

Light Bulb Facts

Bulb Choices

Few of us give any thought at all as to the types of light bulbs we buy and the energy they consume, let alone the pollution generated by the local power plant as it generates the energy we are consuming. But recently, as energy costs have risen, more and more people think about these issues or at the very least, how one can lower monthly energy bills. Fortunately, **the same actions that will lower energy costs will also decrease pollution.**

When shopping for bulbs, it's easy to get overwhelmed by the wide range of options. To simplify matters, most businesses are concerned with four major options: Incandescent, fluorescent, compact fluorescent and low-mercury (green-tip) fluorescent.

Incandescent bulbs and fluorescent bulbs are the most common lighting used in businesses today. **Switching to either compact fluorescent or low-mercury fluorescent bulbs can have a major impact on energy cost** savings, as well as lessen your contribution to energy production-related pollution, including global warming⁽¹⁾.

Follow these links to learn more about [compact fluorescent](#) and [low-mercury bulbs](#), and to use the cost-benefit calculators to determine how much switching will save you.

Switching from incandescent to fluorescent will save energy. Incandescent bulbs are very inefficient since their mode of generating light is just a by-product of generating heat. But fluorescent bulbs produce light in a very different and more efficient way. That is why you can buy a 15-watt (w) fluorescent bulb that generates the same amount of light as a 60w incandescent. This makes a fluorescent bulb four to six times more efficient⁽²⁾. Additionally, consider reducing wattage in areas such as hallways and reception areas to further increase savings and pollution prevention benefits.



Bulb Recycling

If you're currently using incandescent or even fluorescent bulbs, you may be unfamiliar with used bulb recycling. Incandescent bulbs can be thrown in the trash with no problem. **A business throwing away fluorescent bulbs is *not* acceptable.**

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Fluorescent bulbs contain mercury, which is a regulated toxin. Today, the average mercury content in a 4-foot-long bulb is approximately 12 mg, as compared to bulbs manufactured in the 1980s, which contained about 40 mg of mercury⁽³⁾. The toxic threshold for mercury in waste enforced by the United States Environmental Protection Agency (EPA) is 0.2 mg/L⁽⁴⁾. When fluorescent bulbs are thrown in the trash, they are inevitably broken, releasing mercury vapor into the surrounding air and soil. According to the EPA's Toxic Release Inventory (TRI) data, approximately 2,079 to 2,554 metric tons of mercury were released to land between 2002 and 2003⁽⁵⁾.

If mercury is ingested, it is unable to be broken down and causes brain, spinal cord, kidney and liver damage⁽⁶⁾. Mercury that is released into the atmosphere is eventually deposited onto land and water. There it transforms into methylmercury, a compound that bioaccumulates in animals and people. When people eat large predator fish that have high levels of mercury in their flesh, the people accumulate the mercury in their bodies. **Those at most danger from methylmercury poisoning include fetuses, children AND adults.** Mothers exposed to methylmercury during pregnancy with no apparent symptoms can give birth to babies with severe defects⁽⁷⁾.

To avoid inadvertently exposing yourself, your employees and/or the environment to mercury, ensure that all fluorescent bulbs are recycled. Although spent bulbs may be considered hazardous waste due to the level of mercury contained in them, the EPA allows them to be recycled under the Universal Waste Rule. The rule is designed to reduce hazardous waste in the municipal solid waste (MSW) stream by making it easier for universal waste handlers to collect and send them for recycling⁽⁸⁾. Spent bulbs are crushed under appropriate conditions, the glass is recycled and the mercury vapor and phosphor are collected and reused.

Recycling spent bulbs is so easy, yet of the 670 million mercury-containing bulbs manufactured in 2003, only 23% were estimated to be recycled, meaning most were NOT recycled⁽⁹⁾. Onsite, spent mercury-containing bulbs may simply be stored to ensure they do not break, and must be recycled once a year through a certified universal waste hauler. Most universal waste haulers will provide proper storage containers and recycling can cost as little as 50 cents per bulb. See a more detailed summary of the Universal Waste Rule and a list of Universal Waste Haulers.

References

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- (4) Code of Federal Regulations (CFR) Chapter 40 Part 261.24. <http://www.gpoaccess.gov/cfr/retrieve.html>
- (5) United States Environmental Protection Agency, 'EPA's Roadmap for Mercury' July 2006, <http://www.epa.gov/mercury/pdfs/FINAL-Mercury-Roadmap-6-29.pdf>
- (6) Environmental Media Services, <http://www.ems.org>
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- (8) United States Environmental Protection Agency, <http://www.epa.gov/epaoswer/hazwaste/id/univwast/index.htm>
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