



Hazard alert

Metal Halide Lights

While efficient and bright, metal halide lights can be hazardous in multiple ways: ultraviolet (UV) radiation exposure, possible explosion, high heat, electrical hazards, and possible toxic chemical exposure.

One Oregon OSHA inspection found that 60 employees experienced serious skin and eye inflammation after attending a training in a school gymnasium. The source of the injuries was a 400-watt metal-halide lamp with its protective outer jacket broken. The bulb's inner quartz tube continued to illuminate, and it emitted ultraviolet radiation.

Exposures

Measurements of UV radiation levels were taken at various locations throughout the gym. Sampling of the UV light source using a similar metal-halide bulb with a broken protective envelope was performed in an attempt to replicate the employees' exposures. UV exposures throughout the gym ranged from 0.1 microwatts per square centimeter (mW/cm²) in the corners of the gym, to 6.0 mW/cm² beneath the bare tube. An exposure intensity of 6.0 mW/cm², a full-day exposure according to published guidelines of the American Conference of Governmental Industrial Hygienists (ACGIH), would occur in only eight minutes.

Measurements were also taken with intact bulbs to represent normal conditions. UV levels were within acceptable levels.

Specifications

Requirements for luminaries for indoor sports, mixed-use, and all-purpose facilities are contained within Article 410 of the National Electric Code. Mercury-vapor or metal-halide bulbs located in playing and spectator areas subject to physical damage must have a glass or plastic lens that protects the lamp; open bulbs are not permitted. An additional external guard can also be used to prevent a ball from striking the bulb, but is not a substitute for the required lens.

Prevention

- Use enclosed fixtures
- Follow the manufacturer's replacement guidelines
- Use appropriate personal protective equipment (PPE) during handling or maintenance
- Dispose of broken or outdated lights as hazardous waste
- Consider LED replacements for metal halide



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Workers

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