

WARNING!



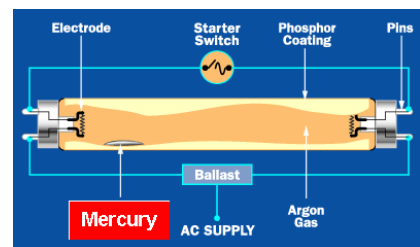
Toxic



Toxic

**FLUORESCENT LIGHTING
CAN BE HAZARDOUS
TO YOUR
HEALTH AND WEALTH!**

More and more emphasis is being placed upon health risks associated with dispersed mercury contained in all forms of fluorescent lighting. Standards for cleaning up accidental breakage are being tightened to the point where “hazardous materials” (“HAZMATS”) handling is now required. Broken bulbs cannot be swept or vacuumed. Special procedures must be used in accordance with Environmental Protection Agency (“EPA”) rules and regulations. Not only is a broken fluorescent bulb hazardous to your health, but fines for improper clean-up and disposal can be hazardous to your wealth.



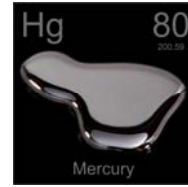
Facility managers are increasingly faced with the tradeoff between installing inexpensive energy efficiency fluorescent lighting (T5/T8) or very expensive and potentially eye-damaging LED fixtures.

The problem stems from “dispersed mercury” that is present in the body of all fluorescent tubes. If the tube is broken, this mercury can spread throughout the indoor environment.

The Mercury Dilemma –

In an effort to become more energy efficient and save on electrical overheads, facility managers have rapidly embraced newer T5 and T8 fluorescent fixtures as well as compact fluorescent bulbs.

Unfortunately, little or no consideration may be given to the extensive environmental, health, and maintenance hazards associated with these highly popular lighting alternatives. To be sure, new fluorescent technologies offer greater efficiencies at attractive initial capital costs. However, the problem of dispersed mercury persists and exposure to fines and lawsuits is expanding.



Mercury contamination comes under the jurisdictions of the Environmental Protection Agency (EPA) and Department of Environmental Protection (DEP). It is also overseen by the Occupational Safety and Health Administration (OSHA). This triple-whammy regulatory exposure has broad implications within the context of recommended or required clean-up and disposal procedures. Facility and maintenance managers must comply with safety and handling rules and regulations, or face potentially crippling fines... even total facility shut-downs. Consequential civil law suits for health problems associated with mercury exposure represent even further financial risks.

Procedures for Clean-up and Disposal –



Dispersed mercury **cannot** be swept up or vacuumed using a standard vacuum cleaner. This is because such action can further spread mercury vapor and solids within the enclosed space. Clean-up requires the use of duct tape or another highly sticky material that can pick up the debris without spreading mercury or mercury-impregnated phosphorous. In the event of breakage, the entire space must be ventilated by opening windows to the outside. Air conditioning systems must be shut-down while clean-up is underway. All non-essential personnel must evacuate the space and clean-up crews should wear ventilator masks or some suitable air filtration protection. Elbow-length gloves should be used and must be properly disposed of in a “Hazmats” heavy duty red plastic bag.



Mercury-approved vacuums can cost between \$7,000.00 and \$21,000.00.

All material must be bagged and labeled for hazmats disposal. The floor must be vigorously cleaned and all clean-up materials like rags, sponges and mops... including the water, must be disposed of as hazmats.

Using New York City union labor rates, a single broken bulb event can cost as much as \$320.00 based upon four hours of labor with a minimum of two workers at \$40 per hour. Mercury-approved vacuum cleaners range from small “spill units” that do not qualify for wide surfaces like floors to industrial mercury recovery systems that can cost more than \$20,000.00. Cleaning and maintenance on these machines is very expensive and they must be operated by trained personnel. Single incident “spill-kits” range



A mercury spill-kit can cost between \$195.00 and \$250.00.

between \$195.00 and \$250.00. Consider that one broken bulb could cost a union maintained building \$570.00... more than the cost of the fixture!

