

## CHAPTER 6

### EMPLOYEE INFORMATION AND TRAINING

#### Background

All individuals who work in laboratories who may be exposed to hazardous chemicals must be apprised of the hazards of chemicals present in their work area. THIS INFORMATION AND TRAINING AS OUTLINED BELOW MUST BE PROVIDED BEFORE INITIAL ASSIGNMENT AND BEFORE NEW EXPOSURE SITUATIONS. Equipment necessary for the safe handling of hazardous substances must also be provided. IT IS THE RESPONSIBILITY OF THE PRINCIPAL INVESTIGATOR TO ENSURE THAT ALL LABORATORY WORKERS HAVE BEEN PROPERLY TRAINED.

#### Responsibilities

Occupational Health and Safety Department personnel provide mandatory UK Chemical Hygiene Plan/ Laboratory Safety classes quarterly as well as an online version. Information on training can be found on our web page at [http://ehs.uky.edu/classes/classes\\_ohs\\_0001.php#chemical\\_hygiene](http://ehs.uky.edu/classes/classes_ohs_0001.php#chemical_hygiene). This class informs lab workers and principal investigators of the **general** UK Lab Safety policies and defines the roles and responsibilities of all people in the lab. However, training **specific** for the particular lab where an employee is assigned is the responsibility of that employee's supervisor. The supervisor must determine the frequency of refresher information and training. Also, training is mandatory for anyone who will be generating hazardous waste (Environmental Management 323-6280).

#### Information

Laboratory Workers must be informed of the location and availability of the following:

- "Occupational Exposures to Hazardous Chemicals in Laboratories" (the OSHA Lab Standard - See Appendix I)
- This Chemical Hygiene Plan
- Reference materials on chemical safety (including safety data sheets)
- Permissible exposure limits for OSHA regulated substances, or if there is no applicable OSHA standard, the recommended exposure limits or threshold limit value may be provided; (contact Occupational Health and Safety, 257-3827)
- Signs and symptoms associated with exposure to the hazardous chemicals found in the lab.

#### Training

Laboratory Worker training must include:

- Detection methods that may be used to detect the presence or release of a hazardous chemical. Examples of detection methods include visual appearance, odor, detector papers, and an understanding of chemical monitoring devices
- Physical and health hazards of the chemicals
- Hazardous waste training
- The work practices, personal protective equipment, and emergency procedures to be used to ensure that the employee may protect himself/herself from overexposure to hazardous chemicals
- Medical consultations and examinations

The manufacturer's safety data sheets (SDS) will generally contain much of the above information needed to comply with the information and training requirements of the OSHA Lab Standard. Laboratory Supervisors and employees should understand the relevant SDS and/or other comparable literature on the hazardous chemicals that are used or stored in their laboratory. The employee's supervisor must provide additional training for specific lab hazards.

**Please include training certificates and fill out lab specific training records in Form I.**

## **THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELING OF CHEMICALS (GHS).**

GHS is an acronym for The Globally Harmonized System of Classification and Labeling of Chemicals. It is a common coherent approach to defining and classifying hazard,

and communicating information on labels and safety data sheets. Its target audience includes workers, consumers, transport workers and emergency responders. It provides the underlying infrastructure for establishment of national, comprehensive chemical safety programs.

The benefits to workers and members of the public include:

- Improved safety for workers and others through consistent and simplified communications on chemical hazards and practices to follow for safe handling and use,
- Greater awareness of hazards, resulting in safer use of chemicals in the workplace and in the home.

#### GHS Requirements

- Health, physical and environmental hazard criteria for substances and for classification of mixtures
- Provisions for communicating information on labels (including harmonized pictograms, hazard statements, and signal words)
- A 16-section safety data sheet – no longer called Material Safety Data Sheets

