

Hand Protection

Workplace Hazards to the Hands

We use our hands, fingers and thumbs to do almost every type of work. Because of this, our hands are exposed to many hazards in the workplace, such as:

- Harmful substances that can be absorbed into the skin
- Materials or processes that could cause severe cuts, lacerations, abrasions or punctures
- Chemicals that could irritate the skin or enter the blood stream
- Temperature extremes
- Irritating substances that could result in dermatitis

Note: Machine guards are placed on equipment to protect your hands and fingers from moving parts. They should not be altered or removed.

I. Types of Hand Protection

Gloves are the most common type of hand protection, but there are other devices which are mainly used to protect the fingers. These include:

- Finger cots – **protects single finger or fingertip**
- Mitts – **two divisions, one for thumb and another for fingers**
- Thimbles – **protects the thumb or the thumb and first two fingers**
- Hand pads – **protects the palm of the hand from cuts, friction, and burns from hot objects – cannot be used where manual dexterity is required**
- Sleeves or forearm cuffs – **protects arms and wrists from heat, splashing liquids, impact, and cuts**
- Hand lotions and creams – **best used with gloves or finger protection, not as a substitute for gloves.**

Gloves

No type of glove can protect you against all hazards so gloves must be selected for a particular job. Glove selection should be based on the following:

- The hazard(s) present
- How often you are exposed to the hazard
- How long you are exposed to the hazard
- Dexterity – how much hand and finger movement you need
- Grip pattern needed for the job

- Length – determined by how much of your arm is exposed to chemical splashes.

Note: In certain settings it may be more cost effective to regularly change cheaper gloves than to reuse more expensive types.

When you use gloves to protect yourself against chemical hazards, the following factors are important:

- The toxic properties of the chemical(s) including:
 - a) Local effects on the skin
 - b) Systemic effects
- As a general rule, any ‘chemical resistant’ glove can be used to work with dry powders
- For mixtures: select the glove based on the chemical component with the shortest breakthrough time
- Select gloves that can be removed without contaminating the skin.

Type of Glove	Protects Against
Rubber	Acids, bases, caustics, solvents, diluted-water solutions of chemicals, alcohol, high-resistance to cuts
Canvas or Cloth	Dirt, wood splinters, sharp edges
Metal Mesh	High resistance to cuts and scratches
Insulated	Electrical surges
Heat-Resistant	Heat and Flames
Lead-Lined	Radiation
Hypoallergenic and Powder-Free	Skin problems in workers with allergies
Cuffed	Liquids trickling down into the glove
Special materials for gloves	
Nitrile (synthetic rubber)	Oils, many solvents, esters, grease and animal fat; high resistance to cuts and abrasions

Neoprene	Broad range of chemicals, oils, acids, caustics and solvents; less resistant to cuts, punctures and abrasions than nitrile
Polyvinyl Chlorine (PVC)	Acids, caustics, alkalis, bases and alcohol; good abrasion and cut resistance Note: Some types of PVC are susceptible to cuts
Polyvinyl Alcohol (PVA)	Aromatics, chlorinated solvents, esters and most ketones; resists cuts, punctures and abrasions Note: PVA breaks down when exposed to H₂O and light alcohol
Ethylene Vinyl Alcohol (EVOH), also called flat rim gloves	Highly resistant to chemicals and hazardous materials; little resistance to cuts and tears (usually worn as a liner under PVC or nitrile gloves)
Butyl	Acetone and dimethyl formamide; not useful against cuts, punctures and abrasions
Vitron	Benzene, methylene chloride and carbon disulfide; little resistance to cuts, punctures and abrasion NOTE: Check to find out how long gloves can be worn and whether or not they can be reused.

Proper Fit, Care and Maintenance of Hand Protection

Whenever gloves are worn it is very important to wash your hands often to prevent a build-up of sweat and dirt. It is this combination that can cause you to develop a skin irritation.

Also:

- ❑ Check gloves for cracks and holes, especially at the tips and between the fingers
- ❑ Replace worn or damaged gloves promptly
- ❑ Keep gloves clean and dry
- ❑ Keep a spare pair of gloves on hand while the other pair dries
- ❑ Make sure gloves fit properly – a small glove tires the hand and a large one is clumsy to work with
- ❑ Check the material safety data sheet (MSDS) for any chemical you handle to see if a particular glove is recommended

- Cover all cuts before you put gloves on