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Rodent: Chemical Hazard Information For Animal Care & Veterinary Services (ACVS) Directly Managed Facilities

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1. PURPOSE

To outline the procedures for all personnel who are required to safely work with or could be exposed to Chemical Hazards when present in any Animal Care & Veterinary Services (ACVS) directly managed facility at Western University. Chemicals classified under the Global Harmonized System as carcinogenic, mutagenic, teratogenic, cytotoxic, a neurotoxin or a reproductive toxins are considered here as highly hazardous chemical substances. No occupational exposure limit has been established for most hazardous chemicals, therefore, the following guidelines shall be adhered to when handling Chemical Hazards and animals administered Chemical Hazards.

2. SCOPE

- 2.1. This SOP MUST be followed in conjunction with Standard Operating Procedures (SOP #800) - Operations & Maintenance of Biological Safety Cabinets (BSC), Health Sciences / West Valley.
- 2.2. This SOP applies to all Researcher personnel, ACVS Staff, Facilities Management Staff or other personnel that are working with or could potentially be exposed to Chemical Hazards when present in any ACVS directly managed facilities at Western University.
- 2.3. **Special Note: Pregnant or breastfeeding women, or either gender trying to conceive should not work with chemicals or handle animals that have been administered chemical hazards classified as teratogenic or reproductive toxin (e.g. Tamoxifen, BrdU, or STZ.)**

3. REFERENCES

- 3.1. Standard Operating Procedures (SOP) for Use with Biological, Chemical, Radiation and/or other Physical Agents with Live Animals – https://www.uwo.ca/animal-research/secured/sop_index.html
- 3.2. Emergency Procedures Information: See MSDS & Section 9.0
- 3.3. Treatment for exposure to Chemical: See MSDS
- 3.4. Hazardous Waste Disposal Protocol –
http://www.uwo.ca/hr/form_doc/health_safety/doc/manuals/hazardous_handbook.pdf
- 3.5. Accident / Incident Reporting Form and Investigation Report –
http://www.uwo.ca/hr/form_doc/health_safety/form/aiir.pdf
- 3.6. Laboratory Health and Safety Manual for general Laboratory Practices
http://www.uwo.ca/hr/form_doc/health_safety/doc/manuals/lab_safety_manual.pdf

4. ASSOCIATED DOCUMENTS

- 4.1. ACVS Hazard Communication Form http://www.uwo.ca/animal-research/facilities/safety/hazardous_agents_notification_form.html
- 4.2. **FRM-011** : Hazardous Chemical Containment Periods Chart https://www.uwo.ca/animal-research/secured/sop_index.html

- 4.3. **FRM-012** : Personal Protective Equipment Chart – Level 2 http://www.uwo.ca/animal-research/secured/sop_index.html
- 4.4. **FRM-015** : Chemical Cage Card https://www.uwo.ca/animal-research/secured/sop_index.html
- 4.5. **FRM-016** : Chemical Signage – Entry Door Sign http://www.uwo.ca/animal-research/secured/sop_index.html
- 4.6. Guidelines for the Use of Specific Hazardous Chemicals - ACVS Main [Website](#)
- 4.7. **SOP- #800** : Operations & Maintenance of Biological Safety Cabinets (BSC), Health Sciences / West Valley https://www.uwo.ca/animal-research/secured/sop_index.html

5. DEFINITIONS

5.1. Carcinogenic

Substance or agent with the potential to cause cancer in living tissue.

5.2. Cytotoxic

Substance or agent toxic to living cells.

5.3. Neurotoxin

Substance or agent that is poisonous or destructive to nerve tissue.

5.4. Mutagenic

Substance or agent capable of inducing genetic mutation.

5.5. Reproductive Toxin

Substance or agent that can cause adverse effects on the reproductive system.

5.6. Teratogenic

Substance or agent that can disturb the development of an embryo or fetus. Teratogens may cause a birth defect in the child.

