

University of Oxford Medical Sciences Division

(Non-Clinical Departments Only)

SAFE USE OF ULTRAVIOLET LIGHT

Introduction

Trans-illuminescence and epi-illuminescence by UV light are used extensively in microscopy & molecular biology. UV light is a type of non-ionising radiation and can be categorised into three regions (UVA 400-315nm, UVB 315-280nm and UVC 280-100nm). All three types can present a significant hazard (particularly UVB and UVC) and as such individuals should be trained in these procedures before using any potential light source.

Responsibilities

All **Users** must ensure they are fully aware of the risks associated with working with Ultraviolet light & understand the appropriate actions to take before they start using the equipment.

NOTE: This guideline should be read in conjunction with the equipment's 'User Guide'.

Risk Assessment

Long-term exposure to UV can lead to cataracts, opacity of the eye lens and skin cancer. However in relation to work in the laboratory, the most significant risk is from short periods of intense exposure, which can itself lead to serious damage to the skin & eyes.

The main risk of UV is therefore from direct exposure to the light source. Therefore provided the following recommended guidelines are followed to limit this exposure, then the associated risk to the user is minimal.

Do's & Don'ts

When working with any source of Ultraviolet Radiation, the following controls must be applied:

- Laboratory Coats must be worn and fully fastened. It is advisable to use a 'Howie-Style' laboratory coat to minimise skin exposure around the 'collar' region.
- Gloves must be worn and pulled up over the cuff of the laboratory coat, to minimise skin exposure around the wrists.
- A UV Faceshield **MUST** be worn to protect the face & neck. The Faceshield must be angled so as to cover both the face & neck during any manipulation.
- UV Spectacles or goggles should also be worn to protect the eyes, particularly if there is any chance that UV light can shine under the Faceshield.
- All Protective Eyewear must comply with British Standard EN170 and specifically against the UV wavelength in use. Equipment should be clearly labelled for 'UV Protection Only' and where there is any doubt over their suitability, the supplier must be consulted.
- In addition to this protective equipment a UV Perspex shield should, wherever possible, be used.
- Interlocks on Imaging Systems should never be overridden.
- Report any faults or damage to the interlocks, perspex shielding or protective equipment immediately to your supervisor.
- Exposure must be kept as brief as possible – Plan your work in advance.
- Longer wavelengths must be adopted as far as is practicable (>390nm).
- When using UV light within Biological Safety Cabinets, always place 'Warning Labels' in the surrounding areas so as to warn others to keep away. You cannot assume that the glass front on the cabinet will block the UV light.

Emergency

Contact a First Aider.

Skin: Cool the skin with cold water for at least 10mins and repeat if necessary. If severe, obtain Medical Assistance.

Eye: Obtain Medical Assistance. If severe, cover the eye(s) with an eye pad and take directly to Oxford Eye Hospital, Radcliffe Infirmary, Woodstock Road, Oxford. Telephone (01865 224800) in advance to forewarn the Eye Hospital that an individual is on their way.