

Ultraviolet radiation, or simply referred to as UV light, is a type of electromagnetic radiation with a wavelength (180-400 nm), comprised of UVA, UVB, and UVC bands. UV light levels emitted from equipment can exceed natural UV levels. There are no immediate warning symptoms to indicate overexposure.

Examples of UV sources include but not limited to:

- Crosslinker
- Fluorometer
- Transilluminator
- UV Microscope
- Xenon or mercury lamp
 - Arc lamp
- Fluorescence Detector
- HPLC Machines
- Spectrometer
- UV-Vis Detector
- Welding operations
- Lasers

Potential hazards:

- Damage can occur from only a few seconds of exposure
- Eye and skin are most at risk for damage. There is a cumulative risk of harm
- Risks related to eyes include: photokeratitis, cataracts, pterygium, cancer and age-related macular degeneration.
- Risks related skin include: erythema, premature skin ageing and skin cancer.
- Large amounts of UVC can produce ozone
 - Long-term exposure to ozone can cause respiratory illnesses, nervous system issues, reproductive issues as well as cancer.

The following safety controls are to be implemented where appropriate; based on the type of equipment, work location and risk of exposure to persons from UV emitting devices.

Engineering Controls

- Location - place equipment in a separate room and use UV-absorbing shields to reduce exposure risks.
- Interlocks - opt for equipment that prevents operation when safety may be compromised.
- Surfaces - eliminate reflective surfaces by covering area with non-UV-reflecting material (e.g. anodized aluminum, UV rated curtains).
- Ventilation – exhaust high levels of ozone for setups that utilize large amounts of UVC

Administrative Controls

- Training - individuals are to be trained by their supervisors on the risks of UV light exposure and the safe operation of the UV light emitting equipment.
- Warning Signs – all locations where an individual entering the area may be exposed to UV light, must be labelled with a warning sign e.g. “CAUTION UV HAZARD - PROTECT EYES AND SKIN”

Personal Protection

- Skin - ensure all skin is covered where direct UV light exposure is probable.
- Eyes - safety eye protection must be rated for UV light exposure.
- Face - a face shield is preferred over safety glasses as it protects more skin area.