

**HAZARD MANAGEMENT – SAFE OPERATING PROCEDURE (SOP)**

Only to be completed where required as a control measure under a Risk Assessment

<b>NAME OF THE TASK/ACTIVITY</b>	<b>NIKON SMZ25 STEREO FLUORESCENCE MICROSCOPE</b>	<b>DATE: 12/02/2020</b>
<b>LOCATION</b>	ADELAIDE MICROSCOPY WAITE FACILITY BUILDING 19 ROOM G5 ADELAIDE MICROSCOPY FROME ROAD FACILITY HELEN MAYO NORTH	Insert photo (Optional)
<b>RISK ASSESSMENT (RA) NAME</b>	Stereo Microscope Nikon SMZ25_RA_Waite	
<b>Residual risk rating on the RA</b>	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High <input type="checkbox"/> Very High	
<b>Hazards identified on the RA</b>	<b>Contact with electricity or potential for electric shock</b> <b>Exposure to non-ionising radiation (UV light)</b> <b>Mercury lamp breakage and vapour or liquid leak</b>	

**DESCRIBE, IN SEQUENCE, STEPS TO COMPLETE THE ACTIVITY SAFELY**

**Pre-operational checks**

YOU MUST NOT USE THIS MACHINE UNTIL YOU HAVE HAD APPROPRIATE TRAINING BY TRAINED ADELAIDE MICROSCOPY STAFF. Unauthorised use may result in damage to the instrument.

**Operational checks/steps to complete the activity from start to finish (including transport and waste disposal where relevant)**

**General**

The Nikon SMZ25 stereo microscope is used to image whole biological samples, either using bright field or wide-field fluorescence techniques. UV light is used to illuminate specimens for fluorescence. The UV light source is a Nikon Intensilight C-HGFIE pre-centered lamp containing inorganic mercury.

**Hazards**

Potential for electric shock if a user were to remove panels from the microscope.

Exposure of eyes to UV light can cause eye damage.

Breakage of the hot or cold lamp may release mercury vapour or liquid.

**Risk Control Measures**

**Engineering controls:**

The user operable parts on the Nikon SMZ25 stereo microscope are all accessible from the front of the instrument. If the instructions are followed there is no risk involved in the operation of the stereo microscope hardware and controller, fibre optic cold light source, ring light source, and the computer (switch, mouse and keyboard). However, misuse of these parts can result in damage to the instrument. Users of the instrument should not remove any fixture or panel from the microscope or access the rear of the instrument.

There are low risks to the user associated with use of the Intensilight UV lamp. The microscope has several inbuilt safety features to stop people injuring themselves with the UV lamp.

The Nikon Intensilight C-HGFIE lamp is pre-centered and requires no alignment, reducing the risk of overheating and explosion.

The UV light source is contained and shielded in a box which cannot be opened accidentally. To allow the UV light to the specimen, the operator must manually operate a button on the computer software and/or a shutter on the Intensilight controller.

An external orange filter guards the user's eyes from the stage area. The only way to be exposed to UV light at the microscope stage is to deliberately remove the guard or reach around behind the guard.

The lifetime of Intensilight C-HGFI-E pre-centered mercury lamp is 2,000 hours, which is monitored by a counter on the front of the lamp housing. There is no risk of incorrectly aligning a pre-centered lamp. The lamp does not have overpressure when cool.

HSW Handbook	Hazard Management	Effective Date:	17 December 2019	Version 3.0
Authorised by	Chief Operating Officer (University Operations)	Review Date:	17 December 2022	Page 1 of 2
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**Procedural controls:**

Only trained users to operate the instrument. All new users are to be given practical training in instrument operation by a member or Adelaide Microscopy staff. Users must also follow guidelines in the manual and safe operating procedures for operation of the microscope and UV light source.

Refer to risk assessment and safe operating procedure for mercury lamps. Do not use the lamp beyond its life expectancy. If the lamp is used over the life expectancy, or is damaged, there is a risk that the lamp may burst and leak mercury vapour. A cold lamp may accidentally be broken during replacement. In the unlikely event that a mercury lamp breaks immediately evacuate everyone from the room and shut the door. Notify the OH&S officer immediately. Mercury is most dangerous in the vapour form, but in the solid form it can be cleaned up under supervision with relative safety. As part of the maintenance schedule for this instrument Adelaide Microscopy staff only are to replace the C-HGFI-E lamp after 2,000 hours.

The Intensilight UV light source requires a warmup and cooldown time. Do not turn on a warm mercury lamp until it has cooled. The lamp should be left on if it is to be used again the same day, to reduce the risk of damaging a warm lamp.

Users must not tamper with the instrument in any way such that they can look directly at the UV light.

Handling of biological material may present hazards; the safe operating procedures for handling biological material must be followed. The handling of other laboratory items (for example, sharps, clearing agents and chemicals) must follow the relevant safe operating procedures.

**General Procedures:**

Users should operate the instrument in accordance with the manufacturer supplied operating instructions under the instruction of a member of Adelaide Microscopy staff.


**On completion of work – steps to make safe (including clean up, any waste disposal & service/maintenance requirements)**

Follow the shut-down procedure in the manual.

**Emergency and Spill Procedures, Transport or storage requirements (where relevant), First aid/Medical**

In the event of an injury, please advise an Adelaide Microscopy staff member and first aid officer for treatment and the local HSW representative to report the incident.

**Prepared by**

People involved in the drafting of this SOP	Gwen Mayo Astrud Tuck		
Person authorising the SOP	Name:	Angus Netting	Signature 
	Position:	Director, Adelaide Microscopy	

**This SOP must be reviewed after any incident/injury associated with this activity or when a Risk assessment is reviewed.**

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