Microtome Safety Guidelines

Microtomes 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

**Potential Biohazards associated with parafinized tissue based on the source of the material:**
Creutzfeldt-Jacob Disease
Scrapie
BSE
Other potentially transmissible prion diseases

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

The rotary handle of the microtome must always be set in the locked position when changing a paraffin block or the blade. 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 microtome with a blade present or transport the housing with the blade present. The Biological sharps container must be kept adjacent to the microtome to reduce the distance that a blade would be moved; For microtomes with reusable blades cut resistant gloves must be used when removing and sharpening the blade.

**Microtome cleaning:**
Before the microtome is cleaned, the rotary wheel must be locked and the blade removed from the blade holder. Use caution other components of the microtome may also have sharp edges. Cut resistant gloves must be worn under nitrile gloves when a microtome is being cleaned.

**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:
    o 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 (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 must be worn under a pair of disposable nitrile gloves.

► Helpful hints:

- Training must be documented and provided by a knowledgeable and responsible person within the laboratory before any work is completed. Standard Operation Procedures should be made available to all users and posted near the point of operation.

Schedule Breaks: Regularly scheduled breaks and rotation of tasks during the sectioning process will help prevent errors due to fatigue.

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

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

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

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