

PROTECTIVE CLOTHING GUIDELINE

1.0 WHEN TO USE

Hazards and personal protective control measures should be identified and provided based on the hazards involved. Protective clothing may include lab coats, aprons, sleeves, shirts, pants, etc.

1.1 FLAMMABLE LIQUIDS

When working with flammable liquids, fire-resistant clothing should be selected. Cotton/polyester blends should not be used in these circumstances. 100% cotton should be used when working with small amounts of flammable liquids. When working with larger volumes, flame-resistant clothing such as NOMEX should be worn.

1.2 CHEMICALS

When working with particularly toxic chemicals or large volumes, chemical protective suits may be used. The construction of the suit and the material the suit is made from are factors that must be taken into consideration when selecting a suit. Consultation with the manufacturer of the suits is necessary to ensure the suit and material are appropriate.

1.3 ELECTRICITY

Working around live electricity presents serious risk of injury or death in certain circumstances. This type of work may require the use of arc-flash protective equipment.

1.4 SHARP OBJECTS

Cut resistant clothing or gloves should be worn when handling or working around sharp objects. These materials have cut-resistance ratings and exceeding these ratings may result in injury.

1.5 EXTREME HEAT/COLD

Working around extreme heat/cold may require the use of insulated clothing to protect against burns.

2.0 SELECTION

Only a detailed risk assessment can determine the appropriate protective clothing necessary to perform the task. Consulting a manufacturer's website or representative will help to ensure that the clothing is appropriate to the task.

The most common protective garment used on campus is the lab coat. The following guideline will help to ensure that the correct lab coat is selected based upon common hazards encountered at UW.

A lab coat must:

- Be appropriate for the materials in use and activities in labs. Select the coat/gown based on hazards used in the laboratory. For example, a fire-resistant coat is recommended for work with pyrophoric or flammable material
- Fit properly
- Be properly fastened, ideally with snaps
- Have sleeves that properly cover the arms to the wrist (short sleeved lab coats are not permitted for wet lab use)
- Be removed when leaving the wet lab (with the exception of situations where there is a need to carry materials through a hallway to another working lab)
- Notes:
 - If there is a hazard from lab coat sleeves becoming entangled/catching on equipment, lab coats with knitted/elasticized cuffs may be purchased and should be in accordance to specific machine guarding safety.
 - A lab coat should never be rolled up to expose any portions of the hand or arm that is not already protected by an appropriate glove.

Lab coats are offered in a variety of fabrics and blends and are not suitable for all activities. Lab coats are laboratory environment specific and could also be experiment specific (e.g., using pyrophoric materials).

- **Synthetic/cotton blends**

100% Polyester, 80/20, 65/35 and 40/60 polyester/cotton blend lab coats are the most common lab coats and are good for clinical settings and labs handling biological materials. They are the most combustible and are not considered appropriate for working with flammables and should never be used while working with pyrophoric materials.

100% polyester and 80/20 blend lab coats are not recommended for chemical laboratories; however, 65/35 and 40/60 polyester/cotton lab coats are generally suitable for chemical research laboratories.

- **100% Cotton**

Comfortable, superior to synthetic blends for fire-resistance, and are a good affordable compromise for chemical safety rather than the more expensive fire-resistant lab coats. However, these are less resistant than blends and are degraded by acids.

- **Flame-resistant treated lab coats**
These more costly lab coats are better for labs with significant fire hazard, with an understanding of the limitations for flame resistance. Generally, they will not lose flame resistance with laundering over typical use life, but specific manufacturer recommendations must be followed.
- **Dupont Nomex®**
These flame-resistant lab coats are more expensive, but good for lab environments where there is a risk of arc flash or flash fire, and recommended for working with pyrophoric materials.

3.0 CARE AND MAINTENANCE

Protective clothing should have dedicated storage space to ensure it is available and kept away from street clothes. For example, lab coats should have hooks that are dedicated to lab coats only. Street clothes such as jackets should have separate hooks for storage, ideally these hooks should not be in the same room as the hazard.

Lab coats should be laundered on a regular basis. If soiled by normal dirt/grease they can be taken home and laundered with normal clothes. Lab coats that have been soiled by hazardous materials or infectious biological materials should be disposed of as hazardous waste.

Fabrics should be laundered according to manufacturer's instructions and should not be exposed to incompatible cleaners.

4.0 LIMITATIONS

Protective clothing must be selected according to the hazard. If many hazards are present, often there is no one single material that will protect against all the hazards so multiple layers may be required. Increasing layers increases the likelihood of exposure to heat stress so appropriate practices such as following the University's Heat Stress program will help to reduce the risk of heat stress.

5.0 TRAINING

The level of training required for protective clothing depends upon the degree of the hazard. This should be identified in the risk assessment. A simple example would be a lab worker who is required to wear a lab coat. They should receive basic instruction in:

- Where to store the lab coat
- When to wear it (upon entering the lab)
- How to wear it (all buttons done up, sleeves not rolled up)
- Laundering instructions

- When and how to dispose of a lab coat

A more complicated example would be a clean room worker that would need instruction on how to properly don and doff the clothing and clean-side, dirty side procedures to minimize potential contamination.