



## Awareness/Understanding of Lab Hazards!

### SAFE SCI: Be Protected!

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### Awareness/Understanding of Lab Hazards!

#### I. Communicating Information & More!

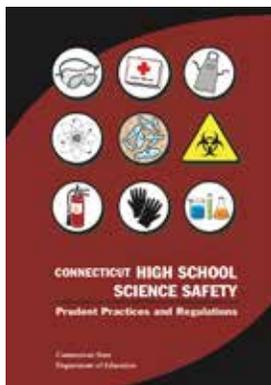
When working in a school science laboratory environment, there usually are a number of biological, chemical and physical hazards that occupants come in contact with during the work day. In order to raise levels of awareness and understanding of improved protection and help

**Safety in the Science Classroom**



- Science teachers have a unique, added classroom management responsibility
- We encourage students to purposely use and manipulate scientific equipment, living specimens, and chemicals in order to learn science.

make it safer in the science laboratory, employers should be communicating with employees (science teachers) and students about the hazards. The problem is many administrators



don't have the background or knowledge base in how to deal with biological, chemical or physical hazards. So, what can science teachers as employees do to help protect themselves and their students? One strategy is to work with employers by helping to educate them on ways to communicate information about laboratory hazards.

#### II. Communication Strategies for Laboratory Hazards!

The following is a brief list of action items that should be shared with employers in efforts to protect teachers and students in the academic science laboratory. The list is based on both legal standards and professional best practices. It serves as a starting point for improved biological, chemical and physical hazards notification/awareness, understanding, action and protection. The list includes:

##### A. Chemical Hazards (toxins, corrosives, flammables, and reactives):

1. Require an active inventory of all hazardous substances used in the lab and directly accessible SDS for each one.
2. Require a hazard communication program addressing use of SDSs, proper labeling, storage, use, disposal and employee training.
3. Require labeling on all containers for hazardous substances with pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. Hazardous substances transferred to another container must have a limited amount of information when used more than one shift or out of the originator's possession during the shift. This label must contain two key pieces of information: the identity of the hazardous chemical(s) in the container (e.g., chemical name) and the hazards present. It is however prudent to have this label on at all times.
4. Require employee training on hazardous substances including
  - a. Explanation of SDS – what it is and how to use it.
  - b. Employee's "right to understand!"
  - c. Location of biological, chemical and physical health hazards in specific work areas

and protective measures to be used.

- d. Details of communication program, including use of labeling system, inventory system and SDSs.
- e. Access and review of communication program for hazardous substances.

##### B. Biological Hazards (microbes, animals, plants, and genetically modified agents):

1. Require a written exposure control plan for occupational exposure to bloodborne pathogens and other potentially infectious materials (OPIMs).
2. Require employee training for Biological hazards resulting from Bloodborne pathogens including:
  - a. Access and review of plan.
  - b. Explanation of epidemiology and symptoms of Bloodborne diseases.
  - c. Explanation of the modes of transmission of Bloodborne Pathogens.
  - d. Explanation of appropriate methods for recognizing tasks and the other activities that may involve exposure to blood and OPIMs.
  - e. Explanation of use and limitations of methods that will prevent or reduce exposure, including engineering controls, standard operating procedures and Personal Protective Equipment or PPE.
  - f. Information on types, proper use, location, removal, handling, decontamination and disposal of PPE.
  - g. How to select appropriate PPE.
  - h. Specific information on hepatitis B and vaccines available.
  - i. Information and protocol to follow in case of an emergency involving blood or OPIMs.
  - j. Protocol to follow for an exposure incident.
  - k. Explanation of signs, labels and color-coding.
1. How to obtain information on types, selection, proper use, location, removal handling, decontamination and disposal of PPE.
- m. Who to contact during an emergency.
- n. Awareness of biological hazards in working with microbes, animals, plants, and genetically modified agents.



**C. Physical hazards (heating devices, noise, projectiles, fire, cold, electrical, etc.):**

1. Require employee training for physical hazards.
2. Appropriate use of personal protective equipment.
3. Awareness of electrical hazards – fire and shock.
4. Awareness of compressed gases – explosion, projectiles, flammables.
5. Awareness of mechanical hazards – moving machinery, projectiles, springs.
6. Awareness of radiation hazards – ionizing and non-ionizing radiation.
7. Awareness of working with thermal hazards (heat sources).
8. Appropriate machine guarding on power tools.

**In the End!**

The noted suggestion list is a start to help raise the level of awareness and understanding on the part of both the employer and the employee relative to working with biological, chemical and physical hazards in the academic laboratory. Science is to be fun – but also safer by a well-informed school administrator, science faculty and student body.

**Resource:**

*Common Laboratory Hazards* – American Chemical Society: <https://www.acs.org/content/acs/en/chemical-safety/guidelines-for-chemical-laboratory-safety/resources-supporting-guidelines-for-chemical-laboratory-safety/common-laboratory-hazards.html>

Concerned about health and safety on the job?  
<https://www.osha.gov/workers/>

*Physical Hazards* – U. Alaska at Fairbanks:  
<https://www.uaf.edu/safety/industrial-hygiene/laboratory-safety/physical-hazards/>

*Worker Safety In Biological Laboratories*  
– Council For Responsible Genetics: <http://www.councilforresponsiblegenetics.org/pagedocuments/j118scxsur.pdf>