6. RESPONSIBILITIES AND AUTHORITIES

6.1. Researcher and Approved Research Staff

- 6.1.1. The Researcher MUST provide an up to date Material Safety Data Sheets (MSDS) before the hazard can be used in the room.
- 6.1.2. The Researcher MUST ensure that Research Staff has completed training in Western's Lab Safety Training, Workplace Hazardous Materials Information Systems (WHMIS), Western's Biosafety Training Program, including The Standard Operating Procedure (SOP) for Use of Biological, Chemical, Radiation and/or Physical Agents with Live Animals and any other training

required depending on the chemical prior to entry into approved hazards room.
http://www.uwo.ca/animal-research/facilities/safety/hazardous_agents_notification_form.html

6.1.3. The Researcher **MUST** ensure that approved Research Staff has received specific room hands-on training by ACVS Staff prior to entry into the approved hazards room.

6.1.4. The Researcher **MUST** ensure that Research Staff follows the UWO Biosafety Guidelines and Procedures Manual for Containment Level 1 & 2 Laboratories.

6.1.5. The Researcher or designate **MUST** complete the following form at least 3 business days in advance to any hazard administration. http://www.uwo.ca/animal-research/facilities/safety/hazardous_agents_notification_form.html

6.1.5.1. Researcher or designate **MUST** receive contact with written approval from Animal Care leaders before administration can begin.

6.1.6. The Researcher or designate **MUST** ensure cages are labeled with fully completed chemical hazard cage cards once hazards have been administered including:

6.1.6.1. Chemical Hazard

6.1.6.2. Lab Contact Name

6.1.6.3. Emergency Contact Numbers (Laboratory & After Hours)

6.1.6.4. Date Administered

6.1.7. The Researcher or designate **MUST** ensure the posted Chemical Hazard Containment Level 2 door signage has been completed in full including:

6.1.7.1. Investigator Name

6.1.7.2. List of Hazardous Chemicals

6.1.7.3. Contact Name(s)

6.1.7.4. Contact Phone number(s)

6.1.8. The Researcher or designate **MUST** ensure that carcass and garbage bags are labeled appropriately and placed in the following areas for disposal;

6.1.8.1. Health Sciences – Medical Sciences Building (MSB) Cold Room, 605

6.1.8.2. West Valley Building – (WVB) Cold Room, 87

6.1.8.3. Robarts Research Institute – freezer located in west end hallway outside of cage wash

6.1.9. The Researcher and Research Staff are also required to comply with:

6.1.9.1. Section 8.0 ANIMAL HUSBANDRY PROCEDURES

6.1.9.2. Section 9.0 EMERGENCY PROCEDURES

6.1.9.3. Section 10.0 PPE REQUIREMENTS

6.2. Animal Care (AC) Staff

6.2.1. Read, understand, sign-off on, and follow all associated documentation and signage for the Chemical Hazard rooms.

6.2.2. Seek medical counsel from Workplace Health (Ext. 82047) prior to working with animals exposed to a Chemical Hazard to ensure that they are aware of the potential hazards.

6.2.3. Follow the completed training in Western's Lab Safety Training, WHMIS, Western's Biosafety Training Program, including The Standard Operating Procedure (SOP) for use of Biological, Chemical, Radiation and/or Physical Agents with Live Animals and any other training required depending on the chemical prior to entry into approved hazards room.

6.2.4. Stock appropriate sterile & non-sterile caging and room supplies as required in the animal room, including hand sanitizer.

6.2.5. Ensure that carcass and garbage bags are labeled appropriately and placed in the following areas for disposal;

6.2.5.1. Health Sciences – Cooler Room 605

6.2.5.2. West Valley – Cold Room 87

6.2.5.3. Robarts Research Institute – chest freezer located in west end hallway outside of cage wash

6.2.6. Comply with:

6.2.6.1. Section 8.0 ANIMAL HUSBANDRY PROCEDURES

6.2.6.2. Section 9.0 EMERGENCY PROCEDURES

6.2.6.3. Section 10.0 PPE REQUIREMENTS

6.3. Lead Hand and/or Facility Manager

6.3.1. Authorize the use of chemical hazard administration in animals associated with an ACVS-managed facility.

6.3.2. Ensure that animals are housed in containment caging (eg. micro isolator cage tops) appropriate for the specific hazard.

6.3.3. Supply an appropriate housing room in an ACVS directly managed facility, and notify the Researcher of the assigned location.

