

Appendix C

BASIC HAZARD COMMUNICATION TRAINING OUTLINE

I. PURPOSE

- A. Provide formal training on hazard communication.
- B. Promote safe handling of potentially hazardous materials at work and home.
- C. To comply with the OSHA Hazard Communication Standard.

II. EXPLANATION OF RULE

- A. Hazard Evaluation
- B. Chemical Listing/Inventory
- C. Labeling
 - 1. Name of material (must match MSDS)
 - 2. Appropriate hazard warnings
- D. Material Safety Data Sheets (MSDS)
 - 1. Prime tool for hazard communication - name should match label.
 - 2. Available to all employees in their areas during their workshift (Right-To-Know Information Stations.)
- E. Training
 - 1. All personnel must participate in HazCom training.
 - 2. All new hires will be trained prior to being assigned any tasks exposing them to any hazardous materials.

F. Written Program

1. PPPL's Policy is contained in Environment, Safety, and Health Directive 5008, Section 8, Chapter 12.
2. The complete Written Program is available to all employees upon request from the ES&H Industrial Hygiene Branch.

III. CHEMICAL HAZARDS

A. Health Hazards

1. Toxic: a substance that can produce injury or illness through ingestion, inhalation, or absorption.
2. Carcinogens: any substance or agent capable of causing cancer, or that has produced cancer in laboratory animals.
3. Reproductive toxin: chemicals which affect the reproductive capabilities. Those affecting the worker directly causing chromosomal damage (mutations) and those affecting fetuses (teratogenesis).
4. Irritants: chemicals, which are not corrosive, but which cause a reversible inflammatory effect by chemical action at the site of contact.
5. Corrosives: chemicals that cause destruction of, or irreversible alterations by chemical action (acid, bases).
6. Sensitizers: chemicals that cause a substantial proportion of exposed people to develop an allergic reaction in normal tissue after repeated exposure to the chemical. If the first exposure does not cause a reaction, but subsequent exposures do, an individual has become sensitized.

7. Target organ: a chemical has a toxic effect on one particular organ or organ system. An example is drinking alcohol affects the liver.

B. Physical Hazards

1. Combustible: a substance with a flashpoint at or above 100⁰F (37.8 ⁰C), but below 200 ⁰F (93.3 ⁰C).
2. Compressed gas: a gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 ⁰F (21.1 ⁰C); or a gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 ⁰F (54.4 ⁰C) regardless of the pressure at 70⁰F (21.1 ⁰C); or a liquid having a vapor pressure exceeding 40 psi at 100 ⁰F (37.8 ⁰C) as determined by ASTM D-323-72.
3. Explosive: a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.
4. Flammable: easily set on fire: any aerosol, gas, liquid or solid which meets the specific physical criteria to be classified as "flammable."
5. Organic peroxide: an organic compound that contains the bivalent -O-O- structure derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.
6. Oxidizer: a chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials thereby causing fire either of itself or through the release of oxygen or other gases.
7. Pyrophoric: any liquid that ignites spontaneously in dry or moist air at or below 130 ⁰F.

8. Unstable: a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.
9. Water reactive: a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

C. Glossary of Terms

Contained in Appendix B of the Hazard Communication Policy (ESHD 5014).

IV. CHEMICAL SAFETY PRINCIPLES

A. Routes of Entry into the human body

1. Inhalation or breathing is the most significant route for gases, vapors, dust, mists or fumes.
2. Absorption of chemicals is generally through the skin.
3. Ingestion or swallowing chemicals is usually due to contamination of food or cigarettes.
4. Injection or entry of chemicals can happen due to cuts or open sores.

B. Exposure Limits

Permissible Exposure Limits (PEL's) and Threshold Limit Values (TLV's)

1. Time weighted average (TWA)
 2. Short Term Exposure Limits (STEL)
 3. Additive effects

C. Methods of Detection

1. Use of the five senses (smell, sight, hearing, taste, feel (skin irritation)).
2. Symptoms of overexposure
 - a. Observable by others:
 - Skin discoloration
 - Lack of coordination
 - Changes in demeanor
 - Excessive sweating or salivation
 - Pupil response
 - Breathing difficulties
 - Coordination changes
 - Coughing
 - b. Non-Observable by others:
 - Headaches
 - Dizziness
 - Blurred vision
 - Cramps
 - Irritation of eyes, skin or respirator tract
3. Air monitoring and evaluation by ES&H Industrial Hygiene

D. Recognition, Evaluation and Control

V. MSDS

- A. Product Identification
- B. Hazardous Ingredients
- C. Physical/Chemical Characteristics
- D. Fire and Explosion Hazard Data
- E. Reactivity Data

F. Health Hazard Data

G. Precautions for Safe Handling and Use

H. Control Measures

VI. MATERIALS USED AT PPPL

Chemical Hazard Information by groups (e.g. Acids and Bases; Alcohols; Aromatic Hydrocarbons; etc.)