
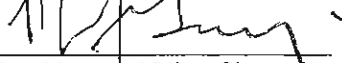
 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page 1 of 14</p>
<p>Submitted: Risk Management Support Group</p>	<p>Approved:  Vice President, Administration</p>	<p>Authorized:  President and Vice-Chancellor</p>

1 PURPOSE


- 1.1 To define the McMaster University systems and procedures for the responsible management of hazardous materials and the integration of the Workplace Hazardous Materials Information System (WHMIS) into all such programs for the protection of individuals, the natural environment and McMaster University property.
- 1.2 To ensure compliance with the Occupational Health and Safety Act, Environmental Protection Act and other Federal, Provincial and Municipal statutes related to the safe use, storage and disposal of hazardous materials.

2 SCOPE

- 2.1 All individuals who manage and/or handle hazardous materials in McMaster University owned facilities, host institutions or in the field.

3 RELATED DOCUMENTS

- 3.1 Health Canada Laboratory Biosafety Guidelines, 3rd Edition 2004
- 3.2 Occupational Health and Safety Act and O. Regs. 1990 (See Appendix A)
- 3.3 Nuclear Safety and Control Act
- 3.4 Other related Federal and Provincial Acts and Regulations (See Appendix A)
- 3.5 McMaster University Environmental Health and Safety Policy, RMM#100
- 3.6 McMaster University Asbestos Management Control Program, RMM#401
- 3.7 McMaster University Biohazards Safety Program, RMM#600
- 3.8 McMaster University Building Indoor Air Quality Program, RMM#400
- 3.9 McMaster University Designated Substances Program, RMM#500
- 3.10 McMaster University Field Trips and Electives Planning Program, RMM#801
- 3.11 McMaster University Hazardous Waste Management Program, RMM#502
- 3.12 McMaster University Laboratory Safety Manual, RMM#309
- 3.13 McMaster University Radiation Safety Program, RMM#700
- 3.14 McMaster University Safety Orientation and Training Program, RMM#300
- 3.15 McMaster University Standard Operating Procedures (SOP'S) Program, RMM#301
- 3.16 McMaster University Transportation of Dangerous Goods Program, RMM#505
- 3.17 McMaster University WHMIS Pocket Dictionary
- 3.18 Controlled Drugs and Substances Act

	McMaster University Risk Management Manual	RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program	Date: May 2009 Page: 2 of 14
---	--	---	---------------------------------

4 DEFINITIONS


- 4.1 **CAS Registry Number** – Chemical Abstract Service number assigned by the American Chemical Society to a chemical for the purpose of identification.
- 4.2 **hazardous material** – a material regulated by WHMIS or other legislation.
- 4.3 **controlled drugs** – drugs listed under the Controlled Drugs and Substances Act.
- 4.4 **designated substance** – a biological, chemical or physical agent, or combination thereof, to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled, and is prescribed as a designated substance under the Act.
- 4.5 **Material Safety Data Sheet (MSDS)** - Material Safety Data Sheets provide information for the health protection of people in the workplace.
- 4.6 **Acronyms:**
- EOHSS** - Environmental & Occupational Health Support Services.
 - PBAC**- Presidential Biosafety Advisory Committee.
 - CJHSC** - Central Joint Health and Safety Committee.
 - JHSC**- Joint Health and Safety Committee.
 - HPAC**- Health Physics Advisory Committee.
 - MSDS** –Material Safety Data Sheet.
 - OEL's** - Occupational Exposure Limits
 - RMM** – Risk Management Manual
 - RMSG** – Risk Management Support Group
 - WHMIS** – Workplace Hazardous Materials Information System, a comprehensive national system for the safe management of hazardous materials legislated by both federal and provincial governments. (See Appendix B)
 - ACT** – Occupational Health and Safety Act, 1990.
 - FHSc** – Faculty of Health Sciences Safety Office

5 RESPONSIBILITIES

5.1 **Role of Senior Managers (Deans/ Directors / Chairs):**

Senior Managers shall:


