PREAMBLE

The Environmental Health and Safety Safe Work Procedure for lab coats was developed by the Department of Environmental Health and Safety in accordance with the University's Policy Statement on Health and Safety and to ensure compliance with all applicable legislation.

Lab coats are knee-length outer coats or smocks worn to protect clothes and skin from contamination with chemical, radiological, or biological agents. This design also provides protection from spills, sprays and other releases of fine particles and liquids. Lab coats are the last line of defense and not a substitute for the engineering and administrative controls within the lab.

SCOPE

This procedure applies to the entire Mount Royal community for activities performed by University personnel.

RELATED DOCUMENTS

- MRU Lab Safety Manual
- MRU Biosafety Manual
- MRU Personal Protective Equipment Safety Program
- MRU Hazard Management Safe Work Procedure
- Alberta Occupational Health & Safety Act, Regulations and Code

RESPONSIBILITIES

Department of Environmental Health and Safety

- Reviewing and updating this procedure as necessary.

Managers, Department Chairs, Supervisors

- Ensure that this SWP is implemented in all facilities under their authority.
- Ensure that all pertinent supervisors, employees and students are aware of this SWP and have been informed of the proper use and care of lab coats.
- Must be knowledgeable about the hazards in their area.
- Ensure that all staff and students are aware of the hazards present and have been informed of the proper use, care and maintenance of lab coats.
- Ensure that workers wear lab coats at all times in areas where skin contamination hazards exist.

Staff and Students

- Follow the requirements of this SWP.
- Be aware of the hazards and controls within the lab.
- Wear lab coats at all times within labs and designated areas.
- Maintain lab coats in good condition.

PROCEDURE

Lab coats are the most common personal protective equipment in a laboratory. With the proper selection, use and care of your lab coat, it can help protect you from many hazards in the lab. Lab coats

are not a substitute for engineering controls (i.e. fume hood, biosafety cabinet) or administrative controls (i.e. good technique, following procedures). It may be necessary to supplement lab coat use with additional protective clothing.

- Lab coats provide protection to skin and clothing from incidental contact.
- Lab coats help prevent the spread of contamination outside the lab.
- Lab coats provide a removable barrier in the event of an incident.

Lab coats are not designed to be the equivalent of chemical protection suits for major chemical handling or emergencies. With the exception of a splash resistance requirement, there is no requirement in standards or guidelines for the type of protection that a lab coat is to provide. What this means is that:

- Lab coats are not tested for typical conditions that might be encountered in a research lab with respect to chemical use, or combined research activities.
- There is little or no information provided by manufacturers or distributors about the capability of a lab coat for a combination of hazards.
- A coat that is advertised as flame resistant has not been tested with criteria involving flammable chemicals on the coat. The testing determines the self-extinguishing properties of the fabric, and simulates circumstances of a flash fire or electric arc flash, not a chemical fire.

LAB COAT SELECTION

When selecting a lab coat that is appropriate to the work being done, you must consider:

1. the materials;
2. the overall length;
3. the type of closure;
4. the presence of pockets or slits; and
5. the sleeves.

There are also options for reusable, limited use, or disposable one time use lab coats. Reusable lab coats are acceptable for most applications at MRU.

1. LAB COAT MATERIAL

Lab coats are made of different materials, and it is important to select a coat of appropriate material for the types of hazards in the lab. The first step in the selection process is to determine the types of hazards that exist in your lab and the reasons for the lab coats. Some questions to consider are:

- Does your lab work primarily with chemicals, biological agents or a mix of these?
- Are there large quantities of flammable materials or pyrophoric materials used in the open?
- Are there open flames or hot processes along with significant amounts of flammables?
- How are hazardous chemicals used and what engineering controls are available (e.g. a fume hood or glove box)?
- Is there a significant risk of splash or splatter for the tasks being done?
- What is the toxicity of chemicals used?
- Is there a concern of inadvertent spread of contamination?

Once you determine hazards, you can review information on some typical lab coat materials and determine options for your lab.

Material	Splash Resistance/ Chemical Resistance	Flame Resistance	Uses/ Comments
Polyester/Cotton Blend *Recommended 65%/35% for chemical research lab setting*	• Splash Resistant • Unknown chemical resistance. • Better for work with acids.	No *Coats with more cotton will burn less readily.*	Good for clinical settings (hospitals, clinical labs) and labs handling biological materials and small amounts of flammables.
100% Cotton	• Not splash resistant or fluid proof. • Degraded by acids. • More resistant to solvents.	No *Burns less readily than poly/cotton blends.*	Good for labs where acid handling is limited and splash resistance is not a concern, and there is some work with flammables, heat and flame. Should supplement with an apron for acid handling.
Polypropylene lab coat	No	No *Burns readily.*	Intended for protection from dirt, grime, dry particulates in relatively non-hazardous environments such as animal handling and clean rooms.
Cotton treated with flame retardant.	• Not necessarily fluid proof. • Degraded by acids. • More resistant to solvents. • Not generally tested for chemical resistance.	Yes	Appropriate for lab settings where there may be a significant fire hazard. May be appropriate to supplement with an apron for acid handling. Will not lose flame resistance with proper laundering over typical life of the coat. No bleach should be used by the laundry service.

