

Industrial Hygiene: Hazard Recognition Guidelines

Department: Chemical and General Safety

Program: Industrial Hygiene

Owner: Program Manager

Authority: ES&H Manual, Chapter 5, Industrial Hygiene¹

Proper implementation of the industrial hygiene program protects personnel from chemical, physical, and biological hazards. An initial step in the program is hazard recognition.

Types of Hazards

Chemical Hazards

Chemical hazards exist when there is the risk of direct skin contact, inhalation, accidental ingestion, or absorption of hazardous chemicals in the form of liquids, solids, vapors, gases, dusts, fumes, or mists. In general, the degree of risk associated with handling a specific chemical depends on the toxicity of the chemical and the magnitude and duration of the exposure. (See the chemical safe use guidelines under Chapter 40, “Hazardous Materials”,² for identifying, documenting, and handling specific chemical hazards.)

Physical Hazards

Physical hazards monitored by industrial hygienists include excessive levels of noise and vibration, pressure, temperature extremes, oxygen deficiency, and non-ionizing radiation (including ultraviolet, visible, infrared, radiofrequency, microwave, laser, static magnetic fields).

Biological Hazards

Biological hazards include any virus, bacteria, fungus, protozoan, insect, or other living organism that can cause a disease in healthy humans, or damage to the environment. These materials include such agents as blood-borne pathogens, recombinant DNA molecules, and human tissue and cell cultures. Biological hazards may exist as part of the total environment (for example, in air or water), or they may be associated with specific research or industrial operations. (See Chapter 34, “Biohazards”.³)

Recognizing Hazards

Industrial hygienists identify hazards by

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- 1 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 5, “Industrial Hygiene”, http://www-group.slac.stanford.edu/esh/hazardous_substances/industrial_hygiene/policies.htm
 - 2 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 40, “Hazardous Materials”, http://www-group.slac.stanford.edu/esh/hazardous_substances/haz_materials/policies.htm
 - 3 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 34, “Biohazards”, http://www-group.slac.stanford.edu/esh/hazardous_substances/biohazards/policies.htm

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- Maintaining familiarity with SLAC processes
- Reviewing area hazard analysis (AHA) documents, job hazard analysis and mitigation (JHAM) documents, job safety analysis (JSA) documents, and pre-work hazard analysis (PWHA) documents as needed to identify activities requiring industrial hygiene consideration⁴
- Observing employee activities (such as chemical handling, procedural steps)
- Surveying existing conditions (ventilation, sanitation)
- Collecting preliminary screening samples
- Collecting information on physical, chemical, and biological hazards
- Conducting personnel and work area air monitoring
- Collecting wipe samples

4 “Hazard Analysis Programs”, <http://www-group.slac.stanford.edu/esh/general/hazanalysis/>