PPE Usage & Limitations

Every lab group member will be provided a documented “Lab Hazard Assessment” that will indicate the types of hazards in your workplace. The Laboratory Hazard Assessment and associated Standard Operating Procedures (SOPs) will determine the proper Engineering / Administrative Controls and Personal Protective Equipment (PPE) necessary to mitigate risk and reduce exposure to laboratory hazards. Note that PPE is not a substitute for good work practices or proper use of engineering controls (fume hoods, glove boxes, biosafety cabinets, etc.) Conversely, using only engineering controls in the absence of proper PPE does not provide appropriate protection. It is your responsibility to correctly wear and maintain the indicated PPE. Each type of PPE that you may use in the lab has its own specific use and limitations. The following table briefly explains each type of PPE described in the “Outfit for Safety” video and their limitations.

PPE	Hazards	Usage & Limitations
Safety Glasses	Flying solid projectiles, fragments, chips, and debris that can impact and cause damage to the eyes.	Must meet the requirements specified in American National Standards Institute, Z87.1-1989 or later. Safety glasses must fit snugly to the face to prevent projectiles from entering around the protective lenses. Lenses may fog based on activity and atmospheric conditions. Routine cleaning of the lenses is required.
Chemical Splash Goggles	Splashes, droplets and sprays from liquid hazardous chemicals that can damage the eyes. Chemical splash goggles are also rated for impact protection from flying solid projectiles.	Must meet the requirements specified in American National Standards Institute, Z87.1-1989 or later. Chemical splash goggles must fit snugly to the face to prevent liquid splashes and/or projectiles from entering around the protective equipment. Lenses may fog based on activity and atmospheric conditions. Indirectly vented goggles may reduce fogging. Routine cleaning of the goggles is required.
Face Shield	Full or partial face protection from flying solid particles, fragments, chips, and debris as well as partial protection from splashes, droplets and sprays from liquid hazardous chemicals.	Must meet the requirements specified in American National Standards Institute, Z87.1-1989 or later and be worn in combination with safety glasses or chemical splash goggles. Not intended to be worn alone. A face shield with appropriate eye protection should be used when transferring larger quantities of cryogenic liquids.
Traditional Lab Coat *(100% Cotton; 80% Polyester / 20% Cotton; 65% Polyester / 35% Cotton)*	Incidental and small splashes of hazardous materials used in research labs.	Designed to protect the wearer and the wearer’s clothing from initial contact with a hazardous material. This coat should not be used with blood borne pathogens in quantities large enough to soak through to the skin or flammable materials greater than 1 L or smaller quantities of flammable materials where there is a risk of ignition.
Barrier Lab Coat *(99% polyester/ 1% carbon fiber fluid with knitted cuffs)*	Splashes, droplets, and sprays of blood, tissues, cells, or other potentially infectious materials.	Designed to protect the wearer and the wearer’s clothing from initial contact with materials that pose a bloodborne pathogen risk. This coat should not be used when there is a risk of fire.

