

Safety Sheet 20 – Cryostats

Consult the *Ontario Occupational Health and Safety Act* and its regulations for additional information on the duties of workplace parties.

What is a Cryostat?

Cryostats are used to cut frozen tissue. The precision of the cutting process is in micrometres and tissues sectioned can be as thin as six (6) to as thick as 100 micrometres. Specimens are mounted within a cold, climate-controlled cabinet, which can typically be -15°C to -30°C . The specimen, previously frozen, is placed within the cryostat and is advanced forward toward the sharp blade within the cryostat cabinet. This allows tissues to be sectioned and mounted on slides. The mounted slide is removed from the cryostat, dried and used elsewhere.

Common Hazard

The most common hazard with cryostats is the contact with the sharp blade of the equipment; lacerations are possible when handling – or coming in contact with – the blade during use.

General Work Procedure

Cryostat Set Up

- Lock the handwheel handle. Set the chamber to the desired working temperature. Insert the blade in the holder and clamp. Verify the clearance angle on the knife holder to be between 5 and 10 degrees. Position the anti-roll guide on the knife and align with the cutting edge (where applicable). Place all other instruments you will be using inside the chamber to cool.
- Insert the specimen disc in the specimen head; secure specimen disc in place. Unlock the handle and start trimming the compound on the disk until a flat surface is achieved. Lock the handwheel handle and remove the specimen disc.

Sectioning

- Unlock the handle and commence trimming until you reach your sample. Turn the handwheel at a constant, deliberate speed.

Changing Blade

- Always ensure the handwheel is locked.
- Use tongs / forceps to maintain distance and reduce the risk of injury. Wear cut-resistant gloves.
- If an injury does occur, obtain first aid and/or contact Protection Services at ext. 5411.

Clean-up

- Lock the handwheel. Take the blade out of the holder and either dispose in appropriate waste container or save to reuse at a later date.
- Remove frozen section waste from the waste tray, storage shelves and brush shelf. This can be done with a cold brush followed by room temperature 70% ethanol.
- Close the sliding window. Turn off the cryochamber illumination and decrease the temperature to -12°C .

Training

The Faculties of Medicine and Science offer training to their respective users on the use of cryostats; additional information and registration for training is available online at:

- Faculty of Medicine (via [Histology Core Facility request](#))
- Faculty of Science (via Core Molecular Biology and Genomics Laboratory Technician)

Additional safe-use procedures specific to the individual cryostat will be provided by your supervisor.

For additional information regarding cryostats, please contact your local [Health, Safety and Risk Manager](#), or the [Office of Risk Management](#).