2. LAB COAT LENGTH

Lab coats should extend to or be slightly below the knee. Any exposed skin below the lab coat must be covered, and the material should be selected according to the same criteria as the lab coat material (i.e. any leg covering should be made of a material similar to the lab coat).

3. LAB COAT CLOSURES

Lab coats open at the front and close using buttons, zippers or snap closures. Snap closures are recommended since they can be removed quickly in the event of fire, chemical or biological spills.

4. LAB COAT POCKETS AND SLITS

Coat pockets should be conveniently placed, and preferably NOT with side-slits that allow easy access to any pocket worn underneath.

5. LAB COAT SLEEVES

Lab coats are provided with long sleeves to protect the upper and lower arms. Depending on the experimental procedures, elastic cuffs on sleeves may be preferred to prevent them snagging on apparatus or dragging in liquids, or to prevent liquids or powders from contacting the skin through a splash or spill.

Short sleeved lab coats should NOT be used in laboratories.

USE OF LAB COATS

- Lab coats are only to be worn in the lab or work area.
- Lab coats must be removed when leaving the lab/work area.
    - In an emergency, and if the danger is imminent, remove yourself from the situation prior to removal of the lab coat.
- Lab coats must be worn when transporting hazardous materials outside of the laboratory.
- Lab coats must be worn by all lab personnel at all times when in a space requiring it.
- Lab coats must be worn completely closed.
- Lab coats should never be worn with the sleeves rolled up.
    - If there is a hazard with lab coat sleeves becoming entangled/catching on equipment, lab coats with knitted/elasticized cuffs may be purchased.
- Lab coats used in the Containment Level 2 lab should not be taken out of the lab except for laundering.

STORAGE OF LAB COATS

- Lab coats should not be stored in contact with street clothing.
- Lab coats should not be draped over furniture when not in use unless properly folded.
- Used lab coats should be stored individually (e.g. not more than one coat per hook).

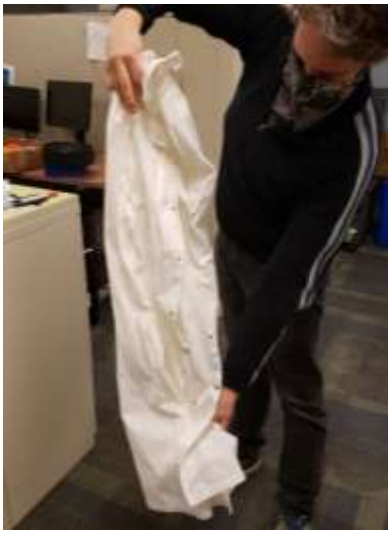
If you cannot store your lab coat separately from other items (e.g. in a locker or bag), fold the lab coat as demonstrated (next page; to minimize cross-contamination due to contact) and store it in a plastic bag.

Step 1: Hold the lab coat by the shoulders so it hangs loosely.

Step 2: Turn the lab coat around and place your hands inside the shoulders.

Step 3: Turn the lab coat shoulders in towards each other.

Step Four: Try to bring the snaps or buttons as close together as possible.



Step Five: Hold the folded lab coat at the collar. Arrange the front closures and grip the bottom hem of the lab coat.

Step Six: Fold the lab coat in half and place in a plastic bag for storage.

CLEANING/LAUNDERING LAB COATS

MRU-provided lab coats are supplied and cleaned by a contracted service. If lab coats cannot be decontaminated prior to cleaning, handle them according to the chemical or biosafety guidelines. MRU-provided lab coats should not be laundered at home.

CHEMICAL GUIDELINES

If a substantial chemical spill on clothing occurs or, if the spilled material is toxic or corrosive, the lab coat must be discarded according to hazardous waste disposal procedures. Refer to the chemical SDS and contact the Laboratory Safety & University Biosafety Specialist to determine if other chemicals can be safely decontaminated or laundered by the supplier.

BIOSAFETY GUIDELINES

Where a known or suspected contamination/spill from ANY biological agent occurs (regardless of Risk Group), any contaminated clothing and the lab coat must be decontaminated by autoclave or treated with an effective decontaminant before laundering.

Do not autoclave biologically contaminated lab coats that are additionally contaminated with chemical or radioactive material.

For the Containment Level 2 lab, the interval between washing should not exceed one month of regular use.

STUDENT LAB COATS

Students are responsible for providing and caring for their own lab coats. If the student's lab coat has become contaminated during a lab section, or as part of a course or faculty member's research project, handle it according to the chemical or biosafety guidelines. The student should be loaned a lab coat from MRU inventory for the remainder of the lab work if the student's street clothes have not been contaminated.

If the lab coat does not show visible chemical or biological contamination, or any noticeable chemical odours, a student may launder their lab coat at home using the following procedure.

1. Wash the lab coat by itself.
2. Use colour safe bleach and detergent with as much water as possible or an extra rinse cycle.
3. Run a full cycle with the washing machine empty with colour safe bleach after the lab coat.
4. Dryer cycle should be set to a low temperature.

REVISION HISTORY

Date	Revision	Notes
September 2018	01	Creation of Safe Work Procedure
April 2021	02	Updated for format and content