Chemical Protection (CP) Lab Coat *(100% spun polyester with ShieldCSR fiber coating)*	Incidental and small splashes of designated hazardous chemicals.	Chemical Protection (CP) treatment is intended to provide protection against incidental splash contact to many polar organic solvents and aqueous corrosives (excluding Acetone, Dichloromethane and many non-polar solvents). The lab coat material is *not inherently* flame retardant and should not be used when fire related hazards or flammable liquids are being handled. This is a high performance fabric that requires good cleanliness to perform as intended by design. A thorough inspection and laundry/maintenance process is needed to maintain the optimal performance of the CP coat/fabric. http://www.workrite.com/assets/downloads/Workrite-CP-Tech-Brief.pdf
Flame Resistant Lab Coat *(Snaps to the collar – 4.5Oz/yd or 6 Oz/yd Nomex IIIA or FR Treated Cotton)*	Fire related hazards associated with pyrophorics, extremely flammable substances, spontaneously combustible materials, and handling larger quantities of flammable liquids or handling any quantity of flammable liquids in the presence of an ignition source.	Meets NFPA 2112 performance standards. Designed to protect the wearer when there is a risk of catching personal garments on fire or exposing the skin to fire. FR clothing will resist ignition, prevent the spread of fire over the garment, and quickly self-extinguish following removal of the ignition source, such as a Bunsen burner. FR garments are not designed to be "fire-proof," nor are they designed to eliminate the risk of burns. If FR clothing is splashed or contaminated with a flammable substance and ignited, the substance will continue to burn on the surface of the garment until the fuel is exhausted. This garment is not fluid resistant and should be immediately removed and replaced (or laundered) if it comes in contact with spilled substances.
Flame-Resistant/Chemical-Protection (FR/CP) Lab Coat *(Snaps to the collar, FR cuffs – 4.5 Oz/yd Nomex IIIA with ShieldCXP fiber coating)*	Fire related hazards associated with pyrophorics, extremely flammable substances, spontaneously combustible materials, and handling larger quantities of flammable liquids in the presence of an ignition source *in addition to* the increased potential for incidental chemical splashes.	Same performance considerations as described for Flame Resistant (FR) lab coat with the addition of Chemical Protection (CP) to the fabric. Chemical Protection treatment is intended to provide protection against incidental splash contact to many polar organic solvents (excluding Acetone and Dichloromethane) and aqueous corrosives. This is a high performance fabric that requires good cleanliness to perform as intended by design. A thorough inspection and laundry/maintenance process is needed to maintain the optimal performance of the FR/CP coat/fabric. http://www.workrite.com/assets/downloads/Workrite-FRCP-Tech-Brief.pdf

Laboratory Coat Use

Follow these safe practices when wearing and maintaining a lab coat:

- Select and wear lab coats that fit properly.
- Button or snap lab coats to the full extent, do not roll the sleeves up.
- Wear lab coats only when in the lab or designated work area. Remove lab coats when leaving the lab/work area to go home, to lunch, to the restroom, or when attending meetings in conference rooms, etc.
- Inspect laboratory coats prior to use and ensure there are no tears, damage or contamination.
- Launder lab coats on a routine basis. High performance fabrics (FR and FR/CP) require good cleanliness to perform optimally.
- Do not take lab coats home for laundering. Contact your EH&S Office to obtain laundering instructions for your location.

Laboratory Coat Care Instruction

Small splashes of contamination should first be blotted before placing the coat into the laundry. Grossly contaminated laboratory coats or coats contaminated with a highly hazardous material should be treated as hazardous waste. Carefully insert your contaminated coat into a leak-proof bag while wearing gloves to protect yourself from the contamination. Properly doff your gloves and dispose of them. Next, securely close the bag and immediately affix a completed hazardous waste label onto the bag. Contact your campus EH&S to arrange for the item to be picked up during the next hazardous waste pick-up.

Your laboratory coat should be retired when it is permanently soiled, notably stained, and/or beyond repair. The lab coat should be removed from the laundry inventory and destroy by cutting it in half with scissors.

Do not apply your own embroidery, emblem or patch to an FR laboratory coat without first considering the placement. Large patches should not be applied near the face or head. Some campus may have their coats embroidered, but this is done in consultation with your campus EH&S office to ensure it does not compromise the integrity of the lab coat.

Protective Eyewear and Face Shield Use

Follow these safe practices when using protective face shields and eyewear:

- Clean safety glasses and goggles daily with a soft cloth.
- Store protective eyewear in a clean dry place where they won't be damaged.
- Inspect glasses and goggles to ensure lenses are firmly attached and not damaged.
- Inspect the face seal (to ensure it remains flexible) and elastic band on chemical safety goggles.
- Inspect face shields for proper attachment of the lens to the headgear.
- Replace protective face and eyewear when it becomes damaged, scratched, ill-fitting or no longer functional.
- Discard damaged or no longer usable protective face and eyewear in the regular trash. Contact EH&S to discuss options if the protective equipment is contaminated.