Fact Sheet

Waste Lamps & Ballasts

This fact sheet provides guidance to individuals that create and manage waste lamps and ballasts. Complete management regulations can be found in the Code of Federal Regulations (CFR), Title 40, Part 273 and 261 and the Oregon Administrative Rule (OAR) Chapter 340, Division 113.

Environmental concerns

Fluorescent lamps and High Intensity Discharge (HID) lamps, including mercury vapor, high-pressure sodium, and metal halide lamps from businesses, can contain levels of mercury and lead that make them hazardous waste when disposed. Mercury and lead are toxic metals that can accumulate in living tissue and cause adverse health effects. Businesses and government in Oregon discard several million lamps each year, making these lamps the largest source of mercury in our solid waste-stream. When a lamp is broken, or placed in a landfill or incinerator, metals are released into the environment that may contaminate the air, surface or groundwater.

Lamp ballasts manufactured prior to 1978 likely contain polychlorinated biphenyls (PCBs). When released into the environment, PCBs persist for many years and bioaccumulate in organisms. Studies have shown that PCBs cause cancer in animals, and repeated exposure to PCBs has shown adverse reproductive and developmental effects in animals. Exposure to PCBs can cause liver damage, nausea, dizziness, eye irritation and bronchitis in humans.

Management of lamps as universal waste

The universal waste rule was designed to encourage the collection of certain hazardous wastes that are generated by a wide variety of businesses and institutions. Depending on your individual situation, other options may be preferred to managing your waste lamps as universal waste. A summary of lamp management options is presented in a table on page 2. For specific requirements, refer to the rules listed in the table.

Advantages of managing waste lamps under the universal waste rule are:

- Universal wastes are not counted towards hazardous waste generator status;
- No manifesting required unless the waste lamps are transported through states or treated or disposed in states that do not recognize mercury-containing lamps as a universal waste;
- Increased storage time available; and
- Reduced administrative requirements for record-keeping, training, and emergency preparedness.

Universal waste management requirements

Handlers of waste lamps managed under the universal waste rule must:

- Manage lamps in a way that prevents releases of the waste to the environment;
- Contain lamps in containers such as cardboard boxes or fiber drums, which are adequate to prevent breakage;
- Keep containers closed;
- Minimize lamp breakage and immediately clean up any broken or damaged lamps; and,
- Store broken lamps in a closed, structurally sound container.

Universal waste handlers are prohibited from crushing lamps, or diluting lamps with other wastes. Waste lamps must be sent to a universal waste destination facility for recycling or disposal.

Labeling and marking

Each container of waste lamps must be labeled or marked clearly with one of the following phrases: "Universal Waste—Lamps", "Waste Lamps," or "Used Lamps."

Accumulation time

Waste lamps may be accumulated for up to 1 year. Accumulation of universal waste lamps longer than 1 year is permitted if the handler can demonstrate, if inspected by the Department, that more time is needed to accumulate the quantities necessary to facilitate proper recovery, treatment or disposal.

State of Oregon
Department of Environmental Quality

Land Quality Division
Hazardous Waste Program
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-6753
(800) 452-4011
Fax: (503) 229-6977
Contact: Rick Volpel
www.deq.state.or.us

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By: R. Volpel

Mercury Containing Lamp Management Options

Management As:	Conditions Which Must Be Met	Applicable Rules	Comments
Universal Waste	Management of waste subject to applicable universal waste management standards.	See 40 CFR Part 273* and OAR 340 Division 113**	Universal waste rule is designed to encourage collection of waste. Waste lamps are ultimately subject to hazardous waste management requirements when treated or disposed.
Conditionally Exempt Hazardous Waste	Generator of waste lamps must be a conditionally exempt generator (<220 lbs. hazardous waste generated per month and <2,200 lbs. hazardous waste stored at any one time).	See 40 CFR 261.5	Waste lamps may be disposed of in solid waste landfill, if allowed by the operator.
Solid Waste	Waste lamps must not exhibit hazardous waste characteristics.	See OAR 340-102-0011 for hazardous waste determination requirements	Some fluorescent lamps do not exhibit hazardous waste characteristics.
Hazardous Waste	Generator must follow applicable hazardous waste regulations.	See 40 CFR 260-266, 268, OAR 340 Divisions 100 to 106, and 108	Most restrictive management requirements. Waste must be sent directly to permitted hazardous waste facility.

