Cryostat Safety Guidelines
Cryostats are commonly instruments used in Boston University’s laboratories to section tissues. These devices pose potential hazards to users during sectioning and/or the cleaning process.

Potential hazards:
- Sharp blade
- Sharp blade holder corners
- Ergonomics
- Cold (-20°C to -30°C)

Peripheral hazards: Quick Freezing Chemicals (e.g. Histofreeze®); Dry Ice (CO₂); Liquid N₂

Potential Biohazards associated with fresh frozen tissue based on source:
- Potential for aerosolization and sub-cutaneous infection

► Sharpness of Blade:
A cryostat blade is extremely sharp and must be handled carefully.

The rotary handle of the cryostat must always be set in the locked position when changing a paraffin block or the blade. A new blade should be placed in the blade holder and clamped before the rotary wheel lock is released. Wrist guards should be added where possible. Once the blade is seated and secured the rotary wheel lock can be released and the knife and holder advanced to the specimen block. If adjustments need to be made to the specimen, remove the blade from the housing.

Removal of the blade: Disposable blades must always be removed using forceps or a similar instrument. Do not remove the blade holder from the cryostat or transport the housing with a blade present. Biological Sharps containers must be kept near the point of operation and disposable blades must be put into a sharps container immediately after use. For cryostats with reusable blades cut resistant gloves must be used when removing and sharpening the blade.

Cryostat cleaning:
Before the cryostat is cleaned, the rotary wheel must be locked and the blade removed from the blade holder (see removal of blade above). Use caution as other components of the cryostat may also have sharp edges. Cut resistant gloves must be worn over nitrile gloves when a cryostat is being cleaned. The cryostat should then be defrosted and 70% ethanol should be used to wipe down and clean all surfaces.

Products commonly used to freeze tissues include:
- Histo-freeze
  - Other name its under: Cytofreeze
  - Aerosol can
  - Clear, weak or odor-less gas
  - Concerns to lab personnel:
    - Frostbite

Optimal Cutting Temperature (OTC)
- Use: embed tissues prior to sectioning
- Water soluble glycol and resin compound – used a support medium
- Slight alcohol odor
- Concerns to lab personnel:
  o None known; does not contain hazardous materials

Dry Ice
- Concerns to lab personnel
  o Use in a well-ventilated space
  o Wear appropriate gloves for handling (i.e. cryogenic)
  o Frostbite

► Appropriate PPE: A lab coat, eye protection suitable for the task (safety glasses or goggles), and nitrile gloves must be worn while handling tissues to be sectioned. While changing the blade, cut resistant (Kevlar or stainless steel mesh) gloves should be worn over a pair of disposable nitrile gloves. Cryogenic gloves should be worn when retrieving specimens from a -80°C freezer or liquid N₂ container.

► Schedule Breaks: Regularly scheduled breaks and rotation of tasks during the sectioning process will help prevent errors due to fatigue. Ergonomic assessments are available to users.

Helpful hints:

- **Training** must be provided by a knowledgeable and responsible person within the laboratory before any work is completed. A written procedure specific to the individual piece of equipment should be available to laboratory personnel to remind users of the appropriate procedures.

- **The Manufacturers’ Manual.** Refer to the manual or contact the manufacturer for additional information and specific safety information

- **Incidents** should be reported to your supervisor immediately. Injuries or exposures must be reported to Research Occupational Health Program (ROHP) immediately at 617-414-7647. For medical emergencies, contact Public Safety on the Medical Campus at 414-4444 or BU Police on the Charles River Campus at 353-2121.

If you have questions contact your laboratory’s assigned EHS Department Safety Advisor DSA Research Safety Specialist or Environmental Health & Safety.

Environmental Health & Safety
Charles River Campus: 353-4094
Medical Campus: 638-8830
Web: http://www.bu.edu/EHS