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HAZARD COMMUNICATION PROGRAM

Nearly every workplace contains chemicals that may pose a health or physical hazard to employees if exposures occur or dangerous concentrations are exceeded. The University of Pittsburgh recognizes its responsibility to provide all employees that are potentially exposed to hazardous chemicals with the necessary tools to protect themselves and co-workers. In 2013, OSHA modified the Hazard Communication Standard to adopt the Globally Harmonized System (GHS) to enhance the safety and health of workers through more effective communications on chemical hazards.

This University of Pittsburgh Hazard Communication Program has been developed and is administered by the Department of Environmental Health and Safety (EH&S). The purpose of this Program is to:

- Identify hazardous chemicals in the workplace
- Evaluate the potential hazards of chemicals to which employees may be exposed
- Communicate information on physical and health hazards of chemicals
- Identify protective measures for faculty, staff, and students
- Insure availability of Safety Data Sheets (formally MSDS)
- Educate employees

1. LISTS OF HAZARDOUS CHEMICALS IN THE WORKPLACE

At the University of Pittsburgh, individual shops, laboratories or department work sites are responsible for maintaining an inventory of hazardous chemicals. Where possible, lists should be maintained on a computer database for ease of access. Copies of the chemical list must be available for any employee who may be exposed to a hazardous chemical.

2. HAZARD EVALUATION

Chemical manufacturers and importers are required by OSHA to review available scientific evidence concerning the hazards of the chemicals they produce or import, and to report the information to employers who distribute or use their products. Downstream employers, such as the University of Pittsburgh, rely on those evaluations to determine the measures necessary to protect employees from the potential hazards of any chemical.

3. LABELS AND OTHER FORMS OF WARNING

3.1 The University of Pittsburgh relies upon labeling provided by the manufacturer or suppliers on newly purchased chemicals. The user department is responsible to assure that each chemical container in the workplace is labeled. This label must contain the identity of the chemical. Employees shall not remove or deface existing labels on incoming containers of hazardous substances.

3.2 GHS requires that, chemical labels contain the harmonized signal word, pictogram, and hazard statement for each hazard class and category.

<https://www.osha.gov/Publications/OSHA3636.pdf>

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- 3.3** Employees are not required to label portable containers into which hazardous chemicals are transferred (aka secondary containers) provided that the employee who makes the transfer remains in attendance with the secondary container and uses all of the contents during the work shift. When the hazardous chemical might remain in the container for use at a later time or by another individual, it must be properly labeled with the chemical name.
- 3.4** When a container is reused for another compatible hazardous chemical or for hazardous waste disposal, the original label must be removed or defaced and the container relabeled to identify the new material or waste. All containers should be labeled to identify their contents.
- 3.5** Fixed containers such as a storage tank must be labeled with the identity of the chemical it contains and the appropriate hazard warning. Alternative written identification systems for fixed containers may be implemented as long as they convey the same hazard warning information.
- 3.6** The hazard warning label should clearly convey the appropriate GHS precautions, signal words, pictogram, or symbols that assure that the worker is aware of the chemical hazards associated with the chemical. Employees must be trained on the new label elements and the safety data sheet (SDS) format. Widely accepted systems for hazard identification and labeling include;

3.6.1 *ANSI Z129.1-2000 as well as the GHS: Hazardous Industrial Chemicals - Precautionary Labeling* uses a word hierarchy, or **signal word** to convey levels of hazard. The three signal words are **DANGER, WARNING, and CAUTION** the meaning of each are provided below.

DANGER If this product gets in or on you, immediate harm will be caused.

WARNING If this product gets in or on you, in sufficient quantity, you will suffer harm.

CAUTION If this product gets in or on you in large quantity over an extended time, you may be harmed.

The following is not a SIGNAL word, but does appear on a label to provide specific information





POISON!



This product will make you ill if it enters your body by any route of entry

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3.6.2 Globally Harmonized Labeling for Acute Toxicity consists of categories 1-5 (1=high, 5=low) with a symbol, signal word and a hazard statement. The hazard statement is divided into three sections (oral, dermal, and inhalation).

	Category 1	Category 2	Category 3	Category 4	Category 5
Symbol					No Symbol
Signal word	Danger	Danger	Danger	Warning	Warning
Hazard statement: Oral	Fatal if swallowed	Fatal if swallowed	Toxic if swallowed	Harmful if swallowed	May be harmful if swallowed
Dermal	Fatal if contact with skin	Fatal if contact with skin	Toxic in contact with skin	Harmful in contact with skin	May be harmful in contact with skin
Inhalation	Fatal if inhaled	Fatal if inhaled	Toxic if inhaled	Harmful if inhaled	May be harmful if inhaled

Source: <https://www.osha.gov/dsg/hazcom/ghs.html#3.2>

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3.6.3 Hazard Communication Standard Pictogram – Effective June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

<p>Health Hazard</p>  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<p>Flame</p>  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating Gas • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<p>Exclamation Mark</p>  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
<p>Gas Cylinder</p>  <ul style="list-style-type: none"> • Gases Under Pressure 	<p>Corrosion</p>  <ul style="list-style-type: none"> • Skin Corrosion/Burns • Eye Damage • Corrosive to Metals 	<p>Exploding Bomb</p>  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
<p>Flame Over Circle</p>  <ul style="list-style-type: none"> • Oxidizers 	<p>Environment</p>  <ul style="list-style-type: none"> • (Non-Mandatory) • Aquatic Toxicity 	<p>Skull and Crossbones</p>  <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

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3.6.4 Hazardous Material Identification System (HMIS) provides a 0-4 scale (0=low, 4=high) for health, flammability, and reactivity hazards. The “mode of entry” and “protective equipment” are depicted by a letter referring to a system of protective equipment. There are a number of variations to this type of labeling. An example of an HMIS label is provided below.