* *40 CFR is Title 40 of the Code of Federal Regulations and contains the Federal environmental regulations.*
** *OAR 340 is Chapter 340 of the Oregon Administrative Rules and contains the State environmental regulations.*

Lamp crushing

Crushing of universal waste lamps is prohibited under the universal waste regulations. However, crushing is allowed if the waste will be managed as hazardous waste. (See discussion below under "Management of Waste Lamps as Hazardous Waste".)

Management of waste lamps as hazardous waste

Generators of waste lamps may decide, in lieu of the management as universal waste, to manage their waste lamps as hazardous waste. Management of lamps as hazardous waste is more restrictive than under the universal waste rule and, depending on the amount of hazardous waste generated, may:

- Limit the time waste can be accumulated;
- Be subject to hazardous waste generation fees;
- Require additional training, emergency preparedness and contingency plans to be developed; and
- Require annual reporting of waste generated.

Conditionally exempt hazardous waste

Waste lamps may be managed as conditionally-exempt generator waste if the generator of the waste is a conditionally-exempt hazardous waste generator. A conditionally-exempt hazardous waste generator is a generator that produces less than 220 pounds of hazardous waste per month. When determining if they are conditionally-exempt, hazardous waste generators must count

all their hazardous waste (lamps and other hazardous waste) generated during the calendar month.

To remain "conditionally-exempt" from the more stringent hazardous waste management requirements, generators who produce less than 220 pounds of hazardous waste must:

- Ensure delivery of their waste to a hazardous waste disposal or recycling facility, or a solid waste disposal facility, and
- Accumulate no more than 2,200 pounds of hazardous waste at any one time.

Crushing lamps

Crushing lamps is permitted if the waste lamps are managed under the hazardous waste regulations or if the waste lamps are determined to be a solid waste. Lamps must be crushed in commercially available crushing units that are designed to control mercury emissions.

Crushing is allowed provided that the generator of the lamps:

- Crushes lamps in a well-ventilated and monitored area to ensure compliance with applicable OSHA exposure limits for mercury;
- Ensures that employees crushing lamps are thoroughly familiar with proper waste mercury handling and emergency procedures; and
- Stores crushed tubes in closed, non-leaking containers.

When making a decision to crush lamps, be aware that the crushing may add additional costs to prepare lamps for disposal or recycling. In addition, lamp recyclers may prefer whole lamps to crushed ones. Crushing units also can pose health and environmental risks because of the release of mercury vapors.

Management of waste lamps as solid waste

Waste lamps may be managed as solid waste if they do not exhibit a hazardous waste characteristic. In many cases, any such characteristic exhibited will be for mercury. Waste lamps used in special situations, such as photo processing, or larger HID lamps, can also exhibit hazardous waste characteristics for cadmium or lead.

To manage waste lamps as solid waste, a generator must first determine that their lamps do not exhibit a hazardous waste characteristic. A generator may do this by:

- Testing a representative sample of the waste, using the Toxicity Characteristic Leaching Procedure (TCLP); or,
- Using process knowledge of the waste. In this case, knowledge of the waste could be obtained from the manufacturer. Lamp manufacturers now offer low mercury lamps that do not exhibit hazardous waste characteristics. Be sure to have documentation from the manufacturer that the lamps you are using have been tested and are not hazardous waste. You must be able to demonstrate that the data used in your waste determination is for the type of lamps (i.e., the brand and model) you are disposing.

For more information regarding how to perform a hazardous waste determination, refer to the Department's Hazardous Waste Determination Fact Sheet.

Lamp collection services

The following is a partial list of firms that offer waste lamp services. DEQ does not endorse specific recyclers or disposal firms.

