



# UNIT-6 Control Measures

## Learning Outcomes

**By the end of this unit the learner will be able to:**

- Discuss the extent to which COSHH plays a role in preventing or controlling exposure to hazardous substances
- Identify the various different types of control equipment and machinery in a typical workplace setting
- Know how to allocate or use the appropriate personal protective equipment for any given task

## Unit 6

### Control Measures

#### Control Measures to Prevent or Limit Exposure to Hazardous Substances

##### What is COSHH for?

The objective of COSHH is to prevent, or to adequately control, exposure to substances hazardous to health, so as to prevent ill health.

You can do this by:

- Using control equipment, eg total enclosure, partial enclosure, LEV;
- Controlling procedures, eg ways of working, supervision and training to reduce exposure, maintenance, examination and testing of control measures;
- Worker behaviour, making sure employees follow the control measures.

Changing how often a task is undertaken, or when, or reducing the number of employees nearby, can make an improvement to exposure control.

##### Local Exhaust Ventilation (LEV)

LEV is an engineering control system for reducing exposure to

- Fibres
- Mists
- Gases
- Airborne dusts
- Solvent vapours
- Metal and rubber fumes.

Most systems will have the following.

- Hood, which captures contaminants in the air.
- Ducting, which transports the air and the contaminants mixed in it towards the air cleaner/arrester or to the discharge point.
- Air cleaner or arrester, which filters particles or microorganisms through a filter bank to clean the air. Not all systems have air cleaners or an arresters.
- Air mover, which transports the air and contaminants through the system.
- Discharge point, where contaminated or cleaned air is discharged safely.

If LEV is required, you should

- Work out which jobs and activities cause exposure.
- Write down what the LEV needs to do - get a reputable supplier to advise you.
- Get the right type of LEV to control exposure.

- Involve your employees in LEV design or selection.
- Make sure the LEV is installed properly and works effectively.
- Make sure the LEV has airflow indicators (or equivalent).
- Make sure the supplier provides a User Manual and Log Book (or equivalents).

Make sure that the introduction of LEV does not create other safety or health risks such as loud noise or reduced access.

### How to use LEV

- Manage the checking and maintaining of the LEV system
- Train employees to use the LEV properly (ask supplier for help)
- Follow instructions in the User Manual (or equivalent)
- Fill in the Log Book and get repairs done
- Get the LEV thoroughly examined and tested 'annually'
- Use the thorough examination report as an 'audit'. Improve if necessary.

### LEV Information for Employees/Users

#### Key Messages for Employees

- Get involved in LEV design or selection.
- Make sure you get training (in how the LEV works and how best to use it).
- The LEV you use should have an airflow indicator (or equivalent).
- The LEV should be easy to use properly; tell your employer if it isn't.

Local exhaust ventilation (LEV) in your workplace should carry away any harmful dust, mist, fumes or gas in the air.

To protect your health:

- It needs to be the right type for the job.
- It needs installing properly in the first place.
- It needs regular checking and maintenance throughout the year.
- It needs testing thoroughly at least once every year.
- If you move LEV, make sure it still works.
- It needs an indicator to show it's working properly.
- You need to check that it works properly every time you use it.
- You need to use it properly.

Check for yourself to see how effective the LEV is where you work.

#### Daily Checklist for LEV

- Does the indicator show the LEV is working properly?
- Is it taking away all the harmful dust, mist, fumes and gas? Remember, some of these may be invisible.
- Are you close enough to it so it can do its job properly?

- Are there any signs it is not working properly, like smells or settled dust?
- Are there any unusual noises or vibration coming from it?
- Has it been thoroughly tested, with a 'tested' label that is within date?
- Have you told your supervisor about anything you think may be wrong?

### **Personal protective equipment (PPE)**

Employers are responsible for providing, replacing and paying for personal protective equipment. PPE should be used when all other measures are inadequate to control exposure. It protects only the wearer, while being worn.

If it fails, PPE offers no protection at all.

### **Types of PPE**

- Respirators
- Protective gloves
- Protective clothing
- Protective footwear
- Eye protection

When deciding about PPE ask the supplier, your trade association or the manufacturer.

- Is it suitable for the conditions of the job?
- Does it offer the right level of protection?
- What sort of training or maintenance is required?
- How do I know when it needs replacing?

It is important that employees know why they need PPE and are trained to use it correctly. Otherwise it is unlikely to protect as required.

- Does it fit correctly?
- How does the wearer feel? Is it comfortable?
- Are all items of PPE compatible?
- Does PPE interfere with the job being done?
- Does PPE introduce another health risk, eg overheating, entanglement with machinery?
- If PPE needs maintenance or cleaning, how is it done?

When employees find PPE comfortable they are far more likely to wear it.

## **Choosing the Right Gloves to Protect Skin: A Guide for Employers**

### **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.

Protective gloves tend to be less effective than other control measures but if avoiding contact is impractical or is not enough to protect employees then gloves may be needed. 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, eg your trade association or this 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 loose 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.

### Further Reading:

- ✓ *Measures of Success: React Less, Lead Better, Improve More Paperback – Illustrated, March 11, 2019 by Mark Graban*
- ✓ *Understanding Cancer: Causes, Spread, and Control Measures Kindle Edition by Rishikesh Ram Motilal, 2020*