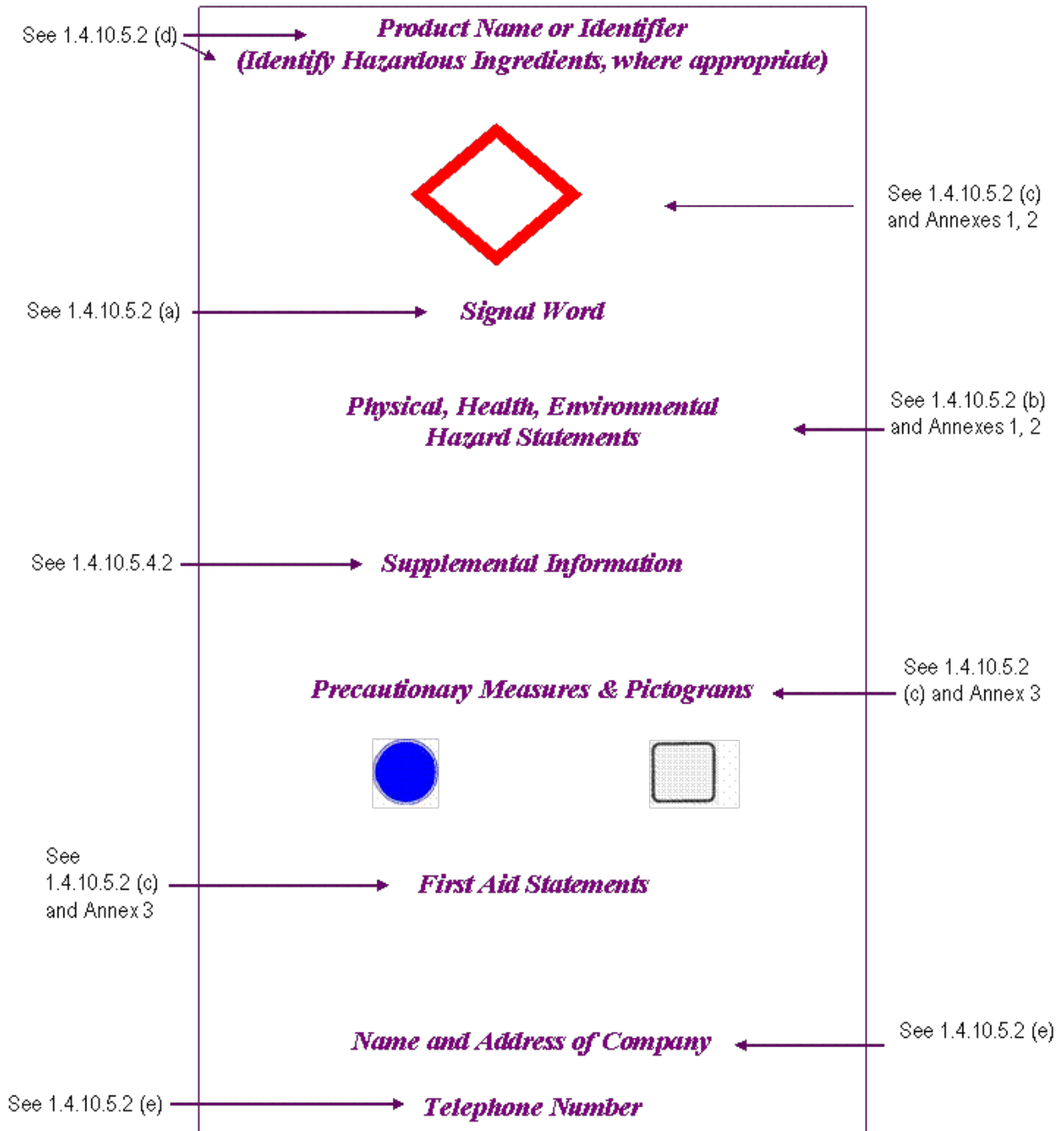
#### GHS Label Elements

- Symbol (hazard pictograms): convey health, physical and environmental hazard information, assigned to a GHS hazard class and category
- Signal Words: “Danger” or “Warning” are used to emphasize and indicate the relative level of severity of the hazard.
- Hazard Statements: Standard phrases assigned to a hazard class and category that describe the nature of the hazard.

The symbols, signal words, and hazard statements have all been standardized and assigned to specific hazard categories and classes, as appropriate. This approach makes it easier for countries to implement the system and should make it easier for companies to comply with regulations based on the GHS. Below is an example of GHS chemical label.

Figure 4.8


## GHS Label Elements



The Section numbers refer to the sections in the GHS Document or "Purple Book".