As unrealistic as the clean-up procedures may seem, this is the way government regulation works. Many facility managers find such clean-up routines excessive. However, it is not up to the facility manager to decide how government regulation is designed and implemented.

Legal Risks and Exposures –

“*Who’s gonna know?*” A typical reaction to clean-up requirements is to simply ignore them and sweep up the broken fluorescent bulb. Unfortunately, modern technology forecloses the assumption that no one will know. Everyone has a cell phone and most are capable of taking video clips. In this age of promoted “whistle-blowing,” a worker can video an improper clean-up incident and submit it to various authorities or use it in litigation, claiming harmful mercury exposure.



Mercury poisoning is serious. Even the exposure to mercury and the “mental duress” that can come from such exposure represents legal risks. At Hillside Air Force Base a worker accused the maintenance crew of an improper mercury clean-up in 2007. Based upon the allegations, HAFB faced fines of up to \$13,000.00 *per day* for the entire period between the alleged incident and the mitigation. Attorney Scot Boyd, of the Salt Lake City firm of Christensen & Jensen, represents the former HAFB employee who stands to make a whistle-blower reward for reporting the situation as well as a legal award for mercury exposure.

The State of Oregon issued the following notice to private sector building owners, public facilities, and school districts:

Important information for all building owners and school districts:

All fluorescent lights and many magnetic ballasts and thermostats contain hazardous materials that must be disposed of properly in order to avoid serious potential environmental and health problems. The Environmental Protection Agency (EPA) may issue substantial fines to business owners and school districts that do not follow defined disposal procedures even if the process is contracted to a third party.

Fines in Oregon can be up to \$27,000.00 *per day* for the entire period between improper clean-up and *proof of mitigation*. The EPA has the authority to shut down entire buildings and even outdoor facilities if it suspects mercury contamination.

As if the risk of draconian government agency fines is not enough, legal awards for mercury poisoning or exposure have been in the *millions of dollars*. Class action exposure can literally be crippling. Making matters worse, there is no insurance coverage for negligent handling of a known hazmats clean-up involving mercury.

Avoiding Risks with Magnetic Induction Lighting (MIL) –

Ultra-Tech Lighting has addressed the dispersed mercury problem by using encapsulated *solid* mercury amalgam similar to the silver/mercury amalgam used by dentists to fill cavities. The mercury is totally isolated from the main interior of the bulb to prevent the possibility of dispersion.

Magnetic induction lights do not use dispersed mercury. The bulbs are not pressurized or evacuated (vacuum)... there is no danger of explosion or implosion. The solid mercury amalgam is encapsulated in a spring-loaded glass slug that can easily be removed from the main tube for recycling. The remainder of the bulb can be discarded as regular glass and metal waste.



A small solid mercury amalgam ball is easily and safely snapped off for recycling. Magnets are recyclable metal and the remainder of the bulb is disposable glass.

MIL fixtures do not use traditional ballasts. Instead, they are activated by an electronic “driver” that serves the same function as a ballast. Modern circuitry design avoids the use of mercury and PCBs. The entire technology is “Green.”

No hazardous waste disposal fees are imposed upon MIL bulbs or fixtures. As landfills become increasingly scarce, disposal fees become an integral component of lifecycle cost analysis. Since typical indoor magnetic induction fixtures are comparable in cost to good quality T5 and T8 fluorescent fixtures like the popular 2 x 2 “troffer,” there is no premium for using Ultra-Tech Lighting MIL over T8 and T5 alternatives.



Most importantly, MIL lamps last 100,000 hours which is more than 50 times longer than typical T5 and T8 fluorescent bulbs. This translates into 11 years of continuous operation... 24 hours a day, 365 days per year.

Equally impressive... MIL lights are more energy efficient – producing more than 85 lumens per watt. MIL bulbs do not degrade over their lifecycle... retaining more than 90% of their luminosity over their service life.

Don't Risk the Exposure –

If you are considering a retrofit or new installation using fluorescent fixtures, consider the exposure. Why take the risk when there is an easy and effective solution that can protect you and your organization from fines, shut-downs and employee claims? Use Ultra-Tech™ Lighting!

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