



UV Light Safety

Ultra-violet light (UV) is defined as electromagnetic radiation in the spectral region between 180 and 400 nanometers (nm). It is divided into three specific ranges: UVA (320 – 400 nm); UVB (290 – 320 nm); and UVC (180 – 290 nm). The permissible exposure limit is based on the wavelengths of the specific region of the UV spectrum to which the individual is exposed, the duration of the exposure, and the intensity of the light. Hand-held “black lights” used to examine documents or cause minerals to fluorescence typically emit light in the UVA band only and are not hazardous to the user.

Areas or sources of hazardous UV light exposure include, but are not limited to:

- Welding operations.
- Biological laboratories using UV crosslinkers and light boxes to visualize gels.
- Areas where germicidal UV lights are used, including biological safety cabinets.
- Mercury vapor lamps with broken or missing envelopes.

Immediate or prolonged exposure to UVB and UVC light can result in sunburns, premature skin aging, and even skin cancer. A painful eye injury, called photokeratitis, can also result from an overexposure to UV radiation. Symptoms of an eye injury, which may not develop until several hours after the overexposure, include:

- Burning and painful sensation in the eye.
- A sensitivity to light.
- Sensation of a foreign object in the eye, sometimes described as sand in the eye.
- Tearing.

Environmental Health and Safety can provide helpful information on appropriate protection for all types of UV sources. Keys to UV light safety and exposure reduction:

- Equipment with UV lights should be conspicuously labeled.
- Goggles protect the eyes but leave the face skin vulnerable. A full face shield or welder’s helmet should be worn to protect the eyes and face. Eye and face protection **MUST** be rated for protection against UV light.
- Use protective clothing including gloves, long sleeve shirts, and lab coats to reduce exposure to the skin of hands, forearms and body.
- Appropriate shielding should be used around the source to limit exposure to the user and bystanders, such as welding curtains.
- Close the hood sash completely when using UV lights to sterilize a biological safety cabinet.
- Limiting the exposure time is critical in limiting damage.

For more information contact EHS at 814 – 865 – 6391, or visit our UV information web site at: http://www.ehs.psu.edu/radprot/ultraviolet_hazards.cfm.

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