. If lamps are determined to be non-hazardous, they may be disposed of in a municipal solid waste landfill operated by the Delaware Solid Waste Authority (DSWA). The generator must receive prior written approval from the DSWA before disposing of the non-hazardous waste lamps; however, recycling intact waste lamps is the preferred management method.

This fact sheet is a summary provided as a courtesy to businesses. It is not intended as a substitute for 7 DE Admin. Code 1302, Delaware’s *Regulations Governing Hazardous Waste* (DRGHW), Parts 260-266, 268, 273 and 279.

regulations.delaware.gov/AdminCode/title7/1000/1300/1302/



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