

Damaged metal-halide lights and other high-intensity discharge lights can cause UV radiation burns

Employers: These types of lights are commonly used in many large indoor or outdoor facilities where high intensity lighting is needed. Incidents with injuries have been reported nationwide.

- At least 50 teachers in Lake Oswego, Oregon, were exposed to high levels of UV radiation from a broken metal halide light bulb (Type R) during a training session located in the school's gymnasium. Many individuals experienced temporary symptoms such as eye and skin irritation. However, three teachers received painful burns to their skin and eyes and have ongoing health problems.

What are high-intensity discharge lights?

This classification includes three basic types of long-lasting lights: **metal halide**, **mercury vapor**, and **high-pressure sodium** lights. Metal halide and mercury vapor lights are typically installed in locations such as large warehouses, warehouse-type retail stores, and sports facilities. High-pressure sodium lights are more commonly used for street and highway lighting.

When turned on, the "arc tube" in these lights emits high intensity light, including potentially harmful levels of **ultra violet** (UV) radiation. Arc tubes are either sealed in an outer glass bulb or covered by a fixture that filters out the UV radiation.

Why the concern about these lights?

Undamaged lights are not a concern, but cracked bulbs or covers can expose individuals in the area to high levels of UV radiation. *Individuals may not know they are exposed since damage to the bulb or cover isn't always visible and the damaged light may continue to work.* Metal halide and mercury vapor lights that carry a "T" in their serial number are an exception to this concern since they are designed to self-extinguish within 15 minutes when damaged.

Depending on how long people are exposed, they can show symptoms and health effects ranging from skin irritation and temporary loss of vision to severe skin burns and long-term damage to the eye's cornea. The onset of symptoms and health effects from overexposure to UV is often delayed.

What can I do to protect employees from this possible hazard?

First, check to see if you use these types of lights in locations where individuals can be exposed. If you need to read serial numbers on installed bulbs, be sure to turn lights off.

Then, if you have lights that don't self-extinguish and could be subject to physical damage from impacts from balls and other items, one "best practice" solution is to use "T" type bulbs. Alternatively, you can install fully-enclosed fixtures that prevent possible impact damage to bulbs or newer technology light fixtures that don't emit UV radiation.

If you can't use a safer light source, take steps to make sure cracked bulbs get detected quickly and replaced promptly. For example, train employees to quickly report potential incidents for maintenance follow-up. In general, employees will need to know:

- Where these light sources are located in their work area and how the lights can become hazardous.
- How to report observations of broken glass, cracked bulbs and covers, and incidents where lights may have been struck with equipment and other objects. Remind them the lights may still work even when damaged and unsafe.
- How to take proper safety precautions when inspecting or replacing lights. For example, properly disconnect the power when removing bulbs and always check exposed electrical contacts with an appropriate sensor before risking contact.

When do Washington Administrative Code (WAC) requirements apply?

Non-ionizing radiation requirements in WAC 296-62-09005 (1), (2), and (5) cover preventative measures and apply when your employees could be exposed to hazardous levels of UV radiation, a type of “non-ionizing” radiation.

Other WAC requirements may also apply, including the Safety & Health Core rules. For example, electrical and ladder safety rules may be applicable during maintenance practices. Visit our Web site at www.SafetyRules.Lni.wa.gov to access these rules.

Other resources

To access this hazard alert and the following links, go to our Web site and use the Topic Index to find our main Hazard Alerts Web page.

- The U.S. Food and Drug Administration developed a [notice](#) to help schools and businesses prevent UV radiation burns.
- Warning from [National Electrical Manufacturers Assoc.](#)
- Information from the [New Jersey Dept. of Environmental Protection.](#)
- [Report of several cases in TN](#) Web page.
- A 2004 incident at a school gym in Lake Oswego, Oregon.
[NEC Internet Connection - Mike Holt](#)
- A 2004 incident at a school gym in Moosomin, Sask.
[NEC Internet Connection - Canadian Occ. Health & Safety News](#)

How can I get help from Labor & Industries?

L&I provides consultations, training, and technical assistance at no cost to employers.

Call today to schedule a free, confidential consultation or visit

www.SafetyConsultants.Lni.wa.gov for more information. You may also call

1-800-423-7233 or visit a local L&I office and ask for the consultation supervisor.

Hazard Alert inside

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