Appendix C

HAZARD MANAGEMENT – SAFE OPERATING PROCEDURE (SOP)

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

NAME OF THE TASK/ACTIVITY	**TOUSIMIS 931 CRITICAL POINT DRYER**	**DATE: 20/02/2020**
LOCATION	ADELAIDE MICROSCOPY, GEORGE ROGERS LABORATORY, HELEN MAYO NORTH, NB25	Insert photo (Optional)
RISK ASSESSMENT (RA) NAME	**Tousimis 931 Critical Point Dryer**	
Residual risk rating on the RA	☐ Low ☒ Medium ☐ High ☐ Very High	
Hazards identified on the RA	**Contact with cold object** **Contact with electricity or potential for electric shock** **Exposure to CO2 gas** **Exposure to pressure vessel**	

PERSONAL PROTECTIVE EQUIPMENT

	Eye protection: ☒ Safety glasses ☐ Eye shields ☐ Safety goggles ☐ Other:
	Hand protection: ☐ Rubber ☐ Cut resistant ☐ Leather ☐ Vinyl ☐ Neoprene ☒ Nitrile ☐ Barrier creams ☐ Other:
	☒ Enclosed footwear: ☐ Footwear that is resistant to spills of hazardous substances ☐ Boots with steel caps ☐ Other:
	Protective clothing: ☒ Lab coat ☐ Gown ☐ Long sleeves ☐ Long pants ☐ High visibility ☐ Helmet ☐ Sun protection ☐ Other:

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 MICROSOCPY 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 Tousimis 931 Critical Point Dryer is used to dry biological samples without introducing arefacts commonly induced with air-drying. Samples are prepared this way for electron microscopy. The system uses CO2 gas and ethanol under pressure to achieve this.

All new users must have undergo training in of the operation of the machine from a member of Adelaide Microscopy staff.
Users should operate the instrument in accordance with the manufacturer supplied operating instructions to avoid damage to the instrument.

Hazards

Contact with electricity or potential for electric shock
Contact with a cold object may cause cold burns
Exposure to CO2 gas
Exposure to pressure vessel

Risk Control Measures

Personal Protective Equipment:
Always wear lab coat, safety glasses and gloves when operating

Engineering Controls:

The user operable parts on the Tousimis 931 Critical Point Dryer are all accessible from the front of the instrument. There is no risk involved in the operation of these parts. 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 scanner or access the rear of the instrument.

Oxygen sensors are installed to monitor oxygen levels in the room. Alarms will sound if oxygen drops below a safe level.

Procedural Controls:

All new users must have a practical demonstration of the operation of the machine from a member of Adelaide Microscopy staff. Users should operate the instrument in accordance with the manufacturer supplied operating instructions to avoid damage to the instrument.

Users should operate the instrument in accordance with the manufacturer supplied operating instructions to avoid damage to the instrument.

The user operable parts are all accessible from the operator's console; users of the instrument should not attempt to remove any fixture or panel from the instrument.

General Procedures:

The Tousimis 931 Critical Point Dryer is a high pressure instrument and therefore poses a risk to the operator if all gas is not released from the specimen chamber before attempting to remove the lid – ie, if an attempt is made to open it using force. This may result in the lid launching with great force and possibly causing injury. The lid may ONLY be removed when the pressure gauge reads 0 PSI.

The dryer requires the use of a G size liquid CO2 cylinder. ONLY trained Adelaide Microscopy staff are permitted to move and install these cylinders in accordance with the appropriate SOP.

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.

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

Turn off instrument, and be sure NOT to tighten nuts on lid, so that the next user knows upon starting work that the dryer is not under pressure.

Turn off CO2 cylinder.

Empty ethanol waste bottle if necessary.

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	Aoife McFadden		
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	Position:	Director, Adelaide Microscopy	

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