Environmental Health & Safety Policy Manual		
Issue Date: 12/10/2010	Updated: 6/19/2024	Policy # EHS 400.12
Hazard Communication Program		

1.0 PURPOSE:

Ensure all chemicals used at LSUHSC are evaluated, and that information concerning their hazards is transmitted to all applicable personnel. This transmittal of information will be accomplished by means of a comprehensive hazard communication program, which will include a chemical inventory program, container labeling and other forms of warning, safety data sheets (SDS), and employee training.

2.0 SCOPE:

This program applies to all LSUHSC employees, students, and contractors and to any chemical known to be present in the workplace in such a manner that employees may be exposed under normal or emergency conditions. Note that this document contains the information previously in the canceled policy EHS 200.06 Chemical Signage and Labeling Policy.

3.0 RESPONSIBILITIES:

Environmental Health & Safety Department (EHS) shall:

- Assist in the evaluation of the adequacy of SDS information.
- Maintain a current awareness of regulations regarding hazard communication.
- Develop and maintain hazard communication training.

Department Heads, Supervisors, and Principal Investigators shall:

- Ensure that all applicable employees have completed the hazard communication training elements required within this policy.
- Eliminate or minimize the use of hazardous chemicals whenever possible. Select the least toxic chemical possible where more than one type of chemical is available and/or suitable for use.
- Provide employees with ready access to SDS by maintaining all chemical inventories per the requirements of EHS 200.07 Chemical Inventory and Control.
- Ensure that employees are aware of the process for obtaining SDS and that SDS are accessible on all work shifts.

- Coordinate with the appropriate supervision where work areas are shared by employees of more than one department to ensure that SDS and other hazard information are shared, and the information is provided to affected employees.
- Ensure that employees' use of hazardous chemicals complies with all health and safety requirements established in SDS, operating procedures and Job Safety Analyses. If health and safety requirements are not specified or are in question, contact EHS for assistance.
- Provide personnel with on-the-job training and information specific to the hazards of their job or work area prior to working with hazardous chemicals.
- Ensure communication of the hazards and health and safety requirements of new chemicals introduced to the work area.
- Ensure that all containers of hazardous chemicals, including those for transfer and immediate use, are labeled in accordance with the requirements of Section 5.0.
- Ensure that all laboratory entrances are labeled in accordance with the requirements of Section 5.0.

Employees shall:

- Comply with all labeling and handling requirements for chemicals within Section 5.0.
- Obtain instructions from their supervisor and review labels and SDS before using hazardous chemicals.
- Be familiar with the process for accessing SDS.
- Follow all safety and health requirements identified through training, SDS, standard operating procedures, and Job Safety Analyses.

Associate Director of Engineering and Construction shall:

- Ensure that contractors have SDS on-site and available for all hazardous chemicals used at LSUHSC facilities.
- Ensure that contractors follow proper precautions to provide adequate protection to their workers and LSUHSC personnel.

4.0 IMPLEMENTATION REQUIREMENTS:

Hazard Communication Program

The OSHA Hazard Communication Standard (29 CFR 1910.1200) requires that any employee who uses or may be potentially exposed to a hazardous chemical be sufficiently informed about that substance to work safely. This policy is intended to ensure that all rights assigned through the OSHA standard are afforded to personnel at LSUHSC.

General Provisions

LSUHSC shall maintain the hazard communication program as follows:

- Make all reasonable efforts to eliminate or minimize the use of hazardous chemicals whenever possible. Purchasers shall select the least toxic chemical possible where more than one type is available and/or suitable for use. Locate guidance for meeting this requirement within the Source Reduction section of the LSUHSC Waste Minimization Program.
- Obtain Safety Data Sheets (SDS) for all hazardous chemicals used within each work area. Provide employees with ready access to SDS by maintaining all chemical inventories per the requirements of EHS 200.07 Chemical Inventory and Control.
- Train employees on obtaining SDS. Section 8.0 defines standard terms to assist in understanding SDS.
- Supervisors shall evaluate the SDS of chemicals used in their labs. If there is any indication or concern that the SDS is unsatisfactory, notify EHS to perform further review and consultation as necessary.
- Do not use chemicals for which there is no on-site and readily available SDS or for which the adequacy of the SDS is in question.
- All hazardous chemicals used, repackaged, or imported to the LSUHSC shall be labeled in compliance with Section 5.0.

