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USE OF RESPIRATORS

Although elimination or reduction of respiratory hazards through substitution or engineering controls is preferred, there may be instances in which Lab Personnel require the use of appropriate respirators for work, which involves exposure to potentially hazardous environments, such as airborne contaminants (dusts, fumes, mists, gases, vapours, aerosols, airborne pathogens).

The Canadian Standards Association (CSA) Standard Z94.4-02 (*Selection, Use and Care of Respirators*) requires a written respiratory protection program to be in place where respiratory protection is used to protect staff and/or students in Lash Miller Chemistry Laboratories from inhaling hazardous atmospheres.

1. ***Purpose:*** *to provide guidance on use of respirators.*

2. ***Scope:*** *applies to all students, staff, and faculty working with respirators at the Lash Miller Laboratories. Individuals are responsible for knowing the details of this SOP.*

3. ***Prerequisites:*** *You must be trained by EHS on the use of respirators and fit-tested. Records of the training shall be updated and maintained by EHS.*

4. ***Roles and Responsibilities:***

It is the responsibility of all faculty, staff and students to follow the procedures described in the SOP. Respirator users are required to be provided with appropriate respirators, ensure compliance, ensure safety training, and fit-tested.

4.1 Senior Managers (Chair/Director of Operations) shall:

- Consult with EHS, ensure that risk assessments (Designated Substance Assessments (DSAs)) are conducted where respirators are required.

- Provide the required resources and direction to support and maintain an effective respirator
  protection program.

4.2 Supervisors/Principal Investigators (PI) shall:

- Ensure that lab personnel are in compliance with the Respirator use SOP.
- Ensure that fit testing of lab personnel are completed prior to using a respirator.
- Ensure that lab personnel use the respirators in accordance with the instructions and the training received by EHS.
  Ensure respirators are cleaned, sanitized, inspected, maintained, repaired, and stored in accordance with training and manufacturer's recommendations.
- Ensure that records of training and fit testing are well documented.
- In case of a tight-fitting facepiece, ensure that respirator users are clean-shaven and do not have any object or material that would interfere with the seal or operation of the respirator.
- Notify the EHS of respirator users' concerns, changes in processes, equipment, or operating
- Procedure that have impact on environmental conditions, and respiratory protection requirements.
- Notify the EHS of the incidents where the use of a respirator may have prevented or contributed to an accident or injury.
- Ensure that lab personnel wear appropriate respirators at all times in respiratory hazard areas.

4.3 Respirator Users shall:

- Complete training and fit-tested by EHS before using respirators.
- Inspect the respirator prior to each use in accordance with the training received.
- Work in compliance with the procedures outlined in this Respirator Use SOP.
- Wear appropriate respirators at all times when performing tasks or working in an area where respiratory hazards exist.
- Clean, maintain and store the respirators in accordance with the training received and the manufacturer's instructions.
- Perform negative and positive pressure check after each donning of a tight-fitting respirator.
- Report any damage or malfunction of the respirator to their supervisor.
- Report to their supervisor any condition or change that may impact on their ability to use a respirator safely.
- When using a tight-fitting facepiece respirator, be clean shaven and ensure that no object or material interferes with the seal or operation of the respirator.

5. Respirator Use Procedures:

5.1 Respirator Selection

- Respirators shall be selected by EHS. Please refer to the link below for selection criteria: https://ehs.utoronto.ca/wp-content/uploads/2015/10/Respiratory-Protection-Program.pdf
- Only accepted (NIOSH-approved) respirators shall be selected and used.

5.2 Respirator Fit Testing

- Fit testing can be scheduled by contacting the EHS office (after approval was obtained): https://ehs.utoronto.ca/training/respiratory-protection-training-fit-testing/
- The lab personnel must demonstrate the required level of competency in donning and doffing the respirator, as well as inspecting and performing a user seal check.
- The lab personnel shall be fit tested with the same make, model, style and size of respirator to be used.

