

## A. Lesson Goal:

By the end of the training session, workers will:

- Know the definition of a hazardous material
- Know the health and other hazards of hazardous materials
- Understand the basic rules of safe handling of hazardous materials.

## B. OSHA Regulation:

29 CFR 1910.1200; 29 CFR 1910.1000 to 1910.1500 (Toxic and Hazardous Substances);  
29 CFR 1910.101 to 1910.120 (Hazardous Materials)

## C. Have Handy:

- Sample containers of chemicals your company makes or uses
- Common chemical products, including household cleaners, etc.
- Examples of personal protective equipment
- Examples of chemical labels and MSDSs.

## D. Background for Instructor:

### 1. Introduction

Chemical products that are potentially hazardous to your health and safety are everywhere. These products don't necessarily have a big "warning" sign or skull-and-crossbones on the label to let us know about the dangers. In the workplace and in the home, products such as paint, solvents, cleaners—even hair spray—often contain substances that can be harmful if we don't protect ourselves appropriately.

Fortunately, we all can protect ourselves against chemical hazards by:

- Knowing what the hazards are
- Understanding how we might be exposed to these hazards
- Knowing how to protect ourselves.

### 2. What Makes a Substance Hazardous?

A hazardous material is anything that can cause harm to people or to the environment. More specifically, a material is hazardous if it is any of the following:

- **Corrosive**—It burns the skin or eyes on contact.
- **Explosive**—It can explode under certain conditions, such as heat or pressure.
- **Flammable**—It catches fire easily.
- **Reactive**—It burns, explodes, or releases dangerous vapors when it mixes with other substances.
- **Toxic**—It causes illness or death.

Many hazardous materials combine two or more of these characteristics. Two common examples are oil-based paint (flammable and toxic) and household oven cleaner (corrosive, flammable, toxic, and even explosive if in an aerosol can).

### 3. How Exposure Happens

Unfortunately, it can be very easy to become exposed to the dangers of hazardous materials. Often, exposure is the result of carelessness—not being aware of the dangers or not taking steps to avoid them. An obvious example would be smoking or lighting a match when working with flammable or explosive materials.

If a substance is *toxic*, that means it can cause illness or other damage to your body. Types of illness include:

- **Acute**—meaning that the ill effects are usually severe and are noticed right away, or
- **Chronic**—meaning that the effects are long term and may not be noticed for years.

Here are the common ways people are exposed to toxic materials:

- Contact with skin and eyes
- Inhaling toxic fumes
- Ingesting (that is, swallowing) toxic materials.

These are called the “routes of entry” to the body. It’s important to recognize the routes of entry so that you can avoid careless handling of toxic materials and take proper steps, such as wearing PPE, to avoid exposure.

#### 4. Preventing and Avoiding Exposure

There are a number of basic safety steps everyone should take to avoid exposure to hazardous materials. They include:

- **Labels and MSDSs**—Know how to read and understand the information on labels and MSDSs, which tell you about the hazards of the chemical and how to protect yourself. This includes reading the labels on household chemical products as well.
- **Follow the Rules**—Always obey posted warning signs, such as “No Smoking” signs. They’re there to remind you to avoid exposing yourself and others to hazardous conditions.
- **Personal Protective Equipment**—The right kind of PPE serves as a barrier to entry of toxic chemicals. Gloves, goggles, rubber boots, and protective suits are some of the PPE you may be required to wear to avoid exposure.
- **Remove Obvious Hazards**—Before starting to work with a hazardous material, remove items that could burn, explode, react, or become contaminated.
- **Be Prepared**—If an emergency happens, you should know the locations of fire extinguishers, emergency showers and eyewashes, and particularly, whom to call for proper medical response.

#### 5. Conclusion

Never take chances with hazardous materials—the dangers are very real, even though they may not be immediately apparent. This includes common products, such as cleaners, in addition to more specialized chemicals. Carelessness is one of the main causes of hazardous material exposure, so make sure you know what the dangers are and how to prevent them before you start to handle hazardous materials. If you’re not sure about what the hazards are or how to protect yourself, ask a supervisor!

## E. Examples and Practical Exercises:

- Review the information on a typical label that tells about the hazards of the material and how to protect against them.
- Show examples of warning signs used in your workplace.
- Demonstrate how various kinds of PPE guard the routes of entry of toxic materials.
- Ask workers where your written hazard communication plan and MSDSs are located.