Hazardous Chemical Inventory

- Supervisors and Principal Investigators shall maintain the hazardous chemical inventory in accordance with the requirements of EHS 200.07 Chemical Procurement, Inventory and Security Policy.
- Hazardous chemical inventory data shall include chemical and user identification information and specify date of inventory, chemical name, chemical location, quantity, and type of chemical.

SDS Management

- SDS shall be maintained for every hazardous chemical used or stored in work areas.
- SDS shall be specific to the chemical (or product) and manufacturer and the most recent revision that corresponds to the material on hand and conform to the informational content required by OSHA's Hazard Communication Standard.
- All procurement of potentially hazardous chemicals shall require that the vendors provide SDS for the chemicals.
- The manufacturer shall be immediately contacted and an SDS requested if it is not received at the time of the first shipment of new use chemicals.
- SDS for all hazardous chemicals shall be readily accessible during all work shifts in the work area in which the chemicals are used. This requirement will be met by maintaining hard copies in the work area or electronically on the hard drive(s) of area computers.
- For employees who must travel between workplaces during a work shift, the SDS shall be kept at the primary workplace facility.

- The chemical manufacturer, importer, or employer may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical, from the SDS, provided that (a) the claim that the information withheld is a trade secret can be supported, (b) information contained in the SDS concerning the properties and effects of the hazardous chemical is disclosed, (c) the SDS indicates that the specific chemical identity is withheld as a trade secret, and (d) the specific chemical identity is made available to health professionals, employees, and designated representatives. Any necessary requests for proprietary information shall be in accordance with detailed provisions of OSHA's Hazard Communication standard, 29 CFR 1910.1200(i).
- Questions concerning the quality of information on or difficulty in obtaining any SDS should be referred to EHS.

Multi-workgroup worksites

- Supervisors whose personnel take hazardous chemicals into other work areas shall make the SDS for those chemicals available to that work area supervisor, if requested. SDS for chemicals that present a significant hazard to another supervisor's employees shall be provided to that supervisor prior to bringing the chemicals into the work area.
- Supervisors shall obtain and make available hazard information, including the SDS, when hazardous chemicals are brought into the work area by employees of another organization.
- Supervisors shall ensure that personnel from other departments working in their area are made aware of any significant chemical hazards and actions necessary to ensure their safety. Provision of such information may be verbal, written, part of a training class, or by a prominently displayed sign.
- Personnel receiving a hazardous chemical from, or providing a hazardous chemical to another organization, shall ensure receipt of or provision of the SDS with the chemical.
- Contractors using hazardous materials must have copies of their SDS on site and available for review by the Associate Director of Engineering and Construction.

5.0 CHEMICAL SIGNAGE AND LABELING:

Door Signs:

Signs on work area doors are used to communicate the hazards associated with a laboratory or other area to workers or visitors before they enter. Door signs also communicate who to contact in the event of an emergency. All areas that house chemical operations shall have a standard door sign as shown in Figure 1. If PPE

is required to enter the room, the items required should be posted. The following information should be included on all laboratory door signs:

- Personnel responsible for the area.
- Contact numbers for responsible laboratory personnel.
- Icons showing the hazards associated with a laboratory (New Globally Harmonized System (GHS) pictograms shown in Figure 2).
- Words or icons showing any necessary PPE that is to be worn in the laboratory (Figure 3).