6.3.4. Ensure that AC Staff has the completed training in Western's Lab Safety Training, WHMIS, Western's Biosafety Training Program, including The Standard Operating Procedure (SOP) for Use of Biological, Chemical, Radiation and/or Physical Agents with Live Animals and any other training required depending on the chemical prior to entry into approved hazards room.

6.3.5. To post Green Chemical Hazard Containment Level 2 door signage on the designated room(s) and notify the Researcher that it has been posted. Signage MUST include:

6.3.5.1. Name of Approved Researcher

6.3.5.2. Name of Hazard

6.3.5.3. Contact Name(s)

6.3.5.4. Contact Phone Number(s)

6.3.5.5. Approved Start Date for Use of Hazard

6.3.6. Ensuring appropriate PPE Chart is posted on Containment Room Entry Door.

6.3.7. Accompany Western's Animal Research Safety Consultant during regular Containment Level 2 inspections of animal areas.

6.3.8. Ensure Class II BCSs are up-to-date with annual certifications and related copies of certificates are posted or provided in the room.

6.3.9. Ensure the eyewash within the Containment area is tested weekly.

7. EQUIPMENT

7.1. Biological Safety Cabinet (BSC) Class II B2

7.1.1. SOP – #800 Operations & Maintenance of Biological Safety Cabinets (BSC), Health Sciences / West Valley

8. ANIMAL HUSBANDRY PROCEDURES

8.1. Conducting Animal Work in a BSC:

8.1.1. Chemical Hazards MUST be handled and administered in a certified Class II Biological Safety Cabinet (BSC). All cage manipulations and animal handling MUST also be performed in a BSC.

8.1.2. A layer of towels moistened in Clidox (1:5:1) MUST be placed on the working surface of the BSC prior to opening cages and performing any manipulations with cages or mice.

8.1.2.1. A layer of paper towels may be placed over the moistened towels as a working surface for mouse anesthesia and vaccinations.

8.1.3. The BSC MUST be wiped down with an appropriate disinfectant (see 8.3) at the end of use and then again with alcohol to help prevent corrosion of the BSC.

8.2. Handling of animals and/or contaminated cages and bedding within designated Hazardous Chemical Containment Period:

8.2.1. Minimum Personal Protective Equipment (PPE) that MUST be worn when handling animals and contaminated bedding of animals that have been administered a Chemical Hazard:

- 8.2.1.1. Double nitrile rubber (0.11mm) gloves
- 8.2.1.2. Canadian Standards Association (CSA) approved safety glasses
- 8.2.1.3. Tyvek™ suit or approved back-closure gown
- 8.2.1.4. The appropriate individually fitted National Institute for Occupational Safety and Health (NIOSH)-approved respirator **MUST** be used.

8.2.1.4.1. Important Note: User **MUST** be currently fit tested within the last 2 years for respirator prior to use.

- 8.2.2. All items that come in contact with the animal **MUST** be disposed of as hazardous waste (i.e. gloves, paper towels, swabs, etc)
- 8.2.3. If euthanasia is required: transfer rodent to clean shoebox cage, apply filter top lid and transport cage taken to CO2 chamber for animal euthanasia. The lid can be removed for the euthanasia. Dispose of rodent and gloves as hazardous waste.
- 8.2.4. Return dirty cages to the original animal housing room and label with the specific hazardous chemical name and date of treatment.
- 8.2.5. A chemical hazard label **MUST** be re-applied to the new cage.

8.3. Required Disinfectants:

- 8.3.1. Biological Safety Cabinet – Clidox (1:5:1 Dilution)
- 8.3.2. Floor – 10% Bleach Dilution in Water
- 8.3.3. Cage, Supplies and Bedding bags – Wiping/Spraying inside BSC – Clidox (1:5:1 Dilution)
- 8.3.4. Garbage and carcass bags outside the BSC (1:5:1 Dilution)