DEQ, by providing the list, does not imply that the companies are in compliance with applicable laws. DEQ cautions generators to personally evaluate the services and compliance status of any company they use to manage their waste.

- *AERC/MTI, Hayward CA (800)628-3675*
- *American Appliance Recyclers, White City, OR (541) 826-2211*
- *Earth Protection Services, Inc., Tigard, OR (503) 620-2466*
- *Environmental Protective Services of Oregon, Inc. Brooks, OR (503) 550-0255; Portland (503) 408-8956*
- *Ecolights Northwest, Seattle, WA (206) 343-1247*
- *Lighting Resources, Ontario, CA (888) 923-7252*
- *Onyx Environmental Services, Vancouver, WA (877) 652-6292*
- *Philip Services Corp., Washougal, WA (800) 547-2436*
- *Safety-Kleen, Clackamas, OR (503) 655-579; Springfield, OR: (541) 747-5804*

Management of lamp ballasts

Light ballasts are the primary electrical components of fluorescent light fixtures and are generally located within the fixture under a metal cover plate. In older ballasts, a tar-like substance surrounds the components of the ballast that is designed to muffle the noise that is inherent in the operation of these ballasts.

Before the U.S. Environmental Protection Agency (EPA) banned the manufacture of PCBs in 1978, PCBs were commonly used in ballasts. All lamp ballasts manufactured since 1978 that do not contain PCBs should be marked by the manufacturer with the statement "No PCBs."

For ballasts manufactured prior to 1978, or for those that do not contain a statement regarding PCB content, you should assume that they contain PCBs.

PCB-containing ballasts contain approximately 1 to 1½ ounces of PCBs. If the ballast fails, PCBs may drip out of the fixture. If it does, measures should be taken to limit or avoid personal exposures.

Disposal of ballasts containing PCBs

The best option for non-leaking PCB ballasts is to recycle them at a facility with EPA approval for recycling PCB ballasts. Use a broker with EPA interim status as a PCB commercial storage facility to transport them to the recycling facility. Non-leaking PCB ballasts that are not recycled must be managed and disposed at a PCB disposal facility.

Leaking PCB ballasts must be managed as PCB waste and disposed in a facility regulated under the Federal Toxic Substances Control Act (TSCA).

Brokers that collect PCB ballasts:

EcoLights Northwest, Seattle, WA
(206) 343-1247

Facilities with EPA approval for recycling fluorescent light ballasts:

(Call company for shipping guidelines.)

- *Earth Protection Services, Inc., Tigard, OR (503) 620-2466*
- *Mercury Waste Solutions, MN (877)636-6514*
- *Onyx Environmental Services, Vancouver, WA (877) 652-6292*
- *Trans-Cycle Industries, AL (800) 909-9997*

Additional information from DEQ

- Universal Waste Regulations
- Universal Waste Handler Fact sheet
- Hazardous Waste Determination Fact Sheet
- Oregon Hazardous Waste Regulations

For more information on Hazardous Waste Management, contact DEQ at (503) 229-5913 or visit our website.

For PCB disposal information contact EPA Region X at (503) 326-3399 or visit:

http://yosemite.epa.gov/R10/OWCM.NSF/pcb/pcb

Need technical assistance managing waste?

DEQ Technical assistance is available:

- Free on-site visits
- Free telephone consultations
- Hazardous waste training

DEQ Technical assistance can help you:

- Understand how hazardous waste regulations apply to your business
- Determine which wastes are hazardous
- Complete reporting forms
- Manage wastes better
- Reduce disposal costs
- Minimize the waste you produce
- Determine what areas need improvement

If you would like technical assistance or have any questions about your hazardous waste determination responsibilities, please contact the DEQ field office nearest you:

- *Bend (541) 388-6146*
- *Eugene (541) 686-7838*
- *Medford (541) 776-6010*
- *Portland (503) 229-5263*
- *Salem (503) 378-8240*

For more information on technical assistance, please visit:
http://www.deq.state.or.us/wmc/hw/hwta.html.

Alternative Formats

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