

IMPORTANT HSE TOPICS

GLOVES

Who Should Use?

Gloves should be worn when handling:

- » Hazardous materials
- » Toxic chemicals
- » Corrosive materials
- » Materials with sharp or rough edges
- » Very hot or very cold materials

They are a control measure of last resort and should always be used in conjunction with other measures. If protective gloves are used incorrectly, or badly maintained, the wearer may not be protected - when gloves fail they fail to protect which exposes the user to the contaminant.

Selection

There are four factors to consider when deciding which glove is suitable for your work:

- a. The type of hazard (chemical, etc.)
- b. The task
- c. The user (size and fit, state of health, etc.)
- d. The workplace conditions (ergonomics, temperature, wet or dry, etc.)

They need to be considered together and not in isolation as it is their interaction that will determine the suitability of the glove.

(a) The type of hazard

No single gloving material can offer complete protection from all substances/chemicals. Each are liable to damage or failure by degradation or permeation by some chemicals. In most instances where you need protection against incidental chemical contact, a nitrile glove will be the best choice. Nitrile gloves are abrasion resistant and protect against most solvents, oils, greases, hydrocarbons and some acids and bases. However they degrade when they come in contact with ketones, oxidizing acids and organic compounds containing nitrogen. If exposure to these materials is expected a different glove material may be required. Contact your glove supplier to get advice on selection of alternative glove materials. Use Appendix A to collect the information you need to help the supplier guide you in the selection of appropriate gloves

(b) The task

The material being handled will usually be the key factor determining the choice of glove material. The actual task will determine the type of glove. Factors that should be looked at are:

- » Dexterity requirements
- » Cuff length
- » Grip requirements and working conditions, (e.g. wet or oily)
- » Abrasion-, puncture-, snag-, tear-, and cut-resistance requirements

(c) The user (size and fit, state of health, etc.)

Using the correct size of glove is essential to avoid problems. Gloves that are too small bind and cause undue hand fatigue. A tight glove can cause rashes. Gloves that are too large are uncomfortable, interfere with the precision of grip and can snag. Any unhealed cuts and skin abrasions should be covered with a waterproof dressing before donning gloves. Some pre-existing skin conditions can effect selection or use of gloves. If someone has eczema, they may need to use a cotton liner inside gloves to avoid irritation from sweat.

(d) The workplace conditions (ergonomics, temperature, wet or dry, etc.)

Temperature can affect comfort. Prolonged exposure to sweat inside a glove can provoke rashes or dermatitis. Gloves may need to be changed frequently and hands dried before donning a fresh pair or a cotton liner used inside the glove to absorb the sweat.

A longer cuff may be necessary in wet conditions to reduce the risk of liquids getting into the glove. Gloves will usually need to have a textured surface to help grip.

Tasks that involve repetitive movements (e.g., laboratory work) require a glove with good flexibility and elasticity. A good quality disposable nitrile should meet requirements.

Planning and Preparation

- » Gather information about the types of chemicals that will be used, the tasks to be done, any special needs of glove users and the workplace environmental conditions to allow selection of the appropriate gloves for the work.
- » Consider substitution of the chemical for a less hazardous one.
- » Consider alternative work practices or automation to eliminate the need for work in gloves.

Use

Gloves can tear or puncture during use or leakage may occur through microscopic holes. Hands may become contaminated when gloves are removed. For these reasons gloves should not be seen as a substitute for good hand hygiene. To minimize the risk of contamination workers should:

- » Keep nails short.
- » Avoid wearing stoned/ridged rings.
- » Cover cuts/abrasions with waterproof dressings.
- » Inspect gloves regularly and change if defects occur.
- » Use gloves which change colour when punctured.
- » Air occlusion can occur if gloves are worn for long periods causing excessive perspiration which creates an ideal environment for bacterial growth and skin breakdown.

Maintenance

- » Gloves are difficult to maintain. They nearly always become contaminated inside the second time they are put on if they have been exposed to chemicals. Contamination works through the glove even while it is not being worn. Single use (disposable) gloves might offer better protection.
- » No glove is tested to give more than 8 hours' protection against chemical permeation. Wear and tear, stretching and abrasion are not included in any testing.
- » Throw away 'single use' gloves when they are taken off.
- » Throw away gloves that have been immersed in chemical at the end of the shift. They may look clean and undamaged inside, but they won't be.

Training and Supervision Employer responsibilities

- » Gather and provide safety data sheets on the chemicals that will be present at the workplace
- » Consider elimination or substitution for a less hazardous substance (e.g., a drilling or well servicing fluid that is water based)
- » Use the Controlling Chemical Hazards guideline or web project to define the proper chemical management for the work you wish completed.

Supervisor responsibilities

- » Ensure the availability of the required Guidance Sheets for chemical management.
- » Designate an area for putting on and taking off gloves. Clean this area regularly.
- » Provide training on how to take off or put on contaminated gloves safely.
- » Ensure the availability of appropriate gloves in all sizes.

Worker responsibilities

- » Where possible, wipe gloves clean before taking them off;
- » Only use 'single use' gloves once;
- » Store clean gloves in a place free from contamination;
- » Wash their hands after taking off protective gloves; and
- » Dispose of contaminated gloves safely as hazardous waste.

GLOVE USE CHECKLIST

Before Use:

- Always cover any broken skin, cuts or grazes with a waterproof plaster before putting on your gloves.
- If your hands are dirty, or you have been handling chemicals etc. wash your hands before putting on gloves.

During Use:

- Remember to protect the skin above your glove. For greater security, tuck your sleeve into the cuff.
- If you are using disposables change your glove immediately after any splash.
- Whenever feasible, change your gloves after more than an hour's use. Dry your hands before putting on a fresh pair.
- Avoid touching 'clean' surfaces such as telephones or door handles to avoid accidental contamination.
- Gloves maybe a hazard around rotating equipment, prevent placing hands near machinery and other incompatible materials

After Use:

- Take care when removing your gloves so you do not touch the outer surface. Pull off your first glove so it turns inside out. Use this clean inner surface to hold the second glove while you pull it off.
- Discard gloves into the correct waste stream. Latex gloves should be disposed of as clinical waste.
- Always wash your hands after removing your gloves

Fill in the selection table below and show it, with safety data sheets, to your PPE supplier. Information to help your PPE supplier

Task / Job name (one activity only - eg clearing spill)	
Chemicals in product (Section 2 of Safety Data Sheet)	
Physical form of product	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Solid <input type="checkbox"/> Paste <input type="checkbox"/> Other _____
If a solid, dustiness	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
If a liquid, boiling point	_____°C <input type="checkbox"/> Water-based
Temperature the product is used at?	_____°C <input type="checkbox"/> Room Temperature
How long does the task take?	_____ Hours/ _____ Minutes
How many times a day?	_____ Times
What hand contact (worst case)?	<input type="checkbox"/> Dipped <input type="checkbox"/> Splashed <input type="checkbox"/> Touch contact
How far does the contamination get?	<input type="checkbox"/> Hands <input type="checkbox"/> Forearms <input type="checkbox"/> Above Elbow
Are there other hazards?	<input type="checkbox"/> Hot <input type="checkbox"/> Cold <input type="checkbox"/> Sharp <input type="checkbox"/> Abrasive <input type="checkbox"/> Electric Shock <input type="checkbox"/> Other _____
Important! What range of glove sizes needed?	
Is special sensitivity or dexterity needed for the job?	<input type="checkbox"/> Yes <input type="checkbox"/> No