**Example GHS Inner Container Label (e.g., bottle inside a shipping box)**

**Example GHS Inner Container Label (e.g., bottle inside a shipping box)**  
**ToxiFlam (Contains: XYZ)**



**Danger! Toxic If Swallowed, Flammable Liquid and Vapor**


Do not eat, drink or use tobacco when using this product. Wash hands thoroughly after handling. Keep container tightly closed. Keep away from heat/sparks/open flame. - No smoking. Wear protective gloves and eye/face protection. Ground container and receiving equipment. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Use only non-sparking tools. Store in cool/well-ventilated place.

**IF SWALLOWED: Immediately call a POISON CONTROL CENTER or doctor/physician. Rinse mouth.**

**In case of fire, use water fog, dry chemical, CO<sub>2</sub>, or "alcohol" foam.**

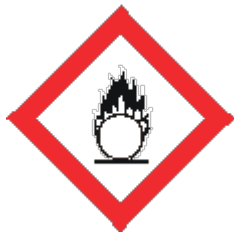


See Material Safety Data Sheet for further details regarding safe use of this product.







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**Symbols/Pictograms**

The GHS symbols have been incorporated into pictograms for use on the GHS label. Pictograms include the harmonized hazard symbols plus other graphic elements, such as borders, background patterns or colors which are intended to convey specific information.

GHS Pictograms and Hazard Classes		
		
<ul style="list-style-type: none"> <li>▪ Oxidizers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flammables</li> <li>▪ Self Reactives</li> <li>▪ Pyrophorics</li> <li>▪ Self-Heating</li> <li>▪ Emits Flammable Gas</li> <li>▪ Organic Peroxides</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explosives</li> <li>▪ Self Reactives</li> <li>▪ Organic Peroxides</li> </ul>

		
<ul style="list-style-type: none"> <li>▪ Acute toxicity (severe)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Corrosives</li> </ul>	<ul style="list-style-type: none"> <li>▪ Gases Under Pressure</li> </ul>
		
<ul style="list-style-type: none"> <li>▪ Carcinogen</li> <li>▪ Respiratory Sensitizer</li> <li>▪ Reproductive Toxicity</li> <li>▪ Target Organ Toxicity</li> <li>▪ Mutagenicity</li> <li>▪ Aspiration Toxicity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Environmental Toxicity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Irritant</li> <li>▪ Dermal Sensitizer</li> <li>▪ Acute toxicity (harmful)</li> <li>▪ Narcotic Effects</li> <li>▪ Respiratory Tract</li> <li>▪ Irritation</li> </ul>

### Signal Words

The signal word indicates the relative degree of severity a hazard. The signal words used in the GHS are

"**Danger**" for the more severe hazards, and  
 "**Warning**" for the less severe hazards.

Signal words are standardized and assigned to the hazard categories within endpoints. Some lower level hazard categories do not use signal words. Only one signal word corresponding to the class of the most severe hazard should be used on a label.

### Hazard Statements

Hazard statements are standardized and assigned phrases that describe the hazard(s) as determined by hazard classification. An appropriate statement for each GHS hazard should be included on the label for products possessing more than one hazard. Below are the physical and health hazard statements.

#### Physical Hazard

- Explosives
- Flammable Gases
- Flammable Aerosols

- Oxidizing Gases
- Gases Under Pressure
- Flammable Liquids
- Flammable Solids
- Self-Reactive Substances
- Pyrophoric Liquids
- Pyrophoric Solids
- Self-Heating Substances
- Substances which, in contact with water emit flammable gases
- Oxidizing Liquids
- Oxidizing Solids
- Organic Peroxides
- Corrosive to Metals

### **Health Hazard**

- Acute Toxicity
- Skin Corrosion/Irritation
- Serious Eye Damage/Eye Irritation
- Respiratory or Skin Sensitization
- Germ Cell Mutagenicity
- Carcinogenicity
- Reproductive Toxicology
- Target Organ Systemic Toxicity - Single Exposure
- Target Organ Systemic Toxicity - Repeated Exposure
- Aspiration Toxicity

More information about the Globally Harmonized System of Classification and Labeling of Chemicals is available at the following link,  
<http://www.osha.gov/dsg/hazcom/ghs.html>