

Personal Protective Equipment (PPE)

PPE includes equipment accessories the employee must wear to mitigate, at a minimum, exposure to hazardous materials. Nevertheless, PPE does not eliminate safety risks, but rather assists in protection, lowering potential exposure. In some cases, additional, or more protective, equipment must be used.

- It is mandatory to wear a **long-sleeved lab coat** and **closed-toed shoes** when working in a chemical and/or biological laboratory. Do not wear sandals or open shoes. Use Flame resistant laboratory coats for high hazard materials, pyrophorics, and flammables.
- **Gloves** protect against skin absorption of chemicals, chemical burns, thermal burns, lacerations, chemicals of unknown toxicity, corrosives rough or sharp-edged objects, and very hot or cryogenic liquid exposure. The two most common gloves for laboratory use are:
 - Latex gloves - supply high sensitivity, enabling maximum control of touch and gentle motor skills. However, latex may cause sensitivity or become an allergen. Latex exposure symptoms include skin rash and inflammation, respiratory irritation, asthma and shock.
 - Nitrile or neoprene gloves which do not contain the latex protein – they are more durable to shearing and chemicals, but they can cause oxidation of silver and highly-reactive metals, which can react with sulphur.
 - Gloves degrade over time, so they should be replaced as necessary to ensure adequate protection.

Butyl	Offers the highest resistance to permeation by most gases and water vapor. Especially suitable for use with esters and ketones.
Neoprene	Provides moderate abrasion resistance but good tensile strength and heat resistance. Compatible with many acids, caustics and oils.
Nitrile	Excellent general duty glove. Provides protection from a wide variety of solvents, oils, petroleum products and some corrosives. Excellent resistance to cuts, snags, punctures and abrasions.
PVC	Provides excellent abrasion resistance and protection from most fats, acids, and petroleum hydrocarbons.
PVA	Highly impermeable to gases. Excellent protection from aromatic and chlorinated solvents. Cannot be used in water or water-based solutions.
Viton	Exceptional resistance to chlorinated and aromatic solvents. Good resistance to cuts and abrasions.
Silver Shield	Resists a wide variety of toxic and hazardous chemicals. Provides the highest level of overall chemical resistance.
Natural rubber	Provides flexibility and resistance to a wide variety of acids, caustics, salts, detergents and alcohols.

- Most SDS recommend the most protective glove material in their PPE section.
 - Gloves should be removed avoiding skin contact with the exterior of the glove and possible contamination.
 - When handling acids, bases or other corrosive solvent mixtures, elbow thick rubber gloves should be worn. Underneath rubber gloves one should always wear nitrile gloves in case the outer rubber gloves are cut.
 - Remove one glove when entering an elevator and put its buttons with the ungloved hand. Similarly upon opening and closing door handles.
 - Remove gloves before operating computers.
- Safety glasses provide the basic protection against chemical splashes, sparks, or glass shards. Safety goggles should form a seal with the face, completely isolating the eyes from the hazard. Specifically, protective goggles or a face mask must always be worn while using acids and/or glues and/or other chemical substances. If you are required to wear prescription glasses, goggles should be worn over them. **Refrain from wearing eye contacts.** Their use may cause damage if vapor from a foreign substance is trapped between the lens and the eye, specifically when working with volatile and toxic chemicals, since an eye contact could interfere in case of an accident with a liquid, which will necessitate the use of a designated eye washer device.