

Safe use of Ultraviolet Radiation Sources

**Purpose:** To outline the policy for the safe use of UV radiation sources at UTHSC.

**General:** Ultraviolet radiation occupies the optical radiation wavelength band from 100 nm to 400 nm. Exposure to UVR can cause burns to the skin, cornea and conjunctiva. Prolonged or elevated exposure to UVR has been linked to skin cancer.

Threshold Limit Value (TLV) limits for safe exposure to UV radiation have been established by the International Council on Nonionizing Radiation Protection (ICNIRP) and the American College of Governmental Industrial Hygienists (ACGIH).

The safe exposure levels do not account for UV sensitive individuals or personnel taking medication or exposed to chemicals that increase UV sensitivity. Therefore, extra caution should be taken by such personnel.

Common uses of UVR include sterilization in biological safety cabinets and visualization of DNA using handheld lamps or transilluminators. UV burns have resulted and been documented from improper use of these devices, including several at UTHSC.

**Policy:** Work with UVR sources shall be performed using adequate safety measures to reduce workers exposures to below the threshold limit values and As Low As Reasonably Achievable.

**General Safety:** Follow these general safety rules when operating or working around or using UVR lamps or devices.

1. Never place any part of your unprotected body in the UV radiation field.
2. Only operate equipment on which you have received appropriate training.
3. Only use UVR equipment for the purposes under which it has been designed.
4. Obey all specific safe use procedures posted and approved for use of the UVR device, including the specific operation, use of Personal Protective Equipment (protective face shields, protective clothing, etc...), and stay distances.
  - a. UV rated face shields shall be used when industrial UVR sources are not fully enclosed with biological shields.
  - b. Skin should be covered when exposure to industrial UVR sources.

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5. In the event of injury, report to Occupational Safety and Supervisor immediately, then notify the Radiation Safety Officer.

Special Notes:

1. Not all protective face shields are rated for UV protection.
2. The standard glass front of biological safety cabinets does not provide adequate protection from UVR.
3. Reflectance of UVR from stainless steel and other surfaces can be significant, so avoidance of direct exposure from UV lamps may not provide sufficient protection.