

Risk Assessment

A risk assessment for using a microtome must be prepared. This assessment should be conducted by a competent person, who should identify the hazards and who might be harmed, assess the likelihood of injury and its consequences, and put measures in place to reduce the risk of injury. An additional risk assessment should be prepared for cryostats, which should include the risks when working at lowered temperatures. The risk assessments should be brought to the attention of and understood by all users of microtomes and cryostats. For information on general risk assessment, please refer to Part 3 of the NUI Galway Safety Statement at <http://www.nuigalway.ie/healthsaf/?menu=3>.

Standard Operating Procedure

A Standard Operating Procedure (SOP) is a detailed step-by-step procedure for the safe operation of the particular microtome or cryostat in use. It will contain precise practical and technical information on how to use the device, and it should contain an emergency shut-down procedure. It should be compiled by a competent person and updated as necessary. It must be followed by all users. The SOP may be included in the risk assessment as a control measure for reducing risk. Like the risk assessment, the SOP should be brought to the attention of and understood by all users. The SOP should be close to hand and may be on display nearby.

Log Book

A log book for using the microtome should be completed on every occasion. This permits the ready identification of past usage and permits the recording of any maintenance, problems or observations.



Accidents

All accidents, that is, where injury has occurred, must be reported without delay, according to the SOP. All incidents, that is, where a near-miss occurred not resulting in an injury, must also be reported.

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Health & Safety Office Guidance Note

WORKING WITH MICROTOMES AND CRYOSTATS



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The use of microtomes and cryostats involves extremely sharp blades which may place the operator at risk of injury. Other hazards may also be present and these are identified below.

Hazards

Cuts from knives and blades. Microtome blades are VERY SHARP and have the potential to cause VERY SERIOUS injury. They must be handled extremely carefully at all times.

Biohazards. Potentially infectious specimens may be handled for sectioning.



Cold burns. Prolonged or repeated contact with cold surfaces in cryostats can cause burns on unprotected skin.

Aerosols. Chemical freezing agents applied from pressurized cans may produce air-borne hazards.

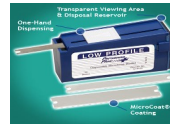
Repetitive strain injury. Lack of adequate work space around the workstation and poor or cramped posture at the microtome can cause injury.



Handling Blades

You must receive training before using a microtome. Follow the safety tips provided below to prevent exposure to cuts, solvents and biological agents.

- Microtomes must be visually inspected before each use, and damaged units reported to the laboratory manager/supervisor. Damaged units MUST NOT be used.
- Handle the blades very carefully when installing or removing, and always carry the blade in its case to the microtome. Never leave blades on countertops as lacerations can occur.



- When setting up the microtome, position the sample first then put in the blade, NEVER the other way around.
- When applying the brake, ensure that it is tight. Most accidents occur when the brake slips and the operator's hand is drawn into the blade.
- Use forceps or a mounted needle and paint-brush to left tissue-section ribbons (or individual sections) from the microtome, thereby keeping your hands free from the moving parts
- Check that the knife guard is in position and the cryostat/microtome hand wheel is in the locked position before positioning the sample.
- The knife blade must not be cleaned when mounted in the microtome except by using a long handled brush.
- When cleaning the knife, use a tissue, wiping AWAY from the knife edge.
- The knife should be removed or covered when specimens are changed, and not be left in the microtome when not in use.
- Microtome blades should be disposed of in an appropriate manner using designated sharp bins.

Controls

Training. No person may operate a microtome without first receiving instructions in its safe use. It is the responsibility of laboratory supervisors/managers to ensure that all persons under their control have been trained, and that full records of such training are maintained.

Inspection. Microtomes must be visually inspected before each use and damaged units must be reported to the laboratory manager/supervisor. Damaged units must not be used until they have been examined by a competent person.

Housekeeping. Microtomes and cryostats need to be decontaminated at suitable intervals on use and always before routine maintenance and repair. Tissue debris produced during frozen sectioning should not be allowed to accumulate in the freezing chamber but should be disposed of as clinical waste. When contaminated with infective material, the cryostat should be decontaminated and the cleaning routines for non-infective tissue should be followed. The disinfectant used will must be effective against a range of biological agents, compatible with the microtome equipment and kept in contact with the surfaces long enough to achieve adequate disinfection.

PPE. Wear personal protective equipment e.g. gloves, lab coat, eye protection, face protection, as directed by the SOP.



Workstation Ergonomics. Allow sufficient space to locate work materials and to adopt a comfortable sitting posture. The seat should be fully adjustable to ensure adequate lumbar support and knee and thigh clearance under the bench. Continuous use of microtomes/cryostats for long periods should be avoided.