Print

HAZARD COMMUNICATION

MODULE DESCRIPTION

This module explains the potential hazards of chemicals that you may encounter in the workplace and how to safely work with these chemicals.

OBJECTIVES

After completing this module, students will be able to:

- Explain the importance of chemical safety
- Describe the basics of chemical
- Describe the ﷺRight to Knowﷺ Law
- Identify the requirements of a Hazard Communication program
- Explain the purpose of Safety Data Sheets (SDS).
- Recognize features of warning labels.
- Recount how to StartSafe and StaySafe around hazardous chemicals

MODULE OUTLINE

1. The Importance of Chemical Safety
    - Chemicals, ranging from water to acid, can be found just about everywhere. Some chemicals are more harmful than others.
    - You must be aware of chemical hazards at all times, especially at work. At work, your exposure to chemicals could be greater because chemical concentrations are generally higher and exposure time is longer.
    - Chemical exposure may cause or contribute to disorders ranging from skin rashes to more serious conditions like cancer or heart problems.
    - Some chemicals have the potential to cause fires, explosions, and other serious incidents.

2. Chemical Safety
    - Three key topics of chemical safety are: routes of entry, health hazards, and physical hazards.
    - **Routes of entry** are the different ways a chemical may enter your body. The primary routes of entry are:
        - **Nose: Inhalation (breathing)** ﷺ Chemicals can be inhaled, entering your body through your airways.

        - **Mouth: Ingestion (by mouth)** – Chemicals can enter your mouth directly or be transferred through actions, such as hand to mouth contact.
        - **Hand: Absorption** – Chemicals can be absorbed into your body through your skin or eyes.
        - **Needle: Injection (puncture wound)** – Chemicals can enter your body through penetration by needles and other sharp objects contaminated with hazardous materials.
    - Chemicals can be **health hazards**, which means exposure may cause health problems. The Occupational Safety and Health Administration (OSHA) identifies an exposure to hazardous chemicals as either:
        - **Acute**: Acute Exposure is a short term or brief exposure that may create an immediate health hazard. An example is passing out from exposure to carbon monoxide.
        - **Chronic**: Chronic Exposure is a repeated or prolonged exposure over a long period of time (months or years) that may bring about slowly developing symptoms. These exposures do not cause immediate, obvious harm and a person may not see, feel, or smell the danger. Effects, however, may be permanent. An example is developing cancer from a long-term exposure to asbestos or lead.
    - A **physical hazard** occurs when the physical properties of a chemical create hazards such as fires, explosions, or dangerous chemical reactions.
        - Exposure to chemicals that are health hazards or physical hazards can lead to serious consequences, such as illnesses, injuries, and even death.

3. The "Right-to-Know" Law
    - The "Right-to-Know" law gives you the legal right to know about all the hazardous chemicals that you may be exposed to at work, the specific hazards associated with those chemicals, and what to do to protect yourself.
    - The official name of the "Right-to-Know" law is the Hazard Communication Standard developed and regulated by OSHA.
    - This regulation has requirements for manufacturers, importers, and distributors of chemicals, as well as for employers.
        - Requires chemical manufacturers, importers, and distributors to provide hazard information by way of Safety Data Sheets and labels on containers.
        - Requires employers to develop, implement, and maintain a written hazard communication program, commonly called a HAZCOM program.

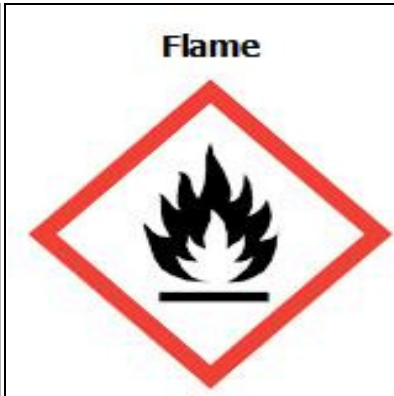
4. HAZCOM Program
    - Four HAZCOM Requirements:
        - A list of all hazardous chemicals known to be in the workplace
        - A Safety Data Sheets (SDS) for each hazardous chemical
        - Warning labels
        - Employee training

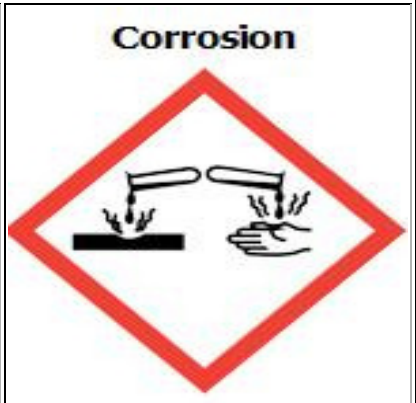
5. Safety Data Sheet
    - Designed to identify the hazards of a chemical and explain how you can protect yourself from those hazards.
    - Your employer must have an SDS for every hazardous chemical in the workplace. The SDS for any hazardous chemical in your work area must be fully accessible and available to you the entire time you are at work.
    - OSHA requires each SDS to be:
        - Completely legible.
        - Updated when new information is available.
        - Printed, at least, in English (other languages may be provided but English must be provided).
    - The SDS must contain the following information.
        - Manufacturer's name and contact information
        - Identity of the chemical
        - Specific hazard information such as:
            - **Section 1, Identification** includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
            - **Section 2, Hazard(s) identification** includes all hazards regarding the chemical; required label elements.
            - **Section 3, Composition/information on ingredients** includes information on chemical ingredients; trade secret claims.
            - **Section 4, First-aid measures** includes important symptoms/ effects, acute, delayed; required treatment.
            - **Section 5, Fire-fighting measures** lists suitable extinguishing techniques, equipment; chemical hazards from fire.
            - **Section 6, Accidental release measures** lists emergency procedures; protective equipment; proper methods of containment and cleanup.
            - **Section 7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.
            - **Section 8, Exposure controls/personal protection** lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
            - **Section 9, Physical and chemical properties** lists the chemical's characteristics.
            - **Section 10, Stability and reactivity** lists chemical stability and possibility of hazardous reactions.
            - **Section 11, Toxicological information** includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
            - **Section 16, Other information**, includes the date of preparation or last revision.

6. Warning Labels
    - The Hazard Communication Standard also requires that each container holding a hazardous chemical must have a warning label that is easily seen and must provide the:
        - Name, Address, and Telephone Number
        - Product Identifier
        - Signal Words

- Hazard Statements
- Precautionary Statements
- Pictograms

7. Pictograms
   - OSHA's required pictograms must be in the shape of a square set at a point and include a black hazard symbol on a white background with a red frame sufficiently wide enough to be clearly visible.

The Health Hazard pictogram represents the following hazards: ■ Carcinogen ■ Mutagenicity ■ Reproductive Toxicity ■ Respiratory Sensitizer ■ Target Organ Toxicity ■ Aspiration Toxicity	
The Flame pictogram represents the following hazards: ■ Flammables ■ Pyrophorics ■ Self-Heating ■ Emits Flammable Gas ■ Self-Reactives ■ Organic Peroxides	

The Exclamation Mark pictogram represents the following hazards: ■ Irritant (skin and eye) ■ Skin Sensitizer ■ Acute Toxicity (harmful) ■ Narcotic Effect ■ Respiratory Tract Irritant ■ Hazardous to Ozone Layer (Non-Mandatory)	
The Gas Cylinder pictogram represents a hazard from Gases Under Pressure.	
The Corrosion pictogram represents the following hazards: ■ Skin Corrosion/Burns ■ Eye Damage ■ Corrosive to Metals	

The Exploding Bomb pictogram: ■ Explosives ■ Self-Reactives ■ Organic Peroxides	
The Flame Over Circle hazard represents a hazard from oxidizers.	
The Environment Hazard represents aquatic toxicity. Displaying this pictogram is not mandatory.	

The Skull and Crossbones represents Acute Toxicity (fatal or toxic).	

8. Employee Training
   - Employee training is also a requirement of a HAZCOM program. HAZCOM training is an on-going process. When hazardous chemicals are present, you must be trained:
     - Before you start an assignment for the first time
     - Whenever a new physical or health hazard is introduced into your work area
   - Your employer's training plan must cover the following topics:
     - **"Right-to-Know"** - Requirements of the "Right-to-Know" Law (OSHA's Hazard Communication Standard.)
     - **Hazcom** - Details and location of the written hazard communication (HAZCOM) plan.
     - **Safety Instructions** - Instructions for working safely in areas where hazardous chemicals are present.
     - **List of Chemicals** - A list of hazardous chemicals in the workplace.
     - **SDSs** - Location, availability, and explanation of SDSs.
     - **Hazard Information** - Physical and health hazard information for the chemicals in your work area.
     - **Detection Methods** - Methods to detect the presence or release of a chemical (including monitoring equipment, visual appearance, or odor.)
     - **Personal Protection** - Specific procedures for personal protection.

9. StartSafe StaySafe
   - To StartSafe, first, think about how you will do your job safely before you begin to work. When working around hazardous chemicals, you should:
     - Be aware of your work environment and know if hazardous chemicals are present
     - Always keep in mind the hazards associated with chemicals in your work area
     - Before you enter your work area, think about what precautions you need to take to protect yourself and others
   - Anytime you are working, if there is anything you don't understand, ask questions.
   - To StaySafe when working around hazardous chemicals:

- Review your employer's list of all the hazardous chemicals in your workplace.
- Become familiar with the SDS and warning labels for each hazardous chemical you may encounter
- Follow the precautions found on each SDS and warning label
- Wear the required personal protective equipment
- Receive the proper training before working in an area with hazardous chemicals

- Always keep in mind the job you have to do, the potential hazards that may exist, and the ways to ensure you and others StaySafe.