University of Manitoba

Environmental Health and Safety

Updated January 1, 2018

Radioactive Materials

Working Safely in Labs permitted for Rad Work

The University of Manitoba has the duty to inform anyone that may be exposed to radiation from radioactive materials of the potential hazards (MB 217/2006 Workplace safety and Health Regulation Section18.4). Low level ionizing radiation may induce pre-mature aging and cancer. The exposure from radioactive materials used in areas controlled by the University of Manitoba is so small that the increase in risk is insignificant. Please do your part by following the instructions in this pamphlet.

Additionally, the Canadian Nuclear Safety Commission (CNSC) has Federal authority to issue anyone (permitted worker or not) that violates the Nuclear Safety and Control Act or does not comply with the University training, a personal fine (fines start at $300).

Radioactive Material used at the University has two major forms:

- Radioactive Chemicals

Most often radioactive material at the University is used as a radioactive chemical to trace chemical reactions. Radioactive material is purchased in small volumes of liquid. These stock vials usually have less than one milliliter (cubic centimeter) and are used in small volumes in lab containers such as test tubes and Petri dishes. Occasionally radioactive liquids are injected or ingested by animals that are kept in labs or animal care facilities.

- Sealed Source Radioactive Materials

Some researchers use sealed sources of radioactive materials to measure the effect of the ionizing radiation emitted by the source. Small sealed sources are often used as calibration or check sources. Larger sealed sources may be used in specialized equipment for Mossbauer Spectroscopy or X-ray diffraction.

How is radioactive material controlled at the University?

The CNSC has issued a consolidated license to the University of Manitoba to allow the University to possess, use and store radioactive materials for research purposes. The license requires a Radiation Protection Committee to oversee and advise on the Radiation Safety Program. The Licence requires researchers apply for an Internal Radioisotope Permit in order to purchase, possess, store, use and dispose radioactive material.

Environmental Health and Safety (EHS) provides staff and resources for the day to day operations of the Radiation Safety Program, including: an internal Radioisotope Permit system, the development of the Radiation Safety Manual, general radiation safety training, inspections, centralized inventory, disposal of radioactive wastes and liaison with the CNSC.

Details on the Radiation Safety Program are found at http://umanitoba.ca/radsafety

Do I need more advanced Radiation Safety Training?

If you work with Radioactive Material, you need more information/ training than what is in this pamphlet or in the EHS orientation.

To handle or work with radioactive materials at the University, you need to be listed as a Designated Worker on an Internal Radioisotope Permit and would have to meet EHS training requirements. Talk to your supervisor and contact Radiation Safety at 204 789-3613.

Please do your part by following the instructions in this pamphlet.

Lab Signage tells you who can help you if you need to enter a lab

Rooms permitted to use radioactive material will have contact information for the permit holder and a second permitted worker posted at the entrance.

If your regular duties include providing routine services in lab areas, as long as the door sign says CAUTION, you may enter and perform duties that are covered by a safe work procedure that includes the consideration of lab hazards.

Prior to performing any duties in a lab following a safe work procedure that does not include consideration of lab hazards, it is important to do a risk assessment with one of the contacts/ people listed at the entrance to the lab. (See Lab Hazard Clearance on the University website).

The sign at the entrance also has Emergency Contact information for that particular room and the numbers for Environmental Health and Safety, and Security Services (24 hour).

What do I do if I suspect a spill of radioactive material?

- Secure area to warn unsuspecting people from potential harm. Step back - try to stay at least 2 meters away.
- Notify Environmental Health and Safety at 204 474-6633 during business hours or Security Services at 555 or 204 474-9341 after hours.
- Potentially contaminated people should remain on scene at a safe distance until cleared by Radiation Safety personnel.

Radioactive spills are generally cleaned up by the permitted lab staff.

Lab Spill clean-up is NOT a job for caretakers, housekeeping or security.

How can I stay Safe?

For the types of radioactive materials at the University, if the lab sign at the entrance says CAUTION it is normally safe to be within 2 meters of anything labelled "Radioactive " for a short time (up to 1 hour).

Remember these four rules to reduce your risk:

- Do NOT remove shielding (lead or plastic).
- Limit the time you spend in these areas marked with the radiation warning symbol or trefoil.
- Maximize the distance between you and the radioactive material.
- Use good lab hygiene – wear lab coats and disposable gloves if you are working with lab materials; and wash your hands when leaving research areas and always wash your hands before eating, applying cosmetics or smoking.

Never touch anything labelled or marked "RADIOACTIVE" or that has a Radiation Warning Sign (trefoil could be red, black or magenta) or striped yellow & magenta tape.

LAB SECURITY Always close the door. If you are the last person to leave lock the lab door to maintain security.

'EVIDENCE OF FOOD CONSUMPTION' Never consume food or drink in a lab and never place food or beverage related garbage in waste containers in the lab as this is considered by some federal inspectors to be 'evidence of food consumption in the lab'.

Environmental Health and Safety

Fort Garry (main) Office
191 Extended Education Complex
420 University Crescent
Winnipeg, MB R3T 2N2
Phone: 204-474-6633 Fax: 204-474-7629

Bannatyne Office
P310 Pathology Building
770 Bannatyne Avenue
Winnipeg ,MB R3E 0W3
Phone: 204-789-3613 Fax: 204-789-3906
E-mail: radsafety@umanitoba.ca

Hazard Labels

All radioactive material must be marked with this radiation warning symbol; it is called a trefoil.

At the University some areas are marked with striped tape to designate items and areas used with radioactive material.

Avoid contact with benches, fume hoods or any item marked with the trefoil or striped tape.

Radioactive Material may be stored in a marked fridge, freezer or storage cabinet. Stay out of these storage locations.

What do I do if I discover a radioactive package in a public area?

Secure the area if possible.

Step back - try to stay at least 2 meters away from the package.

Notify Environmental Health and Safety.

What do I do if there is a Fire or Explosion is a room permitted for radioactive material?

Activate Fire Alarm and follow your local procedures.

Stay at least 2 meters away from any possible radioactive contamination.

First aid takes precedence over radioactive contamination control. Care should be taken to protect the person giving aid from potential hazardous exposure to chemical, biological or radioactive materials.

Potentially contaminated people should remain on scene at a safe distance until cleared by Radiation Safety personnel.

Contact 204 474-6633 during business hours or Security Services at 555 or 204 474-9341 after hours.