

THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

LAB COAT POLICY

Number	07.07.03
Division	Research and Economic Development - Office of Environmental Health and Safety
Date	August, 2013; Reviewed and Revised August, 1, 2021
Purpose	This Policy provides UAH requirements for selection, use and care of lab coats.
Policy	This Policy requires a laboratory coat be worn for admittance into any laboratory area in which work with hazardous materials, flammable and corrosive materials, radioactive materials, and biological agents is conducted.

Procedures

Criteria for Selection, Use, and Care of Laboratory Coats

University Policy requires a laboratory coat be worn for admittance into any laboratory area in which work with hazardous materials, flammable and corrosive materials, radioactive materials, and biological agents is conducted. This policy sets forth criteria for selection, use and care of lab coats. Failure/refusal to wear a required lab coat by employees is a basis for disciplinary action. A student not wearing a required lab coat in a laboratory/technical area may not participate in lab activities until such lab coat and/or other PPE is worn. This Policy may only be deviated from when a documented hazard assessment has been conducted and provides information that indicates that lab coat is not necessary.

Lab coats are an important part of personal protective equipment that serve to:

- Provide protection of skin and personal clothing from incidental contact
- Prevent the spread of contamination outside the lab (provided they are not worn outside the lab)
- Provide a removable barrier in the event of an incident involving a spill or splash of hazardous substances

Each supervisor is responsible for ensuring that his/her workers (employees, students, and visitors) use the appropriate lab coat per this Policy. Individual departments, research centers, and other operating units must determine what type of lab coat is necessary and if the workers supply their own or if it is department provided. Under no circumstances should the employee work without the necessary lab coat.

Students in teaching lab settings are required to provide a lab coat at their own cost. Lab coats are required in all undergraduate labs where chemical, biological, or radiological materials are used. This includes but is not limited to labs for Chemistry, Biology, Material Science Engineering, Chemical and Biomolecular Engineering, and Biomedical Engineering.

All **laboratory workers** are responsible for following the requirements for wearing and properly maintaining lab coats as outlined in this Policy and in laboratory-specific safety

training.

Selection of Lab coats: Lab coats are available in a variety of materials and provide varying degrees of protection. Examples include: splash resistant coats, static free coats, chemical resistant coats and flame-resistant coats.

Please make sure that the lab coat you are selecting provides the type of protection that is appropriate for your needs. The first step in this selection process is to determine the types of hazards that exist in your lab and the reasons for the lab coats.

Considerations for conducting a hazard analysis:

- Does the lab conduct manipulations involving chemical, biological and radioactive materials?
- Does the lab store large quantities (>10gallons) of flammable liquids outside a flammable storage cabinet?
- Are there hot plates and open flames along with flammable liquids?
- Are there toxic chemicals in use or in storage in the lab?
- What types of engineering controls are available in the lab (e.g.: fume hood, glove box)?

After conducting a lab hazard analysis, it is time to select the appropriate lab coat. One coat may not provide protection against all the hazards present in one laboratory. A chart at the end of this document provides information about lab coats, materials, and protection offered.

Select lab coat/apron using the following requirements and recommendations:

- **Length** - At least hip length is required. Knee length or longer is recommended for most effective coverage.
- **Wristband** - It is recommended that a lab coat with a fitted wristband/cuff be used to reduce the potential for splashes up the arm and fire hazards. However, this is not required.
- **Top button** - It is best to use a lab coat that provides for a high-top button at the neck to provide most effective protection.
- **Fire resistant** – Required when flammable chemicals or flames are used.

Lab coats made of polyester-cotton blends (no less than 35% cotton) are acceptable in labs where no open flames are present. Lab coats must be made of 100% cotton or flame-resistant material in labs where open flames are used (such as alcohol burners). Labs that store large quantities (>10gallons) of flammable liquids outside a flammable storage cabinet must use lab coats made of 100% cotton treated with flame retardant material. Lab coats of flame resistant (FR) material are required in labs where pyrophoric materials are handled. Persons working with pyrophoric liquids are also required to wear 100% cotton clothing underneath the FR lab coat on days that they handle these materials in the lab.

Emergency spill or splash: In the event of a significant spill of a hazardous material on the lab coat, it should be immediately removed. If skin or personal clothing is impacted, it will be necessary to proceed to an emergency shower. Any contaminated clothing should also be removed. Guidance should be sought from OEHS about whether the coat and clothing should be cleaned or discarded as hazardous waste.