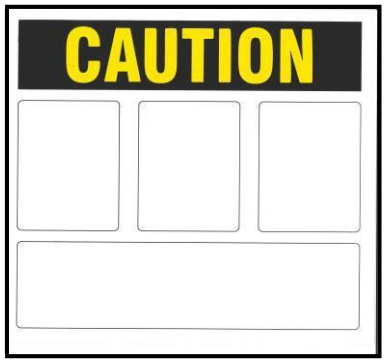
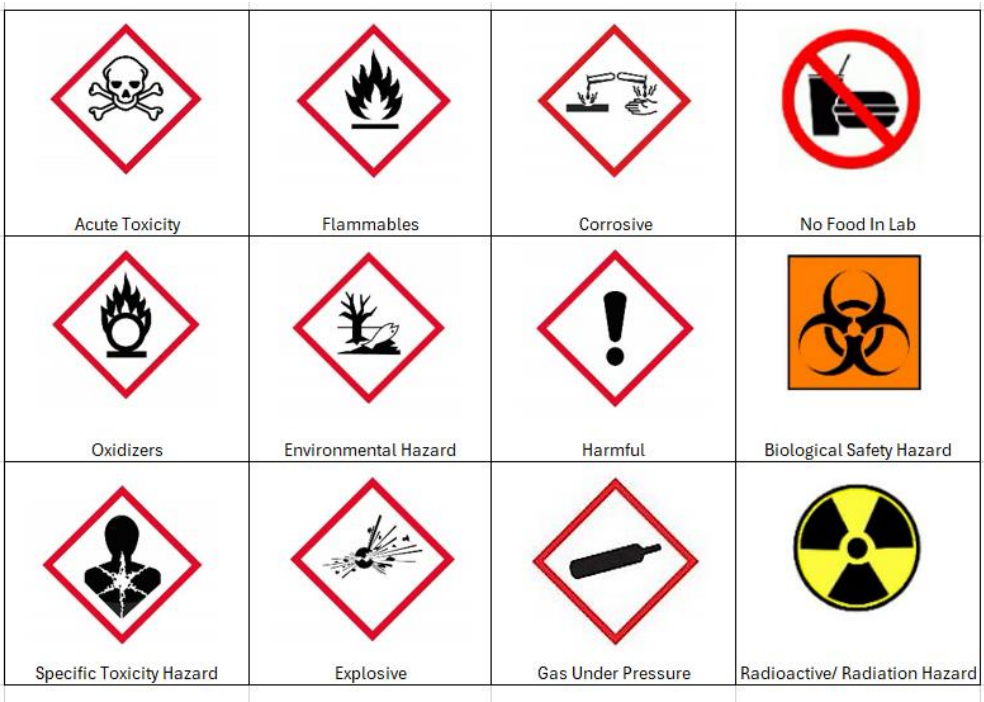


Figure 1



PERSONAL PROTECTIVE EQUIPMENT ICON EXAMPLES

Gloves **Apron** **Safety glasses** **Dust mask**

Respirator **Boots** **Full suit**

Figure 3

Labels

Manufacturer's Label:

- In addition to an SDS, the manufacturer's label is a primary source of information concerning identification, hazards, and storage requirements of hazardous material.
- If the hazardous material is received without a manufacturer's label or if the label is unreadable, the chemical should not be accepted, and it should be returned to the manufacturer.
- All manufacturer labels shall comply with GHS labeling standards, see Appendix C for more information.

Secondary Container Labels:

- When hazardous materials are transferred from original containers to other containers or if solutions of hazardous chemicals are prepared in the laboratory, proper labeling of the secondary containers are required if:
  - The chemical or chemical solution is for other than immediate use.
  - The chemical that is transferred or the prepared chemical solution is intended for use by someone other than the person doing the transfer or making up the chemical solution.
- Information that is required on secondary container labels:
  - Name of chemical or compound
  - Primary hazard information
  - Date
- To label secondary containers, information may be hand printed on the containers or preprinted commercial labels may be used. The following three

labels may be used:

- National Fire Protection Association (NFPA) 704 Diamond (Appendix A). The NFPA 704 diamond is a fire protection system designed to provide rapid, clear information to emergency responders on materials under conditions of fire, chemical spills, and other emergencies.
- Hazardous Materials Identification System (HMIS) Label (Appendix B). The HMIS label provides workers with at-a-glance information to identify the hazards of a chemical and the appropriate PPE if necessary.
- Globally Harmonized System. Standardized method of chemical hazard communication. Includes chemical labeling, safety data sheets, and transportation regulations.