HMIS Hazard Rating Label



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3.6.5 NFPA 704 - Standard System for the Identification of the Hazards of Materials for Emergency Response provides the following hazard rating for the Health, Flammability, and Reactivity classifications of chemicals:

Health Hazard Rating (BLUE on label, left side diamond)

- 4 - Lethal
- 3 - Serious or permanent injury
- 2 - Temporary incapacitation or residual injury
- 1 - Significant irritation
- 0 - No Hazard

Flammability Hazard Rating (RED on label, upper diamond)

- 4 - Flash point below 73°F
- 3 - Flash point 73°F to 100°F
- 2 - Flash point 100°F to 200°F
- 1 - Flash point greater than 200°F
- 0 - Will not burn

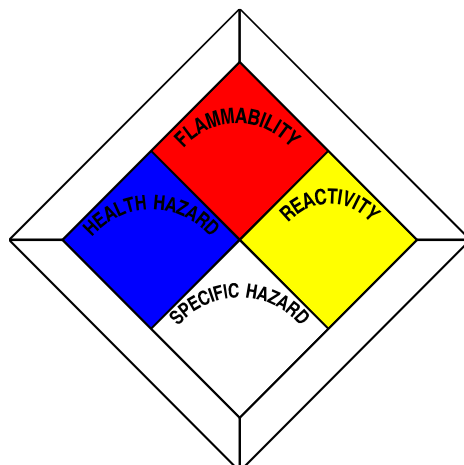
Reactivity Hazard Rating (YELLOW on label, right side diamond)

- 4 - Capable of Detonation or Explosion
- 3 - Shock and heat may detonate
- 2 - Violent chemical change under increased heat or pressure
- 1 - Unstable under increased heat or pressure
- 0 - Stable

Specific Hazards (WHITE on label, lower diamond)

- OX** - Oxidizer
- W** - Water Reactive (Use NO water)

NFPA Hazard Rating Symbol



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3.6.6 US DOT- Hazardous Materials Warning Labels: EH&S Guideline 03-002 provides an overview of signage requirements for University laboratories that store hazardous materials.

<http://www.ehs.pitt.edu/assets/docs/signage.pdf>

4. SAFETY DATA SHEETS (formally MSDS)

4.1 A Safety Data Sheet (SDS) is a document that provides information about the hazards of a chemical or product. State and Federal law requires that all chemical manufacturers, distributors and importers develop an SDS for each hazardous chemical they produce or import, and provide the SDS at the time of shipment to a chemical user, such as the University of Pittsburgh.

4.2 It is the responsibility of each manager or supervisor to provide access to the SDS for all hazardous chemicals used within their area. The primary method of accessing a SDS at Pitt is through an electronic database at pitt.scishield.com (log in required with Pitt credentials). If you do not have access to an internet connection, you can request a copy of the SDS for any chemical in your workplace through your supervisor. EH&S can assist managers and supervisors in provision of these documents upon request.

4.3 An SDS provides the user with important information regarding the chemical they are about to use. The SDS provides significantly more information than the container label.

4.4 SDS should be reviewed for all hazardous chemicals *prior* to use in the workplace. All employees' have the right to review an SDS before working with a hazardous chemical, and at any time that the chemical is present in the workplace.

4.5 GHS requires a standard 16-section SDS:

- Section 1 Identification*
- Section 2 Hazard(s) identification*
- Section 3 Composition/information on ingredients*
- Section 4 First-aid measures*
- Section 5 Fire-fighting measures*
- Section 6 Accidental release measures*
- Section 7 Handling and storage*
- Section 8 Exposure controls/personal protection*
- Section 9 Physical and chemical properties*
- Section 10 Stability and reactivity*
- Section 11 Toxicological information*
- Section 12 Ecological information*
- Section 13 Disposal considerations*
- Section 14 Transport information*
- Section 15 Regulatory information*
- Section 16 Other information, including the date of preparation or last revision*

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5. EMPLOYEE INFORMATION AND TRAINING

5.1 Departmental and laboratory supervisors must provide employees with information and training on hazardous chemicals used or stored in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

5.2 Departments shall furnish employees with an explanation of:

- Location of hazardous materials in the workplace.
- Methods and observations that may be used to detect the presence or release of hazardous chemicals in the work area.
- The physical and health hazards of the chemicals in the work area.
- The measures employees can take to protect themselves from these hazards.
- Location and availability of hazard communication information, such as this Program, the site-specific chemical inventory list and an SDS.

5.3 EH&S includes general labeling and SDS information as part of the Chemical Hygiene Training Program required every three years for all individuals that use laboratory chemicals. This training is scheduled on a regular basis throughout the year and is posted on the EH&S website. Chemical Hygiene Training is offered classroom style and as an on-line module. Department specific training in chemical safety can also be conducted by EH&S upon request.

6. MEDICAL EMERGENCIES

For medical emergencies on the Pittsburgh Campus, call 412-624-2121.

In the event of a chemical-related medical emergency, call the emergency number for your campus and proceed to your campus' designated medical center for treatment.

7. NON-ROUTINE TASKS

The department head, supervisor, PI or designee shall provide any person required to perform a non-routine task with appropriate hazard communication training and sufficient time to review appropriate hazard information prior to initiation of the task. This information should include SDS's, labels, and any other appropriate hazard information. All tasks involving chemicals that are being used for the first time, or are only rarely used shall be considered non-routine tasks.