Hand Protection Guide

Protecting against substances in the workplace
The most effective and reliable way to prevent skin problems is to design and operate processes to avoid contact with harmful substances. So take all the steps you can to achieve this before resorting to the use of protective gloves. When you select protective gloves, base your choice on the work, the wearer and the environment they work in. You need to consider the following five factors:

- Identify the substances handled.
- Identify all other hazards.
- Consider the type and duration of contact.
- Consider the user - size and comfort.
- Consider the task.

Identify the substances handled
Gloves differ in design, material and thickness. No glove material will protect against all substances and no gloves will protect against a specific substance forever.

Water / ‘wet work’
- Prolonged or frequent contact with water, particularly in combination with soaps and detergents, can cause dermatitis. ‘Wet work’ is the term used to describe tasks in the workplace that can cause this.
- To protect the hands from ‘wet work’ choose a glove that meets the European Standard EN374-2. This shows that the gloves are waterproof.

Substances in products, created by work processes and ‘natural’ substances
- **Substances in products.** Some products contain substances that can harm the skin or enter the body through skin contact. The product label or material safety data sheet should tell you if this is the case. These may also give information on what protective gloves to use. If this is missing then try contacting the product supplier or manufacturer for help.

- **Substances created by work processes and ‘natural’ substances.** Not all harmful substances come in labelled containers. Substances can be generated during work activities (eg wood dust from sanding, solder fumes). Remember that handling some ‘natural’ substances like foods and flowers can cause skin problems too. If you are unsure if a substance produced by a work process or a natural substance you are handling is harmful, you can get help from a variety of sources, e.g your trade association or the HSE website.

- To protect hands from substances/chemicals choose a glove that meets the European Standard EN374-3. But make sure the glove material you choose protects against the substances being handled.

- Glove manufacturers usually produce charts to show how well their gloves perform against different substances. Manufacturers use three key terms, breakthrough time, permeation rate and degradation:

  - **Breakthrough time** is the time a chemical takes to permeate through the glove material and reach the inside. Permeation is a process by which a chemical can pass...
through a material without going through pinholes or pores or other visible openings. This tells you how long you can use a glove for.

- The **permeation rate** is the amount that then permeates through. The higher the rate the more of the chemical will move through the glove. Choose a low rate.
- Some chemicals can destroy the glove material. It may get harder, softer or may swell. **Degradation** indicates the deterioration of the glove material on contact with a specific chemical. Choose gloves with an excellent or good degradation rating.

- You can use manufacturers’ charts to identify the best gloves for the chemicals being handled or glove manufacturers can help with this step.
- The performance of glove materials can vary slightly from manufacturer to manufacturer, so base your selection on the correct manufacturers’ data.
- Keep in mind that the manufacturers’ data is for pure chemicals, not mixtures. When you mix chemicals, their properties can change. As a rule of thumb, base your glove selection on the component in the mixture with the shortest breakthrough time. However, the only way to be absolutely sure that a glove performs well against the mixture is to have it tested.
- Some people develop an allergy to gloves made of natural rubber latex. Choose non-latex gloves unless there are no alternatives that give the protection needed. If you must use latex, choose low-protein, powder-free gloves.

### Identify all other hazards for hands

- Identify any other hazards present. For example, is there a risk of, abrasion, cuts, puncture or high temperature? There are chemical protective gloves that also give protection against mechanical hazards (those marked EN388) and thermal hazards (those marked EN407).

### Consider the type and duration of contact

- Will gloves be worn for a short time intermittently or for long periods? Comfort is more important for longer wear. Generally, thicker, robust gloves offer greater protection than thinner gloves but thinner gloves offer better dexterity.
- Will contact be from occasional splashes or by total immersion? Short gloves are fine to protect against splashes. If hands are immersed (and you can justify that this is unavoidable), choose a length greater than the depth of immersion.

### Consider the user - size and comfort

- Gloves should fit the wearer. Tight gloves can make hands feel tired and lose their grip. Too large gloves can create folds; these can impair work and be uncomfortable. It can help to use sizing charts.
- Comfortable gloves are more likely to be worn. Involve employees in the selection process and give them a reasonable choice to pick from. This can sometimes promote buy-in to wearing them.
- Hands can sweat inside gloves making them uncomfortable to wear. Getting staff to take glove breaks, removing gloves for a minute or so before hands get too hot and sweaty, can help air the hands. You could also consider supplying separate cotton gloves to wear under protective gloves. These can increase comfort by absorbing sweat. They can be laundered and reused.
Consider the task

- Gloves should not hamper the task. If wet/oily objects are handled, choose gloves with a roughened/textured surface for good grip. Select gloves that balance protection with dexterity. Ensure the gloves selected meet any standards required for the task, eg sterile gloves, food grade gloves. Consider whether colour is important, eg to show up contamination.

Once you have selected your gloves tell your employees how to use them properly to protect themselves. Tell them when they should be replaced, and if they are reusable gloves ask them to rinse them before removal (if practical) and tell them how they should be stored. Review their use periodically and get employee feedback, this can help check that the gloves are performing properly.