

## Ultraviolet (UV) Light

### Health Effects

UV radiation primarily causes harm to two parts of the body – the eyes and the skin. Skin exposure can cause burns and raise your risk for skin cancer. Eye exposure can cause burns, impaired vision, temporary blindness, and inflammation of the cornea. Damage can occur very quickly, and even very brief exposures to UV light can cause harm. Injuries have been reported from as little as 3 seconds of exposure.

### Types of UV Light

<i>Region</i>	<i>Range in nm</i>	<i>Hazard Potential</i>	<i>Hazard</i>
UV-A	315-400	Lowest	Cataracts, aging and darkening of the skin
UV-B	280-315	Mid to high	1 <sup>st</sup> or 2 <sup>nd</sup> degree skin burns, blurry vision, watery eyes, photokeratitis (inflammation of the cornea)
UV-C	100-280	Highest	Skin/eye burns

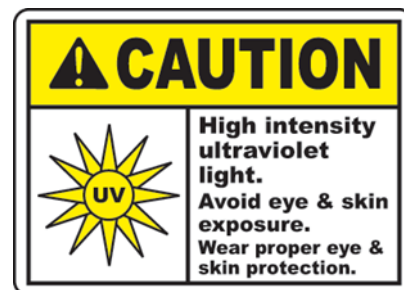
### General Control Measures

#### Standard Operating Procedures (SOPs) and Training

- Each laboratory should establish an SOP outlining the safe use of UV lights in your particular lab’s applications of UV light.
- UV light users should be trained to understand the hazards of exposure to UV light and the control measures, personal protective equipment, shielding, or other precautions written out in the SOP. This training should be documented as part of the annual lab-specific training provided by your PI or department.
- Include procedures to limit access to areas where UV light might be present. Even if you are not looking directly at UV light, it can still be harmful – keep this in mind when others are in the area while working.

#### Equipment Set-up and Labeling

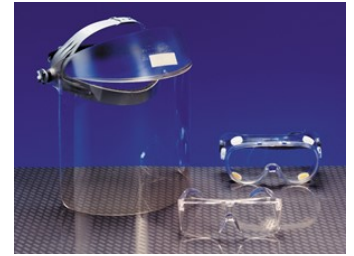
- Most equipment will have the wavelengths of UV light generated listed in the specifications. Make sure you know the wavelength, as all control measures must protect against that range.
- Make sure appropriate shielding is available if needed. Enclosures, filters, and screens can be used to help protect against UV radiation. Not all shields are protective against UV light, so make sure your shielding protects against the wavelength generated by your equipment.
- Ensure sources of UV light are labeled with a warning. These warnings should tell others that there is a UV light hazard, and include any control or protective measures they should take, such as wearing PPE or using a shield. Note: Older models may not have a manufacturer warning and will need to have one added.
- Make sure surfaces around the source of UV light are dull and non-reflective. This helps reduce glare and reflections which may be harmful.



# Ultraviolet (UV) Light (cont.)

## Personal Protective Equipment (PPE)

- Gloves (Nitrile or latex) should be worn to protect your hands.
- A lab coat should be worn to protect your arms from extended exposure. Make sure to consider gaps at your wrists and protect your skin there, too.
- A UV-protective face shield must be worn to protect your eyes and face. It must be marked with an indication that it is UV protective. Often, it will be stamped with the ANSI Z87.1 UV certification or marked with a U and a number between 2 and 6 if they provide UV protection. The higher the number, the more protection from UV light, though all are appropriately protective. Check with the manufacturer if you are unsure.
- Make sure all of your face and neck is covered – many people forget underneath their chin.



## Work Practices

- Try to limit exposure time to the UV radiation.
- Remember that UV light in the lab can cause injury in as little as 3 seconds. Use shielding or PPE, even if it's "only for a second".
- Never remove your PPE in order to look closer at material being visualized, even for a short amount of time.
- UV lights in biological safety cabinets (BSCs) should always be inactive whenever you are working inside the cabinet. Visit the [Biosafety website to learn more about UV light](#) .
- Transilluminators must always have a protective shield in place. This should be checked to ensure it is appropriately UV-protective, and that it doesn't have any cracks or damage.
- Crosslinkers should not be used if the door interlocking safety mechanism is not working correctly.

If you have any questions about UV light, protecting yourself from it, or how you can make your work safer, contact your Department Safety Officer, a HSRM Research Safety Professional, or call the HSRM main office at (612) 626-6002.