

## Are Fluorescent Bulbs Hazardous?

Fluorescent bulbs, high intensity discharge lamps (HID), neon, mercury vapor, high pressure sodium, and metal halide lamps contain mercury that can be harmful to human health and the environment when managed improperly. Under current Federal and State law, mercury-containing lamps may be a hazardous waste. In addition, these lamps may contain small quantities of lead that can be potentially harmful to human health and the environment. To prevent these toxic materials from contaminating the environment, these lamps must be disposed of properly and responsibly. The Department of Health gives generators the option of handling spent mercury containing lamps as either hazardous wastes or universal wastes. The Universal Waste Rule (UWR) streamlines requirements for generators, transporters and interim storage facilities that manage waste fluorescent bulbs.

### HAZARDOUS WASTE DETERMINATION

Mercury is the hazardous constituent that makes fluorescent bulbs as a hazardous waste. Each generator is required to make a hazardous waste determination either using knowledge or testing according to Hawaii Administrative Rules (HAR) 11-262.11. A determination may be based on data obtained from the manufacturer. If the mercury concentration of a waste lamp exceeds the regulatory Toxic Characteristic Leaching Procedure (TCLP) limit of 0.2 mg/L, the lamp(s) fails the toxicity test and must be managed as universal waste or hazardous waste.

### DISPOSAL AND MANAGEMENT

Waste fluorescent bulbs may either be recycled, handled as universal waste, or

disposed as hazardous waste. Generators must add the weight of all the hazardous waste (lamps plus other hazardous wastes) that its business generates during a month. It is estimated that approximately 300 bulbs is equal to 220 lbs. [A single four-foot T-12 spent fluorescent lamps weighs approximately 0.75 lbs or 0.336 kg]. For lamp disposal, this quantity of waste includes the mercury in the lamp along with the glass, phosphors, and other materials (the weight of the entire lamp). Different categories of generators have different storage requirements depending on how much hazardous waste their facility generates in one calendar month. Small quantity generators (SQGs) generate 100 - 1000 kg of hazardous waste per month (roughly 300 to 3000 four-foot lamps), and can store hazardous waste up to 270 days. Large quantity generators (LQGs) generate over 1000 kg of hazardous waste per month (more than 3000 four-foot lamps) and can store hazardous waste up to 90 days. SQGs and LQGs may forward their fluorescent lamps to a recycler, hazardous waste disposal facility, or universal waste handler or destination facility. A conditionally exempt small quantity generator (CESQG) generates less than 100kgs/220 lbs of hazardous waste per month. Conditionally exempt small quantity generators are regulated less stringently than SQGs and LQGs, but are still required to identify their hazardous waste, properly store and dispose of their waste to an approved disposal facility. A CESQG may send their waste lamps to a lamp recycler, an accepting solid waste landfill or to a permitted hazardous waste treatment, storage or disposal facility.

The Department of Health encourages businesses to practice pollution prevention (P2) by reducing waste generation at the source. Businesses should use fluorescent bulbs that contain reduced levels of mercury. Further, DOH strongly encourages the recycling of waste fluorescent bulbs.

For more information on the disposal of fluorescent and related lamps, please contact the Department of Health's Solid and Hazardous Waste Branch at (808) 586-4226.

### **FREQUENTLY ASKED QUESTIONS**

**Q: If I am doing a retrofit, what rules apply?**

**A: All hazardous waste (HW) generators are regulated by Hawaii's and EPA's HW rules. The quantity of HW determines the generator status of the facility, e.g., conditionally exempt small quantity generators (CESQGs), SQGs or LQGs (see text). Those facilities that generate more HW are subject to more rules and regulations. All generators must determine the quantity of HW generated, store their HW and dispose of the HW generated properly. For example, if a facility replaces more than 220 lbs of bulbs (i.e., generates approximately 300 used four-foot bulbs), which have been determined to be hazardous, that facility would be a small quantity generator (SQG), and would be required, among other things, to provide safe and secure waste bulb storage, proper labeling of waste bulb storage containers and disposal of the waste bulbs at either a permitted HW treatment, storage or disposal facility, a HW landfill or a fluorescent bulb recycler.**

**Q: If I do not crush my bulbs, how do I determine the amount of hazardous waste my business generates?**

**A: A four-foot fluorescent bulb weighs about 0.75 lbs or .336kg. The total weight of the waste bulbs can be calculated by multiplying the total number of waste bulbs by 0.75 lbs or .336kg. This would be added to the rest of the facility's hazardous waste stream to determine the total HW generation.**

**Q: My facility has a bulb crusher, can I accept and crush bulbs from other facilities off my property?**

**A: Generators that accept hazardous waste fluorescent bulbs other than their own and crush the bulbs would need a hazardous waste permit for this activity.**

**Q: How do I store bulbs safely?**

**A: Bulbs should be stored in the cardboard boxes or the original containers that they came in. Care must be taken to prevent the bulbs from cracking or breaking.**

**Q: How must used lamps be labeled?**

**A: Used lamps stored in a container or boxes must be labeled with the words "HAZARDOUS WASTE" or "Universal Waste-Lamps" and stored in an appropriate location.**