

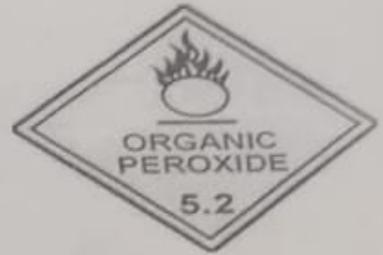
(2) Performance Objectives

After the end of the course the students are able to recognize the followings:

1. Occupational ^{صوت}Diseses, their causes, preventions.
2. Chemical Hazards and how to prevent.
3. Thermal Hazards and how to prevent.
4. Toxicity and their kinds.
5. Noises and vibrations, their sources and how to avoid.

(3) Introduction & terms used in occupational safety:

Work Hazards: Drawbacks or errors or faulted that arising up during the courses of work and may lead to damaging effect on any item of the production process (mainly the workers).



Major causes:

1. Fault in application of occupational safety standards and laws; a long list of faults, errors misunderstanding, misapplication, shortage of provision and mismanagement starting even from the planning stage of any project and ending with the storage of end-products and marketing. These items; failure of engineering preventive measures.

2. Disuse and misuse of personal protective equipments.

3. Improper education of training schedule.

4. Weak or ignored role of medical services.

Sources of Hazards:

1. Physical Hazards: Due to changes or differences with natural forces:

- a. *Illumination errors.*
- b. *Noise.*
- c. *Pressure changes.*
- d. *Thermal changes.*
- e. *Radiations.*
- f. *Electrical hazards.*
- g. *Mechanical hazards.*

2. Chemical Hazards; Due to exposure of body tissue to chemicals in any forms:

a. Natural forms (states):

- i. *Solid; fixed volume, shape, weight.*
- ii. *Liquid; Fixed volume and weight.*
- iii. *Gas; unconfined volume.*



b. Mixed forms:

- i. *Dust: solid particles and air.*
- ii. *Vapors: liquid; gas.*
- iii. *Mist or fume: liquid droplet; gas (air).*
- iv. *Smoke: burned; air*

3. Biological Hazards; Due to exposure to microorganisms during work in the laboratories; medical interventions; agriculture activities; biological war; productions and so on.

(Microorganisms include viruses; Bacteria; Parasites and Fungi).

4. Psychological Hazards; Neurotic upsets (anxiety; depression; hysteria) due to work stress; routine work; stationary work which effect the nerve directly leading to their fatigue or excitation.

Factors Modifying the Effects of Hazards:

1. Related to the Hazards itself:

- a. Type of the hazard.
- b. Physical; chemical and biological properties.
- c. Dose of exposure (concentration).
- d. Time of exposure.
- e. Portal of entry to the body (skin; respiratory system; G.I.T.
- f. System involved by the effect.

2. Related to the Workers:

- a. Personal variation: Sex; Age; Race.
- b. Occupational factors.
- c. Health States: pre-existing disease; immunity system.
- d. Nutritional Status.
- e. Psychological states: intelligence; consciousness; behavior; relationships.
- f. Income and Social status.

3. Related to the Environments and Production Process:

- a. Adequacy of general protective measures.
- b. Periodic inspection and maintenance of machines.
- c. The application of safety rules.

4. Related to the Health and safety Staff:

- a. Regular inspection visits and denoting of faults.
- b. The effectiveness and power of the staff.
- c. The provision of the personal protective devices and following up of their use.
- d. Provision and adequacy of medical services.

5. Role of Management.