- provide the support and resources necessary to implement and maintain the Hazardous Materials Management Systems including WHMIS Program within their area of responsibility; and
 - ensure that all bulk and shared hazardous materials storage areas have a designated manager who shall be responsible for all safety and maintenance aspects of the storage facility.
-

 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page: 3 of 14</p>
---	--	---

5.2 Role of Supervisor:

The responsible supervisor shall:

- arrange for approval from the Presidential Biosafety Advisory Committee (PBAC) before using biological agents identified by Health Canada and the National Science and Engineering Research Council (NSERC) as being in Risk Group 1 through Risk Group 4;
 - arrange for approval from the Health Physics Advisory Committee (HPAC) before using any radioactive material or equipment;
 - minimize the risks associated with the use and storage of hazardous materials by using the least hazardous materials and reducing inventories whenever possible;
 - ensure that hazardous material is stored safely and disposed of in the required manner (See Section 6 Procedures);
 - ensure that designated substances are identified and that appropriate assessments and controls are implemented as defined in the McMaster University Designated Substance Control Program RMM # 500 (See Section 6 Procedures and Appendix A.);
 - provide current Material Safety Data Sheets (MSDS) for all hazardous materials used in the workplace;
 - ensure that all individuals who are required to handle hazardous materials have received core WHMIS training;
 - ensure all individuals who work in proximity to but not with hazardous materials have received office WHMIS training;
 - ensure all employee training is documented;
 - ensure that all individuals who handle hazardous material are trained in the safe handling, separation, storage and disposal procedures for the specific hazardous materials used in the workplace;
 - provide workplace labels that meet WHMIS requirements for labeling secondary containers;
 - provide standard operating procedures (SOP's) for work involving hazardous materials that include safe work practices and emergency procedures;
 - review the SOP's annually for legislative compliance and application of current best practices;
 - document this review;
 - implement workplace monitoring and laboratory hygiene plans as required by and in consultation with the appropriate RMSG office, in consultation with the JHSC;
 - provide spill kits having a capacity to clean up incidental spills (See Section 6 Procedures);
 - provide personal protective equipment as required to protect individuals working with hazardous materials (e.g. gloves, face shields goggles, respirators, laboratory coats etc);
-

 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501</p> <p>Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page: 4 of 14</p>
---	---	---

- ensure that all individuals required to use protective equipment are trained in the safe use and care of such equipment;
- ensure protective equipment is stored and maintained as recommended;
- ensure that safety procedures are in place and documented for work and/or experiments that must be left unattended (See Section 6 Procedures);
- ensure that engineered systems to control exposures (e.g. fume hoods and bio-containment cabinets) are maintained and tested; and
- maintain an inventory of all hazardous materials used or stored in the workplace using the McMaster University web based inventory system where possible. Written inventory records must be maintained in the workplace where the University system is not accessible.

5.3 **Role of Authorized Individuals:**


Individuals authorized to use hazardous materials shall:

- complete WHMIS training as required;
- ensure all workplace containers of a hazardous substances are properly identified with a label that meets WHMIS requirements
- follow all procedures for the safe handling, use, storage, separation and disposal of hazardous materials;
- follow the procedures outlined in the McMaster University Designated Substance Control Program RMM # 500 for all work involving a designated substance;
- practice good laboratory and workplace hygiene to avoid spreading contamination and taking toxic substance home on clothing or the skin;
- review the MSDS for hazardous material used in the work environment;
- use protective equipment and clothing as required when handling hazardous materials (e.g. fume hoods, face shields, respirators, gloves, aprons, lab coats, etc. see Appendix C);
- routinely check the effectiveness of the protective equipment and clothing provided;
- follow the emergency procedures for hazardous material spills; and
- follow procedures directed at minimizing the production of hazardous waste.

