

APPENDIX Q: TRAINING GUIDE - HAZARD COMMUNICATION AND AWARENESS

Effective dissemination of safety information is an integral part of the Injury and Illness Prevention Program. This document was created to facilitate worker safety training. Training must be completed before the use of any tool or piece of equipment, exposure to any hazardous conditions, and/or when new hazards are identified.

In Preparation for this meeting (items needed):

- Training Documentation Form
- Your chemical inventory
- Printed copies of SDSs for two or three chemicals used in your department
- Chemical container with label
- Examples of PPE used to protect workers from chemicals (e.g., goggles, gloves, respirators)

Introduction

Many chemicals used in campus shops and labs are considered hazardous. All employees who work with these materials must understand the health hazards involved and how to protect themselves. Cal/OSHA regulations require employers to communicate the hazards of these chemicals to employees through the use of chemical labels and Safety Data Sheets (SDS).

Physical & Health Hazards

Hazardous chemicals pose a physical or health danger. Chemicals are classified as being physically hazardous when they are flammable, combustible, corrosive, or reactive. Chemicals presenting health hazards include carcinogens, toxics, irritants, and sensitizers. The health effects of chemicals can be either acute (short-term), or chronic (long-term). Acute effects can show up immediately or soon after the exposure. Chronic effects may take years to show up.

Chemical substances can be in the form of solids, liquids, dusts, vapors, gases, fibers, mists, and fumes. Solids and liquids are easier to recognize since they can be seen. Fumes, vapors and gases are usually invisible. The physical state of a substance has a lot to do with how it gets into your body and what harm it can cause.

Chemicals get into the body via three main routes of exposure: breathing (inhalation), skin (dermal) or eye contact, or swallowing (ingestion). Once chemicals have entered your body, some can move into your bloodstream and reach internal “target” organs, such as the lungs, liver, kidneys, or nervous system and damage them.

Discussion Topics:

- What chemicals or chemical products are used in your work area?
- Where do you store your chemicals or chemical products?
- How can you identify the chemicals used in your department?
- What are some physical and health hazards associated with common chemicals in your workplace?
- How can chemicals enter the body?

Safety Data Sheets/Labels and Warnings

Labels on chemical containers can provide basic safety information concerning the contents of that container. All containers must have labels. These labels are required to have the following six components (in no particular order);

1. Product identifier
2. Signal word
3. Hazard statement
4. Pictograms
5. Precautionary statement
6. Supplier information

Safety Data Sheets (SDSs) are data sheets that contain information about the health and safety properties of workplace chemical products. They are usually written by the supplier or manufacturer of the product. All employees must have access to SDSs for the chemicals they use.

An SDS is required to have certain information. The form is divided into 16 sections that provide different types of information about the chemical product. These sections are the same on every SDS. Under Cal/OSHA's Hazard Communication standard, an SDS must contain the following information:

1. Product identification
2. Hazard identification
3. Composition/Information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

Exposure/Exposure Limits

When reading Safety Data Sheets (SDS), you will frequently encounter abbreviations such as PEL, TWA, STEL, and IDLH. These provide workers with important information on how long they can be exposed to a chemical before harm may occur, as follows:

- Permissible Exposure Limit (PEL): The maximum amount of a chemical a worker can be exposed to over an eight-hour period.
- Time-Weighted Average (TWA): The PEL is usually shown as a time-weighted average (TWA) to calculate exposure for an eight-hour workday and 40-hour work week.
- Short-term exposure limit (STEL): The amount of a chemical the worker should not be exposed to over a 15 minute period.
- Immediately Dangerous to Life and Health (IDLH): Indicator that the chemical poses an immediate threat to your health.

Protection – Hierarchy of Controls

The three accepted strategies for controlling exposure to hazardous materials are engineering controls, administrative controls, and personal protective equipment (PPE). Engineering controls remove the hazard from the worker. An example of an engineering control is use of local exhaust ventilation or a fume hood. Administrative controls reduce worker exposure to hazardous materials. Examples include work practice changes, such as working with small quantities of chemicals or limiting exposure times. PPE is the least desirable control and should be used as last resort. The use of PPE does not reduce or eliminate the hazard at the source, but it does protect the worker from exposure. Sometimes, PPE is the only solution available.

Discussion Topics:

- What are the two primary methods of communicating chemical hazards to employees? Where are the SDSs kept in your facility?
- What type of information can be found on an SDS?
- What engineering and administrative controls are in place at your facility?
- What job tasks in your workplace involve chemical use that could expose an individual to the permissible exposure limit?
- What type of PPE is required to work with chemicals in your facility?

Summary

- Hazardous chemicals can pose health and/or physical hazards.
- Physical hazards refer to a chemical's potential fire and/or explosive properties, and the chemical's stability and reactivity to air, water, light, sparks, or heat.
- Health hazards affect the body in some negative way. Effects may be acute or chronic in nature.
- Chemicals get into the body through three main routes of exposure: breathing (inhalation), skin (dermal) or eye contact, or swallowing (ingestion).

- Information relating to chemicals and their hazards can be found on labels and SDSs provided by the manufacturer.
- SDSs are referenced in your IIPP Manual and made accessible for all employees to use.
- The permissible exposure limit (PEL) is the maximum amount of a chemical a worker can be exposed to over an eight-hour period.
- Workers can be protected by implementing engineering and administrative controls and PPE, or a combination of the three.
- Refer to the SDS for the required PPE if you work with or are in an area where chemicals are used.

Resources:

Campus EH&S Hazard Communication Program
SDS Websites