SAFETY FOCUS

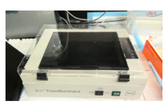
ULTRAVIOLET (UV) RADIATION SAFETY

UV is a type of non-ionizing radiation (NIR) in the 100 nm to 400 nm region of the electromagnetic spectrum. The primary source of UV exposure is the sun, which emits UV rays from all three UV regions: UVA (315 nm to 400 nm), UVB (180 nm to 315 nm), and UVC (100 nm to 280 nm). UVC is the most hazardous type of UV radiation. However, as sunlight passes through the atmosphere, all UVC and most UVB are filtered out and does not reach the earth's surface. Artificial UV sources that are used in various research and medical applications in the University of Utah can generate UV radiation in all three regions.

WHO: All users of UV equipment at the University of Utah must be properly trained on the use of the equipment and its potential hazards. NIR users must be authorized under an approved NIR Work Permit. An NIR Work Permit is issued by EHS to a qualified individual, typically the PI of a lab, who will be the Permit Holder. The Permit Holder is responsible for the safe use of their UV equipment. EHS has oversight over the Permit Holder to ensure permit conditions are met.

WHAT: The use of the following UV equipment must be authorized by EHS:

- **Transilluminators**
  - UV transilluminators or UV light boxes are used for nucleic acid visualization.



- **Crosslinkers**
  - UV crosslinkers are used to attach nucleic acids to a surface or membrane following blotting procedures.

- **Handheld or Portable UV lamps**
  - Handheld or portable UV lamps are used in laboratories for various experiments and procedures.

- **Biosafety**
  - UV lamps are not recommended nor required in Biological Safety Cabinets (BSC). See "Ultraviolet Lamps in Biologial Safety Cabinets" Fact Sheet.

WHY: Overexposure to UV radiation can cause damage to the skin and/or eyes. There are no immediate warning signs to indicate overexposure, as symptoms typically appear hours after exposure has occurred. The following injuries may occur:

- Skin Injury – A few seconds of UV exposure can cause erythema (sunburn) to exposed skin. Chronic skin exposure may also cause premature skin aging and skin cancer.
- Eye Injury – UV exposure can damage the cornea, and even the lens of the eyes or the retina, depending on the UV wavelength.
- Cataracts – Chronic exposures to high-energy UV radiation may lead to formation of cataracts.

HOW: NIR Permit Application

- Inform EHS of intention to be an NIR Permit Holder through lso@ehs.utah.edu or 801-581-6590. Our Health Physicists will provide the specific permit application and equipment registration instructions.
- Register as an NIR PI in SAM.
- Complete the online permit application.
- Register your equipment.
- EHS will review the permit application and equipment registration and may discuss questions or concerns with the Permit Applicant.
|
- Once permit is approved, a laboratory start-up visit will be scheduled.

ehs.utah.edu | ENVIRONMENTAL HEALTH AND SAFETY
THE UNIVERSITY OF UTAH

125 South Fort Douglas Blvd | Salt Lake City, UT 84113 | 801 581-6590