5.4 **Role of Environmental & Occupational Health Support Services and Faculty of Health Sciences Safety Office:**

The EOHSS/FHSc Office shall:

- EOHSS shall coordinate the activities of the RMSG and the CJHSC in developing programs for the safe management of hazardous materials;
- provide direction and training as required to comply with OHS, EPA and other health and safety and environmental regulations and best practices for the handling, storage and disposal of chemical and biomedical waste in laboratories on campus and at off campus locations;

 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page: 5 of 14</p>
---	--	---

- disseminate information on new or revised hazardous materials regulations;
- maintain a custom computerized hazardous materials inventory system; and
- coordinate programs for the safe disposal of hazardous waste materials.

5.5 Role of RMSG:

The RMSG shall:

- provide the oversight and audit functions for the safe management of hazardous materials used or stored by McMaster University staff in any location;
- develop, implement and update programs and policies for the safe use, storage and disposal of hazardous materials;
- provide workplace monitoring to determine OEL's and assistance in developing laboratory and workplace hygiene plans and;
- provide training for the safe use, storage and disposal of hazardous materials.

5.6 Role of Presidential Biosafety Advisory Committee:

The BPAC shall:

- review and access the safety procedures outlined in all research projects involving biohazards; and
- review and update the McMaster University Biosafety Program.

5.7 Role of Health Physics:

Health Physics shall:

- provide direction and training as required to comply with the Nuclear Safety and Control Act and industry best practices for the handling, storage and disposal of radioactive materials; and
- coordinate the pickup, interim storage and disposal of radioactive materials.

5.8 Role of Health Physics Advisory Committee:


The HPAC shall:

- review and approve the radiation safety procedures outlined in all teaching, research and production initiatives involving radioactive materials; and
- review and approve the McMaster University Radiation Safety Program

5.9 Role of Joint Health and Safety Committee:

The JHSCs shall:

- review the effectiveness of the Hazardous Materials Management Systems, including WHMIS Program as part of the workplace inspection process; and

 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page: 6 of 14</p>
---	--	---

- review and make comment on WHMIS and other hazardous materials training programs.

5.10 **Role of Central Joint Health and Safety Committee:**

The CJHSC shall:

- review the Hazardous Materials Management Systems including WHMIS Program on an annual basis.


6 **PROCEDURES**

6.1 **Acquisition and Storage**

- 6.1.1 The use of biological agents in Risk Group 1 through Risk Group 4 shall be approved by the University's PBAC.
- 6.1.2 The use of radioactive materials shall be approved by the Health Physics Advisory Committee.
- 6.1.3 The use of a designated substance as defined in the OHSA (See Appendix A and McMaster University Designate Substances Program RMM # 500) shall be reviewed with the appropriate safety office and the JHSC.
- 6.1.4 Up to date Material Safety Data Sheets (MSDS) must be obtained when acquiring hazardous materials. Up to date means published by the manufacturer or distributor during the previous three years.
- 6.1.5 Bulk storage and shared storage areas shall have a designated manager who shall be responsible for safety and maintenance aspects of the storage facility. The name and telephone number of the designated manager and emergency instructions shall be posted at the storage facility.
- 6.1.6 Hazardous materials storage areas shall be inspected monthly. Such inspections shall be documented and any issues with the storage immediately brought to the supervisor. This report to the supervisor shall be documented.
- 6.1.7 Hazardous materials stored in the laboratory or other workplace must be stored in secure and approved locations (e.g. safety cabinet, separate shelves or cupboards) and segregated according by chemical compatibility. MSDS must be reviewed for safe storage and compatibility information.
- 6.1.8 All hazardous materials used and/or stored in the workplace shall be labeled in accordance with WHMIS or the applicable requirements.
- 6.1.9 An inventory of all hazardous materials used or stored in the workplace shall be maintained in a computer based system. Otherwise written inventory records must be maintained.

6.2 **Work Procedures**


- 6.2.1 Non-hazardous or less hazardous materials shall be substituted for hazardous materials whenever practicable.