8.4. Initial Cage Change, at end of designated Hazardous Chemical Containment Period:

- 8.4.1. Initial cage change should (when possible) be at the end of designated containment period (See Hazardous Chemical Containment Periods Chart – FRM-011).
- 8.4.2. The minimum PPE (See 8.2.1) **MUST** be worn when handling animals and contaminated bedding of animals that have been administered a Chemical Hazard.
- 8.4.3. Dirty Bedding-
 - 8.4.3.1. Within the BSC, dump & scrape out the dirty bedding from **one cage at a time** from up to 14 cages into a garbage bag or biohazard bag for disposal according to Western's hazardous waste program (See 8.5.2).
 - 8.4.3.2. Before removing the cage from the BSC, wipe or spray the inside of empty cage bottom with Clidox (See 8.3.3) soaked cloth ensuring there is no bedding left.
 - 8.4.3.3. When finished dumping, scraping, and wiping, seal the bag and wipe the outside of bag with the appropriate disinfectant (see 8.3). Use extra bags as required.

8.4.4. Dirty Water – dispose of directly down the sink drain. It does NOT need to be treated.

8.4.5. Dirty Caging Supplies-

8.4.5.1. Once removed from the BSC, caging supplies and bedding bags are to be placed on a cart for transport to cage wash area.

8.4.5.2. Animal Care Staff will transport the disinfected cages to the cage wash area.

8.4.6. After this first cage change, at end of Hazardous Chemical Containment Period, Animal Care Staff will remove hazardous Chemical Label. Further handling of animal and cage can be done without further precaution.

8.5. Laboratory Waste & Carcass Disposal:

8.5.1. Laboratory waste and infected carcasses MUST be place in appropriately labeled garbage bags or Biohazards bags and placed in the appropriate containers (blue drum) in one of following areas for disposal;

8.5.1.1. Health Sciences – MSB Cold Room, 605

8.5.1.2. West Valley – WVB Cold Room, 87

8.5.1.3. Robarts Research Institute – chest freezer located in west end hallway outside of cage wash

8.5.2. Items contaminated or potentially contaminated with hazardous chemicals and infected carcasses MUST be double bagged, labeled as Hazardous Waste and placed in specified containers for removal by Western's hazardous waste management program. Western's Hazardous Material Management Handbook can be found on the OHS website
http://www.uwo.ca/hr/form_doc/health_safety/doc/manuals/hazardous_handbook.pdf

9. EMERGENCY PROCEDURES

9.1. Emergency Procedures Information: In case of an exposure, follow instructions on the Chemical MSDS in the facility binder located in the designated room and/or outside the Medical Sciences Building (MSB) main office 510, and immediately seek medical assistance as follows:

9.1.1. During Work Hours: Immediately go to Staff Workplace Health, UWO, and bring the MSDS copy; inform Supervisor; Supervisor to complete and submit an Accident/Incident Reporting and Investigation Report. http://www.uwo.ca/hr/form_doc/health_safety/form/aiir.pdf

9.1.2. After Hours: Go to University Hospital Emergency Department, and bring the MSDS copy; inform Supervisor; Supervisor to complete and submit an Accident/Incident Reporting Form and Investigation Report.

10. PERSONAL PROTECTIVE EQUIPMENT (PPE): Please reference PPE Chart on Containment Room Entry Door

10.1. The appropriate individually fitted NIOSH-approved respirator MUST be used.

10.1.1. Important Note: User **MUST** be currently fit tested within the last 2 years for respirator prior to use.

10.2. Double Disposable gloves appropriate for the chemical being handled, see MSDS and Laboratory Health and Safety Manual for General Laboratory Practices (Section 10.5.1. and Appendix 7): http://www.uwo.ca/hr/form_doc/health_safety/doc/manuals/lab_safety_manual.pdf

10.3. CSA approved safety glasses

10.4. Tyvek™ suit or approved back-closure gown

10.5. Closed toe shoes and foot covers

10.6. Bonnet

10.7. For wiping/dunking caging extra PPE includes:

10.7.1. Individually fitted half face respirator (for use when dunking with bleach)

10.7.2. Chemical gloves or medical grade gloves 14mm thickness and an extended cuff over single pair of disposable gloves.

10.7.3. Inspect all PPE for integrity prior to donning.

11. REVISION HISTORY

Version	Date	Description of Changes	Author
00	22-Apr-15	SOP Creation	Nicole Girotti