

# Understanding Gloves and Respirators

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**Labor Occupational Health Program,  
University of California, Berkeley  
In partnership with  
SEIU Local 265  
2016**

## Module at a Glance

Activity	Time	Materials & Resources
<b>A. Introduction to This Module</b> Review concepts of controlling hazards. Introduce gloves and respirator as PPE for chemical exposure.	5 minutes	<ul style="list-style-type: none"><li>▪ Hierarchy of Control Pyramid Flip Chart</li><li>▪ Samples of PPE used by participants.</li></ul>
<b>B. Gloves and Respirator.</b> Basic criteria for selecting the appropriate glove and respirator for chemical exposures.	15 minutes	<ul style="list-style-type: none"><li>▪ Chemical Glove Chart</li><li>▪ Prepared Flip Chart 1, Chemical A and Chemical B</li><li>▪ Samples of gloves: Butyl, Silver Shield, Nitrile Solvex, Viton, Latex Disposable</li><li>▪ Dust masks: single strap and double</li><li>▪ Full face and half face respirators with various cartridges: organic vapor, acid gas, and a HEPA combo cartridge.</li></ul>
<b>C. Summary</b>	5 minutes	

**Total time: 25 minutes**

# Detailed Instructor's Notes

## A. Introduction to This Module

(5 minutes)

### 1. Introduction

**Say:** As we learned earlier, there are several ways an employer can protect workers from chemical exposures. *Post the hierarchy pyramid flipchart.* Remind the class that the employer should first determine what hazards are present in the workplace, and then eliminate or minimize these hazards as much as possible using:

- engineering controls (such as ventilation)
- safe work practices (such as rotating workers and using the correct tool for the job). And finally,
- Personal Protective Equipment (PPE), if the hazards still exist.

Sometimes despite best efforts PPE should be used. Employers must provide PPE that properly fits each employee and train each employee on its use, limitations and care.

2. **Ask** the class what kind of PPE they are using when working with chemicals and if they have any questions or concerns regarding their use. Write responses on flip chart.
3. **Explain** that in this section we going to focus on two types of PPE that can be used for protection against chemical hazards including:
  - Gloves
  - Respirators

## B. Selecting the Appropriate Glove and Respirator

(15 minutes)

### 1. Gloves

Tell the class that there are many different types of gloves available, made of many different types of materials. Show examples of gloves from the chemical

glove chart and explain that a rubber glove is different from a nitrile glove etc. Pass out the following gloves so the class can see and feel the difference: Butyl, Silver Shield, Nitrile Solvex, Viton, and Latex Disposable.

**Say:** Not all gloves are the same and not all gloves protect against the same chemicals.

**Ask:** What source of information about chemicals the employer should use to determine what type of glove to use?

**Answer:** The label and SDS identify the hazardous material and if protective gloves should be used.

Once the chemical is identified the employer should consult the glove selection chart provided by the glove manufacturer.

*Distribute the Chemical Glove Chart.*

**Explain** the different colors on the glove chart, saying it is somewhat like a traffic light:

- Green – means go, glove provides good protection.
- Yellow- means slow down, it is OK but won't protect as much or as long.
- Red – means STOP, do not use this glove for this chemical. It will not protect you.

Guide the class through this example: a solvent used to remove paint contains n-hexane. What is the best kind of glove to use when working with this product? And what glove should not be used? Refer participants to the chemical glove chart. Ask them to look up N-hexane and see what glove is recommended.

**Answer:** Nitrile and PVA would be good. Rubber would not be good.

**Activity:** Post the prepared flip chart with two different chemicals used at the workplace: Chemical A and Chemical B. Ask the class to look at the chemical glove chart to identify what kind of glove would be best to use with chemical A and what glove would be best to use with Chemical B. Then ask which glove would be just OK, and which glove would not be good to use.

## Summary

All gloves are not the same. Your employer must provide the right kind of glove for each task. Gloves also do not last forever; the glove chart will also provide information about how long a glove might last. Be sure to replace gloves as recommended even when they do not appear to be worn. Never use gloves that look worn, thin, cracked or are blemished in any way.

## 2. Respirators

**Ask:** Has anyone has ever worn a respirator? If so, what kind? In what situation did you wear a respirator?

**Tell** the class that like gloves all respirators are not the same. A respirator that protects workers against common dust and dirt will not protect workers from gases, vapors, fumes. When selecting a respirator it is important to know the kind of chemical the worker is exposed to and what form it is in. Is the chemical a dust, particle, mist, fume, vapor or gas?

Review the types of respirators participants are most likely to have seen or used:

- Disposable Dust Masks: Protect against nuisance dust and dirt only. These **do not** provide protection against toxic dusts, fibers, gases vapors, mists. This mask is easily identified because it has only one strap and is only good for such activities as blowing leaves and grass debris.
- Air Purifying Respirators:

Explain that this respirator filters the air before it reaches your lungs. For dust or particles, the pores of the filter are small enough to screen out the dust or particles. *Show a dust respirator and then pass samples around the class.* Explain that these will not protect against gases, vapors, or asbestos fibers.

For chemicals like gases, vapors and fumes APRs use filters which contain absorbents such as charcoal that capture the chemicals before they reach the lungs. *Show an APR with a chemical cartridge.* Some

work situations require both dust and chemical removal. *Show a sample.*

Another type of respirator available is the Supplied Air Respirator: provides a flow of clean air and are more commonly used-in special situations

Selecting the right respiratory protection requires that your employers first identify what you are exposed to, including the kind of chemical and the form of the chemical (whether it is a dust, particle, mist, fume, vapor or gas), and second how much of it you are exposed to. This is done by monitoring the air.

Respiratory protection should be used when workers are exposed over the limit (PEL) and other methods of reducing the hazard cannot be used (engineering or administrative controls.)

Before using a respirator your employer must make sure you are medically fit to wear one and that you have been properly fitted with the right size and style. This fit must also be tested. Training must also be conducted as part a written program and it must include:

- Why the respirator is necessary
- The capabilities and the limitations of the respirator
- How to inspect, put on, remove, use the respirator, when to change the filters and how to check the seal
- Procedures for maintaining and storing the respirator
- Recognition of the medical signs and the symptoms that may limit or prevent an employee's effective use of a respirator

### 3. Summary

PPE like gloves and respirators do protect workers from exposure to chemicals in the workplace if worn properly but PPE should never be the first solution. Removing the hazard and good policies and procedures are always better.

#### **Ask:**

Why is PPE, like gloves and respirators, usually considered less effective or less desirable than the other control methods?

Possible answers include:

- It does not get rid of the hazard
- It can be uncomfortable and hot
- It can make communication difficult
- It has to fit properly
- Requires cleaning and inspection,
- Has to match the degree of hazard,
- Puts the responsibility on the worker

If there is time, ask if there are any questions.