 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501</p> <p>Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page: 7 of 14</p>
---	---	---

- 6.2.2 Quantities of hazardous materials shall be kept to a minimum by responsible management of inventories and by utilizing micro-scale experiments whenever practicable.
- 6.2.3 All hazardous products and reagents (chemical, biological and radioactive) shall be labeled unless required for immediate, same day use and not left unattended.
- 6.2.4 Workplace labels for hazardous materials must meet WHMIS requirements.
- 6.2.5 All hazardous materials must be used and disposed of in accordance with the relevant regulations (e.g. OHS, EPA, Nuclear Safety and Control Act, Health Canada Laboratory Biosafety Guidelines, 3rd Edition 2004 etc.) and McMaster University Policy and Programs (See Risk Management Manual).
- 6.2.6 Occupational Exposure Limits (OELs) shall be made available for all designated substances and hazardous materials (when available) used in the workplace.
- 6.2.7 MSDS shall be made available to all individuals before they use the hazardous material.
- 6.2.8 The necessary controls to ensure that the OEL of any material used in the workplace are not breached are identified, documented in SOP and enforced by supervisors.
- 6.2.9 The appropriate RMSG office shall be consulted about strategies necessary to limit occupational exposures to hazardous chemical substances. Workplace monitoring and laboratory hygiene plans shall be implemented as necessary, in consultation with the JHSC.
- 6.2.10 Supervisors will develop SOP's for work involving the use of designated and other hazardous materials. These SOP's must be reviewed annually for legislative compliance and application of current best practices.
- 6.2.11 Engineered systems to control exposure to hazardous chemical fumes (e.g. fume hoods) must be maintained and tested. Test results shall be retained in the workplace and provided to the JHSC upon request.
- 6.2.12 When appropriate personal protective equipment (e.g. face shields, goggles, aprons, gloves, respirators, lab coats, etc. See Appendix C) shall be provided to and used by individuals required to use hazardous materials.
- 6.2.13 All hazardous materials shall be disposed of in accordance with all Government regulations and the McMaster University Hazardous Waste Management Program # 502.

6.3 Training & Emergency Response


- 6.3.1 All individuals required to use hazardous materials shall be WHMIS trained before commencing work. Retraining shall be provided as often as necessary to maintain awareness of WHMIS and when implementing new hazardous materials to the workplace. Other training courses may also be required. Refer to training matrix in RMM#300.
 - 6.3.2 All individuals using hazardous materials shall be provide with work-specific training in the safe use, storage and disposal of hazardous materials used in the workplace.
 - 6.3.3 All individuals handling hazardous materials shall be trained in the use and care of any protective equipment (e.g. face shield, goggles respirators etc.)
 - 6.3.4 An appropriate spill kit shall be located in every location where there is a possibility that a hazardous material spill could occur.
-

 McMaster University Risk Management Manual	RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program	Date: May 2009 Page: 8 of 14
--	---	---------------------------------

- 6.3.5 All individuals using hazardous materials shall be trained in the use of the specific spill kit provided and in the McMaster University Emergency Response Procedures that are posted in the workplace.

7 RECORDS

- 7.1 Supervisors are responsible for the maintenance of hazardous materials inventories.
- 7.2 The appropriate RMSG office is responsible for the oversight of hazardous materials inventories in their specific area of responsibility.
- 7.3 The EOHSS Office is responsible for the implementation and maintenance of the custom computerized hazardous materials inventory
-

 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page: 9 of 14</p>
---	--	---

Appendix A

Applicable Legislation

Occupational Health and Safety Act

- 37 (1) (a) An employer shall ensure that all hazardous materials present in the work place are identified in the prescribed manner.
- 42 (1) In addition... an employer shall ensure that a worker exposed or likely to be exposed to a hazardous material or to a hazardous physical agent receives, and that the worker participates in, such instruction and training as may be prescribed.