6.0 EMPLOYEE TRAINING AND EDUCATION:

Basic and initial hazard communication training is a requirement for all personnel who work with chemicals or who work in areas where chemicals are used. The initial training includes:

- The Globally Harmonized System and any other commonly used labels.
- The general provisions of this and other applicable programs.
- How to obtain and use SDS.
- General characteristics and hazards associated with chemicals.
- Basic general chemical safety and emergency response.
- The requirements of the OSHA Hazard Communication Standard.

Hazard communication training is included in the General Safety training module provided annually to faculty, students, and staff via CATS. This will be augmented by site-specific training for individual chemicals.

Supervisors shall ensure that employees are provided with training relative to specific chemical hazards present in the work area at the time of their initial assignment, whenever a new chemical hazard is introduced, and prior to the execution of non-routine tasks.

The site-specific training provided by supervisors shall inform employees of:

- Locations or operations in the work area where hazardous chemicals are present, along with the name or identity of the hazardous chemical.
- Physical and health hazards associated with the hazardous chemical as described in the relevant SDS, including the potential for flammability, explosion, and reactivity of the hazardous chemical.
- Methods and observations that may be used to detect the presence or release of specific hazardous chemicals in the work area.
- Measures employees can take to protect themselves from the hazards, such as appropriate work practices, emergency procedures, engineering controls, and personal protective equipment to be used.
- The procedures for cleanup of leaks and spills for specific chemicals present in the work area.

- An explanation of the labels on the chemical containers, including stationary tanks or equipment.
- Location and availability of additional hazard information such as operating procedures and emergency response plans.

7.0 RECORDKEEPING:

All training records shall be maintained for the current fiscal year and the previous three fiscal years.

8.0 REFERENCES:

- OSHA Regulation 29 CFR 1910.1200; Hazard Communication
- OSHA Regulation 29 CFR 1910.1450; Occupational Exposure to Hazardous Chemicals in Laboratories
- UNECE Globally Harmonized System of Classification and Labeling of Chemicals
- ANSI Z129.1 2006 American National Standard for Hazardous Industrial Chemicals Precautionary Labeling
- ANSI Z400.1-2004 Hazardous Industrial Chemicals - Material Safety Data Sheets – Preparation
- EHS 200.04 Chemical Waste Management Procedures
- EHS 200.07 Chemical Procurement, Inventory and Security Policy
- LSUHSC Waste Minimization Program

9.0 DEFINITIONS:

Acute Effect - An adverse effect on the human body with immediate onset of symptoms.

Chemical - Any element, chemical compound or mixture of elements and or compounds. This can include chemicals in containers, including pipes, but also those generated during work operations. For example, welding fumes, dusts, and exhaust fumes are all sources of chemical exposures.

Chemical Name - The scientific designation of a substance in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the system developed by the Chemical Abstracts Service (CAS).

Chronic Effect - Adverse effects on the human body with symptoms that develop slowly over a long period of time or that frequently recur.

Combustible - Liquid having a flash point at or above 100°F (37.8°C). Class II Liquids: having a flash point at or above 100°F (37.8° C) and below 140°F (60°C). Class III A Liquids: having a flash point at or above 140°F (60°C) and below 200°F (93°C). Class IIIB: having a flash point at or above 200°F (93°C).

Common Name - Any designation or identification such as code name, code number, trade name, or brand name used to identify a substance other than by its chemical name.

Explosive - A material that produces a sudden release of pressure, gas and heat.

Expose or Exposure - Any situation arising from work operations where an employee may ingest, inhale, absorb through the skin or eyes, or otherwise come into contact with a hazardous substance.

Flammable - A substance that falls into one of the following categories:

Aerosol, flammable - An aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or flashback (a flame extending back to the valve) at any degree of valve opening.

Gas, flammable - A gas that, at ambient temperatures and pressure, forms a flammable mixture with air at a concentration of 13 percent of volume or less, or a gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than 12 percent by volume, regardless of the lower limit.

Liquid, flammable - Any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

Solid, flammable - Solid, other than a blasting agent or explosive, that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flash Point - Minimum temperature of a liquid at which it gives off significant vapors to form an ignitable mixture with the air near the surface of the liquid or within the container used.

GHS - Globally Harmonized System. Standardized method of chemical hazard communication. Includes chemical labeling, safety data sheets, and transportation regulations.