5.3 Respirator Use, Cleaning, Inspection, and Maintenance

5.3.1 Respirator Use

- Prior to being assigned any task that requires the use of a respirator, the lab personnel shall complete all the fit testing and training requirements.
- Respirators will not be sold to those that were not fit tested.
- Respirators can be requested through Chem Stores, and all users must complete EHS532 Respiratory Protection Training prior to using respirators.
- Follow the procedures for putting on an elastomeric half-facepiece respirator:
    - Follow the directions provided by the manufacture.
    - Adjust the straps so that the respirator fits tightly but does not dig into your face or leave red marks on your skin. The respirator should feel snug but comfortable.
    - Straps should be placed under a hard hat or hood.
    - Position the straps correctly-one strap should go above the ears and over the crown of your head, and the other below the ears and around the neck.
    - If the respirator has adjustable straps, tighten or loosen them without removing the respirator.

5.3.2 Face Seal Check

- Facial hair shall not interfere with the sealing surface of the face piece or the valve function of the respirator.
- Lab personnel with facial hair that may interfere with the facepiece seal or valve function on tight-fitting respirators cannot use a tight-fitting respirator. CSA Z94.4-11 (Selection, Use and Care of Respirators) provides illustrations of acceptable and unacceptable facial hair for tight-fitting respirators.
- The lab personnel shall check the seal of the facepiece immediately after donning the respirator.
- The respirator user should never break the respirator face-to-facepiece seal to communicate.

5.3.3 Identification of Filters, Cartridges, and Canisters

- All cartridges, replacement parts, etc., shall be from the same manufacturer as the respirator.
- A change-out schedule shall be established for the replacement of air-purifying filters or cartridges of respirators before their useful service life is ended. Change-out can include end-of-service life indicators, maximum use time, manufacturer information, and breathing resistance as appropriate.
- Warning properties (odor, irritation) of the hazard shall not be relied on for cartridge change-out.
- All filters, cartridges, and canisters shall be labeled and include the NIOSH approved color coded label. Labels must not be removed and shall remain legible at all times.
- Disposable particulate filtering facepiece respirators such as an N95 are single use respirators and must be disposed of after each use.

5.3.4 Respirator Cleaning, Inspection, Maintenance and Storage

- The University shall provide each lab personnel requiring a respirator with a respirator that is clean, sanitary and in good working order.
- Each individual issued a respirator shall properly maintain his/her respirator to retain its original effectiveness. The maintenance shall include:
    - Cleaning and sanitizing
    - Inspection, testing, and repair;
    - Proper storage; and
    - Recordkeeping
- Defective or non-functioning respirators shall be identified as out of service (e.g. by being tagged) and shall be replaced or removed from service until repaired.
- The respirator shall be cleaned and sanitized according to the respirator manufacturer's

- instructions and/or according to procedures found in Respiratory Protection Program at University of Toronto – Procedures for Respirator Maintenance. Please refer to the link below:
    - https://ehs.utoronto.ca/wp-content/uploads/2015/10/Respiratory-Protection-Program.pdf
- Respirators designed not to be cleaned (e.g. N95) shall be disposed of after use.
- The frequency of cleaning shall depend on how many lab personnel use the respirator and what it is used for.
- Respirators issued to individual lab workers shall be cleaned and disinfected as often as necessary to maintain proper hygiene.
- A single respirator issued to multiple individuals must be cleaned and disinfected before each use.
- The respirators shall be stored in a manner that will protect them from dust, ozone, sunlight, heat, extreme cold, excessive moisture, vermin, damaging chemicals, oils, greases, or any other potential hazard that may have a detrimental effect on the respirator.
- Respirators shall be stored in a manner that will prevent deformation of rubber or other elastomeric parts.
- Used cartridges/filters to be re-used shall be stored in a manner to prevent contamination of the respirator facepiece.