Requirements of O. Reg. 851, Industrial Establishments, Section 130

130. A worker who may be exposed to a biological, chemical or physical agent that may endanger the workers safety or health shall be trained,
- (a) to use the precautions and procedures to be followed in the handling, use and storage of the agent;
 - (b) in the proper use and care of required personal protective equipment; and
 - (c) in the proper use of emergency measures and procedures.

Other Relevant Regulations under the OHSA

O. Reg. R.R.O. 833, Control of Exposure to Biological or Chemical Agents.
(This regulation sets Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices).

O. Reg. R.R.O. 860 WHMIS (See Appendix B)

Designated Substances (See McMaster University Designate Substances Program # 500)

Regulation 835, Designated Substance – Acrylonitrile


Regulation 836, Designated Substance – Arsenic

Regulation 837, Designated Substance - Asbestos

Regulation 278/05, Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations

Regulation 839, Designated Substance - Benzene

Regulation 840, Designated Substance – Coke Oven Emissions

 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page: 10 of 14</p>
---	--	--

Regulation 841, Designated Substance – Ethylene Oxide

Regulation 842, Designated Substance - Isocyanates

Regulation 843, Designated Substance - Lead

Regulation 844, Designated Substance - Mercury

Regulation 845, Designated Substance – Silica

Regulation 846, Designated Substance – Vinyl Chloride

Other Federal and Provincial Legislation

Canadian Environmental Protection Act and Regulations

Controlled Drug and Substances Act

Dangerous Goods and Transportation Act

Ontario Environmental Protection Act and Regulations

Gasoline Handling Act and Regulations


Hazardous Products Act and Regulations

Nuclear Safety and Control Act

Ontario Fire Code (O. Reg.388 / 97, Amended to O. Reg 144/06)

Pest Control Products Act and Regulations

Pesticide Act and Regulations

 McMaster University Risk Management Manual	RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program	Date: May 2009 Page: 11 of 14
--	---	----------------------------------

Appendix B

Workplace Hazardous Material Information System (WHMIS)

WHMIS is a national program with the basic requirement being uniform across Canada. The regulatory regime in Ontario is prescribed by the WHMIS Regulation 860 which mandates:

- warning labels on all containers of hazardous materials;
- Material Safety Data Sheets (MSDS) that are less than three years old are readily available;
- Training for all employees about the hazardous and health effects of products used and the appropriate safety precautions and controls; and
- Subsequent re-training as necessary.

WHMIS categorizes hazardous materials into six hazard Classes. Supplier labels must identify the product and display standard pictograms, risk phrases, precautionary measures, and first aid measures. Material Safety Data Sheets must provide more detailed handling instructions and emergency procedures than provided by WHMIS labels. They must conform to a standard nine or sixteen part format to communicate health and safety information that facilitates risk comparisons with other products. Users and/or supervisors of or those using hazardous materials may be required to provide copies of MSDS to in-house safety auditors, safety committee personnel, local medical health officer, fire prevention officials, or to Ministry of Labour inspectors.

The purpose of WHMIS is to reduce workplace incidents involving hazardous materials and protect the health of all individuals required to use or handle such products. Anyone working with or in proximity of hazardous materials must attend a WHMIS training session prior to commencing work. WHMIS training seminars for staff and students are offered every semester by the RMSG. See the Risk Management web site. Supervisors must also promote WHMIS reviews via lab safety meetings and other initiatives.

NB. Material Safety Data Sheets provide information for the safety and health protection of individuals. Canadian MSDS do not contain ecological toxicity data and ecological warnings. The absence of such information on MSDS does not absolve the employer from the responsibility to assess potential environmental impacts, where there is a likelihood of a release of material to the natural environment. Precaution beyond workplace initiatives may be necessary to protect the environment and demonstrate environmental responsibility and due diligence.



Appendix C

Lab Coats **Procedure for Laundering or Disposable Option** **For Non-Hospital Hosted Buildings**

Lab coats which are used in biological or chemical labs are **not** to be taken home to be laundered under any circumstances.

