COMMON LAB PPE REFERENCE GUIDE

Lab Coats

Type	Physical Characteristics	Applications
Traditional 	100% cotton to 65%/35% polyester/cotton General purpose protection. Protects skin and clothing from dirt, dyes, low-hazard chemicals, low-hazard biohazards, and radioactive material. Lightweight and breathable. Not intended for use when fire hazard is present. Example Source: Medline	Chemistry labs with low flammable solvent use, and no chemical (pyrophorics) or physical hazards likely to pose a risk of fire. Other lab environments without fire hazards, including those with: biological, radiation, physical and animal hazards.
Barrier 	99%/1% polyester/carbon Provides a good fluid barrier. Sleeves are cuffed, allowing gloves to be worn over sleeves. Does not permit blood or other potentially infectious materials to pass through due to 3-layer construction. Polyester material is very flammable, will melt and provide fuel source once ignited. Example Source: Medline	Working with human blood, body fluids, tissues, cells or other potentially infectious material which may contain bloodborne pathogens. Other lab environments without fire hazards in which cuffed sleeves and lower particle count are advantageous. Should never be worn around an open flame or if there is a potential for fire.
Flame Resistant 	100% Nomex (meta-aramid fiber) Material is intrinsically flame resistant (not chemically treated). Flame resistance properties will not diminish with laundering. Nomex is resistant to many solvents and corrosives but is a loose weave material; provides superficial fluid barrier only. Example Source: Bulwark	Working with water or air reactive chemicals, large volumes of flammable solvents, or potentially explosive chemicals. Environments where there is an open flame or the potential for a fire.

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Eyewear		
Type	Physical Characteristics	Applications
Safety Glasses 	All safety glasses must comply with ANSI Z87.1-2010 requirements for minimum protection parameters. Polycarbonate lenses block 99.9% of UV light. Safety glasses will provide impact protection from direct trajectory hazards (foreign objects). They will not provide adequate protection for larger volumes of solvent that may bypass lenses. Example Sources: Uvex 3M Fisher	Most common type of eye protection. Lightweight, comfortable and unlikely to fog. Glasses are worn in low hazard environments and situations. Glasses will not protect from dust or liquid running down the face. Glasses allow a minimal gap between eyewear and face (8 mm or less).
Splash Goggles 	All splash goggles must comply with ANSI Z87.1-2010 requirements for minimum protection parameters. Splash goggles provide a better seal around the face, preventing liquid from contacting eyes. Splash goggles are designed with indirect ventilation. Example Sources: Uvex 3M Pyramex	Goggles are worn when there is the potential for splashes of hazardous material or a concentrated presence of foreign material (dust and debris). Goggles should be tested for a snug fit on the face for optimal protection.
Face Shield 	Face shields must comply with ANSI Z87.1-2010 requirements for minimum protection parameters. Face shields are required when there is need for protection of the entire face and throat. Primary eye protection must always be worn under a face shield. Example Source: Pyramex	Face shields are worn in situations where significant splashing or high hazard procedures. Dispensing cryogens, using strong corrosives or working with potentially explosive material.

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Disposable Gloves

Type	Physical Characteristics	Applications
Latex 	Provides some chemical resistance. Use manufacturer specific chemical resistance chart to verify suitability. Gloves are sensitive to UV radiation and will degrade. Keep covered to prolong life. As with any thin disposable glove, glove should be removed immediately upon chemical contamination. Note that some individuals may have sensitivities or allergies to latex. Example: Microflex – Evolution One	Most commonly used when working with aqueous material or biological hazards. Handling known or potentially infectious material. Working with animals.
Nitrile 	Wider chemical resistance then latex. Some resistance advantages over chloroprene; use manufacturer-specific chemical resistance chart to verify suitability. As with any thin disposable glove, glove should be removed immediately upon chemical contamination. Example: Kimberly-Clark – Purple Nitrile	Chemical, biological or other environment where incidental solvent exposure is possible. Should not be used when handling large amounts of solvent, pyrophoric or explosive material.
Chloroprene (aka Neoprene) 	Wider chemical resistance then latex. Some resistance advantages over nitrile; use manufacturer-specific chemical resistance chart to verify suitability. As with any thin disposable glove, glove should be removed immediately upon chemical contamination. Example: Microflex – NeoPro	Chemical, biological or other environment where incidental solvent exposure is possible. Should not be used when handling large amounts of solvent, pyrophoric or explosive material.

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Reusable Gloves		
Type	Physical Characteristics	Applications
Trionic 	Trionic gloves are made by mixing latex, nitrile and neoprene. Generally has the best qualities of each material, though it is still susceptible to UV degradation. Excellent resistance to most acids and low particulate contamination. Review manufacturer chemical resistance data for specific protection information. Example: MAPA – Trionic E-194	Commonly used in electronics manufacturing and clean room environments. Reasonable cost for a reusable glove.
Nitrile 	Thicker version of disposable nitrile gloves; provides significantly better chemical protection. Review manufacturer chemical resistance data for specific protection information. Example: Ansell – AlphaTec (13 mil)	Chemical, biological or other environment where solvent exposure is likely. Gloves are rated to be immersed in solvent. Gloves should be cleaned and allowed to dry after each use.
Chloroprene (aka Neoprene) 	Thicker version of disposable chloroprene gloves, provides significantly better chemical protection. Review manufacturer chemical resistance data for specific protection information. Example: Ansell – Neoprene (18 mil)	Chemical, biological or other environment where solvent exposure is likely. Gloves are rated to be immersed in solvent. Gloves should be cleaned and allowed to dry after each use.

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Reusable Gloves (continued)

Type	Physical Characteristics	Applications
Viton/Butyl 	Developed in collaboration between UCSF and Ansell Ltd. The layered Viton-over-butyl glove provides excellent protection from chloroform and phenol. Combined thickness is as low as 8 mil, more similar to disposable gloves. Review manufacturer chemical resistance data for specific protection information. Example: Ansell – ChemTek Viton/Butyl	Used most frequently during phenol/chloroform extractions. Good chemical protection; can be used in other situations as appropriately indicated by chemical resistance data.
Laminated Film 	Multiple layers of polyethylene (PE) and ethylene vinyl alcohol (EVOH). Good chemical resistance to a wide array of chemicals. Review manufacturer chemical resistance data for specific protection information. Material is slick, may need to use a disposable overglove for dexterity and grip. Examples: Ansell – Barrier North (Honeywell) – Silver Shield	Working with larger volumes of chemicals, hazardous material spills, or where other glove materials are insufficient. Silver shield provides good resistance to methylene chloride (dichloromethane).
Nomex “Flight gloves” 	Made from Kevlar and Nomex, often with leather palm. Provides excellent flame protection for hands, but does not protect from chemicals. Should be worn under an appropriate chemical glove (nitrile or neoprene). Example: Hatch – BNG Flight Glove	Used when working with pyrophoric or potentially explosive material. Should be used in conjunction with Nomex or other flame resistant lab coat.