

Lamp Disposal Regulations Vary By State

by Carl M. Watson, P.E., LC

It is widely known that most fluorescent, compact fluorescent (CF), high intensity discharge (HID) lamps including mercury vapor, metal halide, high pressure sodium lamps, and even neon lamps do contain mercury. They are therefore subject to state and federal regulation based on the toxicity of that heavy metal. More than four years ago, as part of an ongoing effort to reduce the amount of hazardous waste material entering the municipal waste stream to incinerators and landfills, the U.S. Environmental Protection Agency (EPA) issued their "Universal Waste" rule regarding the disposal of lamps containing mercury. This new rule became effective on January 6, 2000.

Under this rule, lamps with a mercury content at or above a specific level (lamps which do not pass the Toxicity Characteristic Leaching Procedure [TCLP] test) are to be handled as a universal (non-hazardous) waste provided that they are delivered intact (unbroken) directly to a properly qualified lamp disposal company. Alternatively, if this lamp recycling process is not followed, then the lamps must be treated as a hazardous waste. Accordingly, the lamps must be handled using special (costly) 'Hazmat' manifesting for transportation to a site with personnel specially trained to receive, handle and dispose of toxic hazardous materials. For more information on transporting hazardous materials, visit the website: <http://hazmat.dot.gov/>. These lamps cannot be included with other non-hazardous construction waste. And, including large quantities of mercury-containing lamps could even result in the rejection of a load of waste at a landfill. Nor can the lamps be intentionally crushed, which releases the toxic material to the atmosphere, and could lead to serious penalties from state and /or federal authorities. Although the property owner (the waste 'Generator') has the primary responsibility for ensuring that proper disposal of spent lamps actually occurs, the entity that removes the lamps from service can also be held responsible (as a 'Co-Generator' of the lamp waste).

The federal Environmental Protection Agency (EPA) rules for spent lamp disposal provides for two exemptions. The first is for residential properties, which can dispose of small quantities of lamps with their everyday municipal waste. The second is for "Conditionally-Exempt Small Quantity waste Generators" (CESQG's), which are allowed to dispose of up to 100 kg (220 pounds) of mercury-containing lamps per month with their other non-hazardous waste stream. Obviously, this cannot include any other even more (highly) toxic substances such as PCB-containing lighting ballasts or asbestos-containing materials, etc. All other Generators of larger quantities of mercury-containing lamps including commercial, institutional, municipal and industrial sites are required to adhere to this "Universal Waste" rule and to recycle their lamps.

However, the Commonwealth of Pennsylvania's Department of Environmental Protection (DEP) in adopting its version of the rules for mercury-containing lamp disposal has no such exemption for CESQG's. Because of the much higher costs for the alternative, this effectively mandates lamp recycling at all sites (except residential) in Pennsylvania. That means that nearly all non-TCLP-compliant lamps must be properly disposed of virtually every time they are removed from service. The intent of the DEP is that all mercury-containing lamps be recycled. For more information concerning mercury-containing lamps, search for Mercury at DEP's website: <http://www.dep.state.pa.us/>.

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The costs of recycling can range from 10 to 15 cents per foot of lamp for linear fluorescent lamps, \$0.50 to \$1.00 per lamp for CF lamps, and \$1.00 to \$2.00 each for HID lamps (due, in part, to their more unique material content and complexity). For more information visit the website: <http://www.lamprecycle.org/>, or the Association of Lamp and Mercury Recyclers (ALMR) at their website: <http://www.almr.org/> .

There is light at the end of this tunnel. All three major lamp manufacturers now offer a wide range of fluorescent, CF, and HID lamps that pass the TCLP test with (in most cases) no additional price premium (see table below). One manufacturer now even offers a mercury-free (also lead-free) high pressure sodium (HPS) lamp. Most new mercury-containing lamps now have a small “Hg” (the chemical symbol for the element mercury) on both the lamp and its package. Those lamps that are low toxicity (low mercury-content) generally have either a green metal end cap, a green text etch on the lamp, or a green tip on the end of the lamp (on some HID lamps). Notwithstanding this, it could be more prudent (environmentally conservative) to simply recycle all mercury-containing lamps, regardless of the amount of their toxic material content.

This is important to all of us as electrical professionals. If you design or specify lighting, you should educate your clients and include low toxicity lamps in all your new projects. If you represent lighting manufacturers, you should inform your customers of the potential real cost avoidance of using TCLP-compliant lamps. If you are a distributor, you will want to stock these lamps whenever possible. If you are a contractor, you will want to reduce your liability risk by recycling lamps that you dispose of, and by using low toxicity lamps on all future installation in which you participate.

Our clients, our customers and future generations of customers depend on us to lead them in the direction of a brighter, healthier and more toxic free environment.

Lamp Manufacturer	Low-Toxicity Trade Name
General Electric Lighting	ECOLUX
Philips Lighting	ALTO
Osram SYLVANIA	ECOLOGIC