Fact Sheet

UCR | Environmental Health & Safety

UV Radiation

Background Information

Ultraviolet radiation is a part of electromagnetic spectrum with wavelength of 200 to 400 nm. The most common sources of UV in laboratories are germicidal lamps in biosafety cabinets nucleic acid transillumination boxes, and nucleic acid crosslinkers.

Potential Hazards:

There are no immediate warning symptoms to indicate overexposure. Symptoms of overexposure include varying degrees of erythema (sunburn) or photokeratitis (welder's flash) typically appear hours after exposure has occurred.

- **Skin injury**: Wavelengths below 320 nm are primarily responsible for reddening and burning. These symptoms may vary from a simple reddening at the site of exposure to sever blistering and desquamation.
- **Eye Injury**: UV exposure can injure the cornea, the outer protective coating of the eye. Symptoms include a sensation of sand in the eye that may last up to two days. Chronic exposure to acute high energy radiation can lead to the formation of cataracts.

Special Work Practices

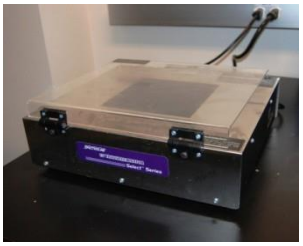
Never allow the skin or eyes to be overexposed to UV radiation sources. UV radiation generated by some of the laboratory equipment can exceed recommended exposure limits and cause injury with exposures as brief as three seconds in duration.

Biological Safety Cabinet

Never work in a biological safety cabinet while the germicidal lamp is on. If possible, close the sash while the lamp is on.

Transilluminators

Never use a transilluminator without the protective shield in place. Shields must be kept clean and replaced when damaged



Crosslinkers

Crosslinkers must not be used if the door safety interlock is not working properly

Personal Protective Equipment

Protective Clothing

Wear standard laboratory apparel including a fully buttoned lab coat, long pants, and closed toe shoes. While working with UV radiation sources, lab workers must be particularly careful to prevent gaps in protective clothing that commonly occur around the neck and wrist areas.

Eye/Face Protection

If there is any potential for the eyes and face to be exposed to UV radiation, a polycarbonate face shield stamped with the ANSI Z87.1-1989 UV certification or polycarbonate safety glasses must be worn to protect the eyes and face. Ordinary prescription eyeglasses may not block
UV radiation. UV certified goggles and safety glasses will protect the eyes, but it is not uncommon for lab workers to suffer facial burns in the areas not covered by the goggles or glasses.

Gloves

Wear disposable nitrile gloves to protect exposed skin on the hands. Make certain wrists and forearms are covered between the tops of gloves and the bottom of the lab coat sleeves

Equipment Labeling

Many overexposures to UV radiation have occurred as a result of individuals not knowing the hazards associated with UV-emitting equipment. To help prevent eye and skin injuries, any equipment that
emits UV radiation must be conspicuously labeled with a caution label. Below are some examples of UV labels: