Hazard Communication

Notes

Preparation

1. Read Applicable Background information and related Company Policy Chapter.
2. Make _____ Copies of this Lesson Plan for Personnel
3. Make Transparency, procure transparency pens, etc.
4. Coffee, tea, snacks

Other:

Material

1.
2.
3.

Objective

This section will present the student with a basic understanding of Hazard Communication (HAZCOM). After completing this section, the employee will be able to:

- Explain the OSHA HAZCOM Standard, 29 CFR 1910.1200
- Explain the Company Toxic Substances in the Workplace requirement
- Identify what is on a product label.
- Discuss the information presented in the 8 sections of the MSDS.
- Identify where MSDSs are located at the Company.
- Identify what is included in the Company HAZCOM Program.
- Identify the training requirements under the HAZCOM Standard.
- Identify Company Contractor Rights and Responsibilities when working at the Company.
- Discuss the Company General Chemical Safety Program
- Discuss Methods of Controlling Physical and Health Hazards

Background

Chemicals are certainly useful, on the job and off. But as we all know, many chemicals are hazardous to your health if you are exposed to them unknowingly or without taking the necessary precautions.

To ensure that everyone gets this kind of information and protection, and to provide a uniform way of delivering it, OSHA has developed the Hazard Communication Standard. The basic goal of the standard is that you have a right to know about the hazards you face in the workplace and how to protect yourself from these hazards.

Lesson

OSHA Hazard Communication Standard

The OSHA Hazard Communication (HAZCOM) standard requires employers to evaluate the potential hazards of materials and communicate those hazards to their workers.The HAZCOM Standard requires all employers to:

- Identify hazardous materials in the workplace.
- Provide product warning labels.
- Provide material Safety Data Sheets (MSDSs).
- Establish a written HAZCOM Program.
- Train and notify workers of the hazards in the workplace.
- Notify contractors of workplace hazards.

Company Toxic Substances in the Workplace

OSHA has also developed a HAZCOM standard for public employers such as the Company. The Toxic Substances in the Workplace Law requires public employers using chemicals found on the OSHA Substance List to:

- Post a notice supplied by the State Department of Labor and Employment Security.
- Provide MSDS to employees upon request.
- Provide training to employees handling chemicals found on the OSHA Substance List.

Some of you at the Company do not have jobs that you would consider hazardous. Many of the chemicals you use at work are similar to the products you use at home for cleaning, home repairs, or for your hobby.

Notes

However, chemical handling is very important because:

- At work you may handle a chemical 4 hours a day 5 days a week, while at home you may only handle the chemical 2 hours a week, increasing your exposure to the same chemical.
- The product you use at work may contain special additives or ingredients that are not used in the consumer products you buy at the supermarket.
- You may handle a hazardous chemical differently at work than at home. For example, you may not use chemical protective gloves and protective eyewear at home.

For these reasons, it is important that every worker know about the chemicals in the products they handle daily, and how to handle the chemicals safely.

Identifying Hazardous Materials

The HAZCOM standard requires chemical manufactures to determine if their products are hazardous. If their product is a mixture of several hazardous chemicals, each hazardous chemical must be identified by the manufacturer. At the Company, the Safety and Health Manager has generated a list of all hazardous materials used in each work area. The list for each area will be updated whenever a new hazardous material is brought into the work area. Workers at the Company must notify the Safety Officer whenever bringing hazardous materials on-site from another site. A master list of hazardous materials used at the Company is available at the Safety Office.

Product Warning Labels

The HAZCOM standard requires that every container that holds a hazardous chemical must be labeled in English with the following information:

- Name of the product.
- Appropriate hazard warnings.
- The manufacturer's name and address.

Workers should never remove or deface a label on a container. The Safety and Health Manager, and Work Area Supervisors will ensure that all hazardous materials in your area are properly labeled and that labels are not defaced. Any containers that are shipped from the Company will be checked by the Safety and Health Manager to make sure all containers are properly labeled.

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Temporary use containers must also be labeled if they are used by someone other than the person dispensing the material, or on more than one workshift. At the Company, this typically includes squeeze bottles containing acids, bases, or solvents.

Material Safety Data Sheets (MSDS)

MSDS's are provided for each hazardous chemical found in your work area. MSDS's provide you with specific information on the hazardous chemicals you use. The MSDS is typically broken up into 8 Sections which provide you with the following basic information:

Section 1: identifies the name, address, and phone number of the manufacturer of the product.

Section 2: provides information about the ingredients of a product including the airborne permissible exposure limits (PELs) and threshold limit values (TLVs) for ingredients of the product.

Section 3: identifies physical characteristics about the product, including; color, odor, boiling point, vapor pressure, vapor density, etc.

Sections 4: identifies fire and explosion information about the product, including; flash point, auto- ignition temperature, lower and upper explosion limits.

Section 5: identifies how the chemical reacts with air, water, and other chemicals.

Section 6: identifies some of the chemical's health effects including; how the product may enter your body and acute and chronic effects.

Section 7: identifies protective measures that can be used when handling the product, including PPE and engineering controls.

Section 8: describes techniques used to clean up spills and first aid procedures to use if the product is inhaled, gets on your skin, gets in your eyes, or is swallowed.

The Safety and Health Manager will maintain a master binder of MSDS's in their office. Also, each work area will maintain an updated and current MSDS for each chemical in that area.
Each worker has a right to access and review MSDS. If you would like a copy of an MSDS contact your supervisor or the Company Safety Department. If you cannot find an MSDS in your work area MSDS notebook, contact the Company Safety Department. They will check their master file for the MSDS and provide one to you. If the Safety Department does not have the MSDS on file, they will immediately request a copy from the manufacturer.

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Company HAZCOM Program

The HAZCOM Standard requires that employers develop and implement a written HAZCOM Program for any facility that contains hazardous materials. The HAZCOM Program serves as an awareness tool and resource guide to help employers identify and train workers on chemical hazards found in the workplace. The following is included in the program:

- A list of hazardous chemicals or products at the facility.
- Methods used to inform workers of hazards on non-routine tasks (e. g., cleaning storage tanks).
- An explanation of labeling systems found at the Company.
- An explanation of MSDS Management at the Company and how to obtain MSDS.
- Training of workers on the written HAZCOM Program.

Company has developed a written HAZCOM Program which can be found in the Hazardous Material Information Center or the Company Safety Office. The Safety Coordinator and Hazardous Materials Manager are responsible for reviewing and updating the program as necessary.

Worker Training

Everyone who works with or is potentially exposed to hazardous materials at the Company will receive training on the HAZCOM Standard and the written HAZCOM program. The HAZCOM Program's objective is to communicate information concerning potential hazards to workers who may handle hazardous chemicals. In addition to this general training on HAZCOM, training will be given to a worker when the worker is initially assigned to a work area or lab, and whenever a new hazard is introduced into the work area by the work area supervisor. The Safety and Health Manager will review the Company training program and advise managers/ supervisors on training or retraining needs in each work area or lab.

Notes

Company Contractor Rights and Responsibilities

The Safety and Health Manager, upon notification by the responsible supervisor, will advise outside contractors of any hazardous materials that may be encountered in the normal course of their work at the Company. The contractor will be:

- Shown the location of the MSDS's for the hazardous chemicals.
- The labeling system in use.
- The protective measures.
- Safe handling procedures to be used for the hazardous chemicals in their work area.

Each contractor bringing hazardous materials to the Company must provide MSDS's for those chemicals and appropriate hazard information on the hazardous materials. The contractor should not start work until copies of the MSDS's for the hazardous chemicals being used is given to the Safety and Health Manager.

General Chemical Safety

Chemical safety depends on control and knowledge of hazardous materials and basic chemical properties. The most potentially dangerous materials are shipped, stored, handled, used and disposed of every day by trained personnel. All of these personnel are aware of the hazards involved with these operations and how to control the hazards. The following are general safety rules that are followed by safe personnel:

- All containers are labeled clearly and completely
- Chemicals are stored by the hazards they posses
- Eating, drinking, and smoking is not allowed in areas where hazardous materials are stored or used
- Read and understand warning labels and signs
- Safely transport, pour, and handle liquid and solid materials
- Use personal protective equipment as necessary
- Use fume hoods when handling materials
- Read MSDS for safety information before using a material
- Clean up and report spills promptly
- Use caution when mixing chemicals
- Always add acid to water
- Never pipette by mouth
- Secure compressed gas cylinders at all times

Ask your supervisor or the Safety Office if you have any questions about a chemical or hazardous material

Notes

Detection And Prevention Of Chemical Hazards

Notes

Chemical states and forms include:

liquids	dusts	gases
fumes	mists	vapors

Possible routes of entry into the body:

Inhalation- breathing	Absorption- into skin or eyes
Injection- puncture	Ingestion- eating, drinking

Chemical exposure:
Exposure is the unintentional contact with a chemical, biological, or physical hazard. Exposures are measured in terms of doses. A dose is determined by the amount or concentration of the hazardous substance multiplied by the time or duration of the exposure.

Key terms:

- Acute - An adverse effect to an exposure with symptoms developing rapidly and quickly.
- Sodium cyanide - an acutely toxic material.
- Asbestos - a material which causes chronic health effects upon prolonged exposures.
- Chronic - Exposure symptoms are usually delayed or cumulative, and result from repeated exposure to low levels of a hazardous substance over a prolonged period of time.

Exposure standards:

Permissible Exposure Limits (PEL): An exposure limit set by OSHA which employees can be exposed to without any adverse health effects or other precaution during a normal working day. These values are enforced as legal standards by OSHA.

Threshold Limit Values (TLV): A time weighted average concentration under which most people can work consistently for 8 hours a day, day after day, with no harmful effects. These values are recommendations and are published by the American Council of Governmental Industrial Hygienists, or the ACGIH.

Control of chemical exposures:
Controlling chemical exposures is the key to providing employees with a safe and healthy working environment.

Methods used to control exposures include:

- Elimination of hazardous materials from the work site
- Substituting for less hazardous materials
- Isolation from the hazardous substance
- Ventilation
- Personal protective equipment
- Proper waste disposal
- Medical monitoring
- Training and education

Chemical Storage

Proper chemical storage is critical in creating a safe workplace. Follow these basic guidelines:

- Store flammable and corrosive materials in approved safety cabinets or in a dedicated area
- Store highly toxic, radioactive, or controlled substances in a secure, lockable area
- Do not store chemicals in the fume hoods
- Do not keep chemicals longer than the indicated shelf life
- Dispose of peroxide forming chemicals before the expiration date on the container
- Oxidizing materials should be stored separately from flammable and corrosive materials
- Store compressed gas cylinders in designated storage areas
- Avoid storing chemicals on the floor or in high locations
- Keep all containers securely closed

Hazard Awareness

Hazard awareness is recognizing and understanding the characteristics of a hazardous material and knowing how to protect yourself from those hazards. Hazard awareness can be improved by following these steps:

- Read and understand labels, signs and other warning information
- Consult the MSDS
- Keep your senses alert for unusual circumstances, escaping gases, leaking containers, odors
- Use the proper PPE
- Use caution when mixing and storing chemicals
- Label containers
- Use fume hoods when transferring chemicals

Contact the Safety Office or your supervisor if you have any questions

Notes

Storing And Handling Hazardous Materials

Segregate all incompatible chemicals for safe storage of hazardous materials. The use of secondary containment is recommended. Plastic or nalgene trays work well for storing small containers. Store materials according to their specific hazard or hazard class. The following hazard classes are all present at the Company:

- Radioactive materials (Thorium, uranium oxide)
- Flammable and non-flammable gases (Argon, nitrogen)
- Flammable liquids and solids (Methanol, sodium metal)
- Oxidizers and organic peroxides (Sodium chlorate, benzoyl peroxide)
- Poisonous liquids and solids (Methylene chloride, phenol)
- Corrosive liquids and solids (Nitric acid, sodium hydroxide)
- Environmentally hazardous substances (formaldehyde, asbestos)

General Precautions

- Flammable materials should be stored in an approved flammable materials cabinet.
- Keep all sources of ignition away from flammable materials.
- Store acids separate from other hazardous materials
- Never put acids in steel/metal containers
- Liquids should be stored using secondary containment devices
- Never store hazardous materials in the floor or higher than eye level
- Inspect containers for leaks or cracks
- Discard old, unwanted, damaged containers by contacting the Safety Office
- Don't store chemicals in the fume hoods

Emergency Procedures

A spill, leak, release, fire, uncontrolled reaction, explosion, or accidental contact with a hazardous material requires immediate action to prevent injury or property damage. Report any such emergency to the Safety Office immediately.

Report All Spills To The Company Safety Office !!!

Know the location of emergency equipment in your work area. Emergency equipment should include fire extinguishers, safety showers and eyewashes, first aid kits, spill kits, alarms and phones.

Notes

Check, Call, Care

Follow these basic guidelines in an emergency situation:

1. Check the scene for safety and then check the victim
2. Call the Safety Office, or call 9-911 for emergency assistance
3. Care for the victims or the scene if qualified

Emergency Guidelines

- Evacuate the area and keep unauthorized persons out
- Refer to the MSDS or container label for safety precautions
- Contain the spill if possible, use absorbent materials
- Eliminate sources of ignition if flammable material
- If there is a fire, activate the building alarm system
- Stay on the scene, if safe, until emergency personnel arrive
- Care for victims and provide first aid if trained
- For skin or eye contact, immediately flush the materials with large amounts of water

Spill Control Procedures

All areas where hazardous substances or wastes are generated or stored shall have spill control procedures in place to deal with minor spills. Spill kits shall be readily available in these areas. Minor spills, less than one pint of liquid or one pound of solid material, involving non-acutely toxic substances may be cleaned up by the personnel working in the area provided they have been trained and have the proper PPE on hand.

If a minor spill occurs, follow these procedures:

- Secure the area, notify other workers in the area
- Keep unauthorized personnel out of the spill area
- Identify the material and the hazards
- Consult the MSDS and container label
- Use the proper PPE
- Absorb and containerize the material
- Label the container with the contents and the words "Hazardous Waste"
- Contact the Company Safety Office for pick up of the waste

For larger spills, spills of highly toxic substances, or for assistance contact the Safety Office. Also, refer to the Company Emergency Action Plan for more details.

Notes

Hazardous Waste Requirements

All generators of hazardous wastes are required to be trained on an annual basis. This training is required for anyone who is responsible for the accumulation of hazardous wastes in their work area. This includes any faculty, staff, student, or maintenance personnel who are engaged in work that produces hazardous wastes.

What Is A Hazardous Waste?

The requirements for the identification and listing of hazardous wastes are located in the Code of Federal Regulations Title 40 Part 261. Contact the Safety Office if you are interested in reviewing these requirements.

A "waste" is a material that is no longer wanted, needed, or which has no further use or application.

A "hazardous waste" as defined by the EPA, is a waste that:

(i) Causes, or significantly contributes to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(ii) Poses a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed, or otherwise managed.

These wastes can be either specifically listed or they may have certain characteristics which make them hazardous by definition. The listed and characteristic wastes are also found in the Code of Federal Regulations (CFR).

A waste is considered hazardous if it has any of the following characteristics:

- Ignitability- having a flash point < 1400F / 600C
- Example: Acetone, methanol
- Corrosivity- having a pH < 2.0 >12.5
- Example: Nitric acid, sodium hydroxide
- Toxicity- based on the Toxicity Characteristic Leaching Procedure or TCLP
- Example: Barium and Mercury containing materials
- Reactivity- air, water, or other reactive materials
- Example: Sodium metal or cyanides

Notes

Container Management

All hazardous waste accumulation points are required to follow proper container management practices. There are signs posted throughout the facility of the hazardous waste generation and accumulation requirements. These include using the safety containers provided for storing hazardous wastes. One gallon steel safety cans are provided for storing non-halogenated solvents (acetone, toluene, methanol) and one gallon polyethylene safety cans are provided for storing acid waste solutions. Labels attached to the cans are provided for marking the contents of the waste solutions. When a solution is added to the container, indicate the contents on the label. Contact the Safety Office when the containers are full or to arrange a pick up.

D001 is the waste code for ignitability.
D002 is the waste code for corrosivity.
D004-D011 are regulated toxic metals. These include arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.
D003 is the waste code for reactivity.

Many pesticides are regulated and carry characteristic waste codes.

Halogens are chlorine, fluorine, bromine and iodine. Solvents containing these are considered halogenated.

Each work area or accumulation area should have assigned someone who is responsible for the storage and accumulation of hazardous wastes. This person will oversee the collection and disposal of these wastes by contacting the Safety Office.
The Resource Conservation and Recovery Act, or RCRA, passed by Congress in 1976 established the hazardous waste regulations. These laws established the "cradle-to-grave" tracking system for hazardous waste.

Collection Of Hazardous Wastes

Contact the Company Safety Office to arrange for the pick-up of hazardous wastes or to arrange a laboratory clean out. The Safety Office can provide waste containers and assistance in starting an accumulation area. Check your work areas monthly for old, outdated, spent solutions, or other waste materials and contact the Safety Office for a pick-up.

Notes

Container Management Practices

- Use safety containers for liquid wastes
- Use containers that are compatible with the wastes
- Label all containers with "Hazardous Waste"
- Label all containers with the contents and date filled
- Keep all waste containers closed securely
- Store incompatible wastes separate
- Check the condition of the containers for signs of leaks
- Use the proper PPE when handling and filling waste containers
- Don't dispose of wastes in the drains or in the trash
- Never mix radioactive wastes with other types of wastes
- Use secondary containment for storing waste containers

Controlling Physical and Health Hazards

There are a number of ways that you can safeguard your health and physical safety when using hazardous materials. These measures include:

* Product Substitution
* Engineering Controls
* Safe Work Practices
* Personal Protective Equipment
* Training and Communication
* Environmental Monitoring
* Personal Monitoring

Product Substitution

Because many chemicals do similar jobs, it is important to select chemicals that do a good job, while being less toxic.

Engineering Controls

Well designed work areas minimize exposure to materials which are hazardous. Examples of engineering controls would include exhaust systems and wetting systems to control dust.

Safe Work Practices

Safe work practices will insure that chemicals are used correctly and safely.

Personal Protective Equipment

Masks, eye protection, gloves, aprons, and other protective equipment and clothing are designed to protect you while you work.

~~~>USE THEM!

Notes
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Training and Communication
Knowing how to work safely with chemicals that pose a hazard is an important activity. This is the reason for this training, bulletin boards in the plant, safety meetings, MSDSs, and various bulletins. You have a right to know, but you also have a responsibility to use the knowledge and skills to work safely.

Environmental Monitoring
Industrial hygiene personnel regularly sample the air and collect other samples to insure that hazardous chemicals do not exceed established acceptable exposure limits.

Personal Monitoring
Monitor yourself and others. Be on the lookout for any physical symptoms which would indicate that you or your coworkers have been overexposed to any hazardous chemical. Symptoms, such as skin rashes, dizziness, eye or throat irritations or strong odors, should be reported to your supervisor.

Closure

As you can tell, the Hazard Communication Standard is a very significant regulation for anyone who works with, or has the potential for contact with, hazardous chemicals in the workplace. From the information in this training program and your increased knowledge and awareness, the Company will remain a safe work environment for all personnel.

What questions do you have?

Notes