Hazardous Chemical - Any chemical which is a physical hazard or a health hazard.

Hazardous Mixtures - Any solution or intimate admixture of two or more substances, at least one of which is present as a hazardous substance. A hazardous substance is present in any mixture of product if it is one percent or more of the mixture or product or two percent if the hazardous substance exists as an impurity in the mixture.

Hazardous Substances and Carcinogens - Those substances or carcinogens appearing at any of the following reference sources are established as hazardous substances or carcinogens or potential carcinogens for hazard communication purposes:

- 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA).
- Threshold Limit Values (TLV's) and Biological Exposure Indices (BEI's) Book - American Conference of Governmental Industrial Hygienists (ACGIH).
- National Toxicology Program (NTP), Annual Report on Carcinogens.
- International Agency for Research on Cancer (IARC) Monographs on the Evaluation of Carcinogenic Risks to Human, all Volumes.

NOTE: The Registry of Toxic Effects of Chemical Substances published by the National Institute for Occupational Safety and Health (NIOSH) indicates whether a substance has been found by NTP or IARC to be a potential carcinogen.

Health Hazard - A chemical for which there is significant evidence, based on at least one study that acute or chronic health effects may occur in exposed employees. The term includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on hematopoietic systems and agents which damage the lungs, skin, eyes or mucous membranes.

HMIS - Hazardous Material Identification System is a numerical hazard rating that incorporates the use of labels with color developed by the American Coatings Association as a compliance aid for the OSHA Hazard Communication (HazCom) Standard.

NFPA - National Fire Protection Association. The NFPA 704 diamond is a fire protection system designed to provide rapid, clear information to emergency responders on materials under conditions of fire, chemical spills, and other emergencies.

PEL - Permissible Exposure Limit is a set legal limit in the United States designating the maximum concentration of any chemical in the air to which a worker may be exposed continuously for eight hours without any danger to health and safety.

Physical Hazard - A chemical for which there is valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, and organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Reactivity - A measure of the tendency of a substance to undergo chemical reactions with the release of energy.

SDS - Safety Data Sheets (SDS). Previously known as a Safety Data Sheet (SDS). Under new GHS rules, formatting and information are now standardized. There was no specified format for the SDS under the rule.

STEL (Short-Term Exposure Limit) - Maximum concentration to which a worker can be exposed for a short period of time (15 minutes) only four times a day with at least one hour between exposures.

TLV (Threshold Limit Value) - A time weighted average concentration under which most people can work consistently for eight hours a day, day after day (typically a 40 hour work week) with no harmful effects.

Toxicity - The degree of danger posed by a chemical agent or substance; refers to the harmful effect on some biologic mechanism and the condition under which this effect occurs.

Toxicology - The scientific study of poisons and their actions, detection, control, and the treatment of conditions produced by them.

TWA (Time Weighted Average) - Refers to the concentration of contaminant(s) weighted for a certain time duration, typically eight hours.

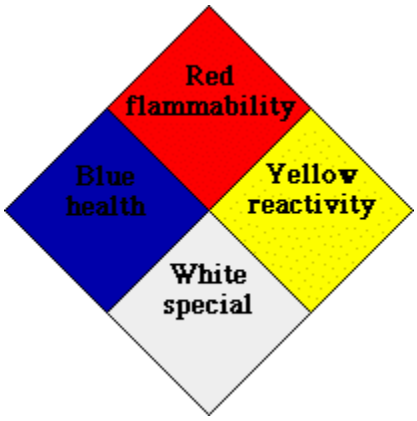
10.0 APPENDICES:

- Appendix A – National Fire Protection Association 704 Diamond Label
- Appendix B – Hazardous Materials Information System Label
- Appendix C- Globally Harmonized System Labels

National Fire Protection Association (NFPA) 704 Diamond

The NFPA 704 diamond is a fire protection system designed to provide rapid, clear information to emergency responders on materials under conditions of fire, chemical spills, and other emergencies.

- It addresses health, flammability, instability, and related hazards that may be presented as short term, acute exposures that are most likely to occur as a result of fire, spill, etc.
- Its objectives are to provide appropriate signals to the types of hazards present.