Emergency fire: The action will depend on circumstances of the fire. If only the lab coat is on fire, remove it, leave area, and call 6911 or activate fire alarm. If lab coat and clothing are on fire, shout for help then stop, drop, and roll; or proceed to an emergency shower (if close by) to extinguish fire. If the area is on fire, leave area, closing doors as you leave. Activate fire alarm and or call 6911. Seek follow-up medical attention.

Below is a YouTube video developed by North Western University to demonstrate the importance of wearing a flame-resistant lab coat in a chemical laboratory
<http://www.youtube.com/watch?v=quTegBMio6U>

The table below (www.ehs.columbia.edu) provides information on some typical lab coat materials available, with guidance on use and limitations. 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 “flame resistant,” such as treated cotton, may not be chemical resistant or acid resistant. The term “flame resistant” refers to the characteristic of a fabric that causes it not to burn in air. There are limited criteria for testing lab coat materials with respect to typical lab use scenarios, and some of the information is anecdotal.

Material/Source	Features	Pros	Cons
<p>Polyester/Cotton Blend 80% Polyester / 20% Cotton, 65/35, and 40/60 are common blends.</p>	<p>Liquid Resistance Splash resistant. No specific chemical resistance. Anecdotal evidence suggests polyester blends provide better protection against corrosive material than cotton. Flame Resistance No Polyester blends burn more readily than 100% cotton or flame-resistant materials. Comfort Lightweight and breathable. More cotton in the blend results in better breathability.</p>	<p>Appropriate for use in clinical settings and research laboratories where biological material is manipulated.</p>	<p>Polyester blends burn readily when ignited, and are not appropriate for use with flammable liquids, pyrophoric materials, or near open flame.</p>

<p>100% Cotton</p>	<p>Liquid Resistance Not splash resistant. No specific chemical resistance. Anecdotal evidence suggests cotton lab coats provide better protection from solvent contamination than corrosive contamination. Flame Resistance No Burns less readily than polyester blends. Comfort Lightweight and breathable.</p>	<p>Appropriate for use in clinical settings and research laboratories where there is light flammable liquid or open flame use.</p>	<p>Cotton lab coats should be supplemented with a chemical splash apron when corrosive material is handled.</p>
<p>100% Cotton treated with flame retardant.</p>	<p>Liquid Resistance Not splash resistant. No specific chemical resistance. Anecdotal evidence suggests cotton lab coats provide better protection from solvent contamination than corrosive contamination. Flame Resistance Yes Flame-resistant (FR) fabrics and garments are intended to resist ignition, prevent the spread of flames away from the immediate area of high heat impingement, and to self-extinguish almost immediately upon removal of the ignition source. Comfort Lightweight and breathable.</p>	<p>Appropriate for use in research laboratories where substantial fire risk exists from flammable material handling or open flame use. Laundering will not damage the flame resistant coating.</p>	<p>More costly than a traditional 100% cotton lab coat.</p>

Nomex IIIA	Liquid Resistance Yes When in contact with direct flame or extreme heat, fibers in the protective clothing enlarge, enabling greater distance between the user's skin and heat source. Comfort Breathable, but slightly bulkier than polyester blend or 100% cotton materials.	Appropriate for use in research laboratories where there is extreme fire danger from open flame, electrical arc flash, and pyrophoric material.	Expensive.
Polypropylene	Liquid Resistance Not splash resistant. Flame Resistance Not flame-resistant. Comfort Very lightweight and breathable.	Appropriate for use when protection from dirt and grime in nonhazardous environments is desired. Disposable. Low cost.	Offers no protection from hazardous materials.
Microbreathe	Liquid Resistance Barrier to particles, biological fluids, and chemicals. Flame Resistance Not flame-resistant. Comfort Lightweight, breathable, and stretches to allow ease of movement.	Appropriate for use in clinical settings and research laboratories where biological material and chemicals are handled. Low particle count fabric is ideal for clean room activities. Disposable.	Inappropriate for use in environments with a significant fire danger
DuPont Tyvek lab coats	Liquid Resistance Barrier to particles, biological fluids, and chemicals. Flame Resistance Not flame retardant and melts at 135°C (275°F)	Appropriate for use in clinical settings and research laboratories where biological material is manipulated Excellent protection against microscopic airborne particles	Inappropriate for use in environments with a significant fire danger.

Review

The Office of Environmental Health and Safety (OEHS) and is responsible for the review of this policy every five years (or whenever circumstances require).