McMaster University provides you the following options to launder your lab coat within the workplace or you also have the option of purchasing disposable lab coats for your laboratory.

The options are listed below.

General Instructions for Laundering (note: there are two options)

To set up your account contact Christina Jean Pierre via email jeanc@hhsc.ca
Please provide the following information on the email:


- Name on account
- Extension
- Building
- Room number
- Account number to be charged

Cost for laundering per lab coat is \$2.50, which may be subject to change.

All clean lab coats are delivered weekly, once returned from the linen company.

Prior to use of your lab coat, all **new** coats must be brought to Christina in the Linen area for labeling.

Each coat will be stamped with the number five to identify it as belonging to the Hamilton Health Sciences location (this is the location for McMaster University Campus as well) and a label will be applied to the inside of the collar with the building, room number and account number printed on it. Please do not remove this label, as it is the tracking system for your lab coat. Once this has been completed the coats may be dropped off in any soiled linen laundry bag without informing anyone.

 <p>McMaster University Risk Management Manual</p>	<p>RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program</p>	<p>Date: May 2009 Page: 13 of 14</p>
---	--	--

Option 1 Drop Off at Laundry Area located in HSc

The location of the drop off is the 1T area Stores/Linen area in Hamilton Health Sciences behind the yellow elevators. Once you pass the yellow elevators, take the hall to the right and follow it to the first right, follow this hall to the doors to the Stores/Linen area which will be on your left hand side, it is a set of double doors. The room for drop off and pick up says Linen, there is no number on this door and it is located inside the 1T area.

Lab coats to be picked up will be hung on a hanger and placed on the rack in the Linen area of Hamilton Health Sciences. To locate your coat please look for your location on the collar of the lab coat. **A fresh laundry bag must be picked up from Linen services each time you send a soiled bag to the laundry.**

If you have any questions about the cost, labelling etc please direct them to Christina Jean Pierre at extension 76037.


Option 2 Trucking Division of Facilities Services will pick up lab coat

To have McMaster University trucking transport the lab coats between your location on campus and Hamilton Health Sciences. There will be a cost to your department for this service. You may wish to collect lab coats from your lab(s) to share this cost of transport. For pick up, all lab coats **must** be placed in the laundry bag and the bag be drawn closed. Facilities Services Trucking Division may be contacted at extension 27721. **Trucking will not bring a fresh laundry bag to each pick up, fresh laundry bags must be picked up from Linen services each time you send a soiled bag to the laundry.**

Option 3 Disposable Lab Coats

Disposable lab coats may be used as an alternate choice; they are available from Fisher Scientific, VWR and GT French. They will be available in ABB stores. The biological lab coats are to be disposed of in the biological waste stream when soiled. Chemically contaminated lab coats are to be disposed of in the chemical waste disposal stream.

Note: Please ensure your supervisor has approved the use of a disposable lab coat for your type of research before purchase.

	McMaster University Risk Management Manual	RMM # 501 Title: Hazardous Materials Management Systems Including WHMIS Program	Date: May 2009 Page: 14 of 14
---	--	---	----------------------------------

Appendix D

Recommended segregation categories are as follows:

Segregation Categories for Hazardous Materials Storage	
Categories	Example
Flammable	Acetone, ethanol, n-hexane, hydrogen
Corrosive, acidic	Sulphuric acid, hydrochloric acid
Corrosive alkaline	Sodium hydroxide, chlorine
Oxidizer	Potassium permanganate, perchloric acid, potassium dichromate
Explosive	Picric acid (dry)
Water-reactive	Sodium metal, antimony tetrachloride, phosphorus pentoxide
Air reactive (pyrophoric)	n-Butyl lithium
Highly toxic	Sodium cyanide, Arsenic
Controlled products	Barbital, ethanol
Unstable	Some organic peroxides, diethyl ether
Infectious	Bacteria, viruses, parasites, fungi
Radioactive	Tritium, carbon -14, phosphorus-32, sulphur-35