- The NFPA 704 system for identifying hazards and their severity is a standardized color-coded diamond representing four different hazards and numbers to rank the degree for each type of hazard.
  Blue=Health
  Red=Flammability
  Yellow= Reactivity
  White=Special hazards such as water reactive or corrosivity

  4=Extreme hazard
  3=Serious hazard
  2=Moderate hazard
  1=Slight hazard
  0=No or minimal hazard

Hazardous Materials Information System Label (HMIS) Label

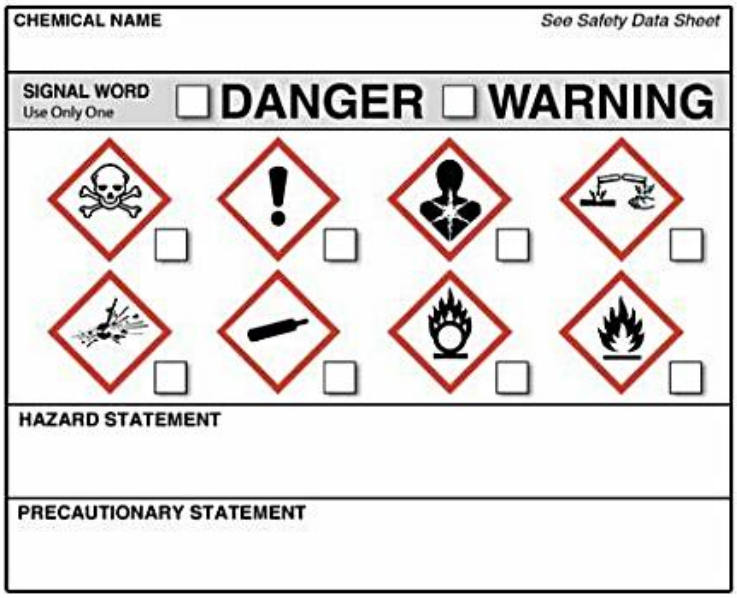
The HMIS label provides workers with at-a-glance information to identify the hazards of a chemical and the appropriate PPE if necessary.

The HMIS system is a standardized labeling system for identifying hazards and their severity by using:

- Standardized color-coded horizontal bars to represent Health, Flammability, and Physical hazards.
    - numbers to rank the degree of each hazard:
      4=Extreme hazard
      3=Serious hazard
      2=Moderate hazard
      1=Slight hazard
      0=No or minimal hazard
    - Letters and/or icons are used to indicate the types of PPE that is required.
      A= Safety glasses
      B = Safety glasses and glove
      C = Safety glasses, gloves, and an apron
      D=Face shield, gloves, and an apron E=Safety glasses, gloves, and a dust respirator
      F=Safety glasses, gloves, apron and a dust respirator
      G=Safety glasses, a vapor respirator
      H=Splash goggles, gloves, apron, and a vapor respirator
      I=Safety glasses, gloves, and a dust/vapor respirator
      J=Splash goggles, gloves, apron, and a dust/vapor respirator
      K=Airline hood or mask, gloves, full suit, and boots
      L-Z=Custom PPE specified by employer

Globally Harmonized System (GHS) Classification and Labeling of Chemicals

~~Globally Harmonized System.~~ ~~Standardized method of chemical hazard communication. Includes chemical labeling, safety data sheets, and transportation regulations.~~



The GHS system utilizes 6 elements to communicate the hazard associated with the chemical the label is associated with.

- GHS Labeling 6 elements
    1. Product Identifier
    2. Signal Word
    3. Hazard Statements
    4. Precautionary Stamant
    5. Supplier Information
    6. 9 Pictograms

GHS HAZARD SYMBOLS

Health Hazard	Flame	Exclamation Mark
• Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	• Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	• Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder	**Corrosion**	**Exploding Bomb**
• Gases under Pressure	• Skin Corrosion/ burns • Eye Damage • Corrosive to Metals	• Explosives • Self-Reactives • Organic Peroxides
Flame over Circle	**Environment (Non Mandatory)**	**Skull and Crossbones**
• Oxidizers	• Aquatic Toxicity	• Acute Toxicity (fatal or toxic)

Appendix C