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| <b>Loyola University Chicago Health Sciences Division<br/>Office of Research Services<br/>Policies &amp; Procedures</b> |   |
| <b>Policy Title:</b> Hazardous Materials<br>Communication Plan  | <b>Originating Department:</b> Office of Research<br>Services                           |
| <b>Effective Date:</b> 7/01/11<br><b>Review/Revised Date:</b> 12/14/12  | <b>Approved By:</b> LUCHSD Chief Safety Officer<br><b>Matthew Hejna</b>                 |
| <b>Approved By:</b> LUCHSD Chief Operating<br>Officer<br><b>Steve Bergfeld</b>  | <b>Approved By:</b> LUCHSD Vice Provost for<br>Research<br><b>Richard Kennedy, PhD.</b> |

**I. PURPOSE**

The purpose of this policy and procedure is to develop a hazardous materials and waste communication program designed to inform Loyola University Chicago Health Sciences Division (LUCHSD) faculty, staff and students of the potential hazards employees may be exposed to when working and the protective measures available to prevent adverse effects from occurring.

**II. APPLIES TO**

This policy and procedure applies to all research departments and employees on Loyola University Chicago Health Sciences Division (LUCHSD) main campus, including Stritch School of Medicine (SSOM), Marcella Niehoff School of Nursing (MNSON).

**III. POLICY**

LUCHSD departments using, handling, or storing hazardous materials and chemicals are equally responsible to comply with all Federal, State, and local laws. The written program, Hazardous Chemical Inventory and Safety Data Sheets (SDS) shall be maintained and available for review by employees on all shifts. Outside contractors working on-site shall submit hazardous material information related to their job site and function. Hazard Communication education will be provided to LUCHSD employees on an annual basis. Departmental specific training will be provided to those employees working directly with chemicals. The Office of Research Services in conjunction with LUHS Environmental Health & Safety Department will provide the necessary assistance to ensure these regulations are followed in a manner prescribed by law.

**IV. DEFINITIONS**

**Carcinogen:** A chemical is considered to be a carcinogen if it has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or

potential carcinogen; or it is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or it is regulated by OSHA as a carcinogen.

**Corrosive:** A chemical that causes visible destruction of, or irreversible alteration in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described by the U.S. Department of Transportation in Appendix A to 49 CFR Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours. This term shall not refer to action on inanimate surfaces.

**Cutaneous Hazards:** Chemical which affect the dermal layer of the body.

**Eye Hazards:** Chemicals which affect the eye or visual capacity.

**Hepatotoxins:** Chemicals which produce liver damage.

**Highly Toxic:** A chemical falling within any of the following categories:

- A chemical that has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
- A chemical that has a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
- A chemical that has a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs with one hour) to albino rats weighing between 200 and 300 grams each.

**Irritant:** A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for four hours exposure or by other appropriate techniques, it results in an empirical score of five or more. A chemical is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.

**Safety Data Sheet (SDS):** An SDS is written or printed material concerning a hazardous chemical, which is prepared in accordance with 29 Code of Federal Regulations (CFR) 1910.1200 (g).

**Nephrotoxins:** Chemicals which produce kidney damage.

**Neurotoxins:** Chemicals which produce their primary toxic effects on the nervous system.

**Reproductive toxins:** Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis).

**Sensitizer:** A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

**Target organ effects:** The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and chemicals which have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace, and the broad scope employers must consider in this area, but are not intended to be all-inclusive.

**Toxic:** A chemical falling within any of the following categories:

- A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
- A chemical that has a median lethal dose (LD50) of more than 200 milligrams per kilogram not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
- A chemical that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

## V. MATERIALS EXCLUDED FROM THIS POLICY

### A. Exemptions

1. The use, storage, and disposal of radioactive materials is satisfactorily dealt with in the written Radiation Safety Program developed and implemented by the Radiation Safety Officer. This program meets all the requirements prescribed by the Nuclear Regulatory Agency (NRC), a federal regulatory agency. A copy of the Radiation Safety Program can be obtained through the Radiation Safety Department.
2. The Chemical Hygiene Plan meeting the requirements prescribed in the Occupational Safety and Health Administration's (OSHA) Laboratory Safety Standard is excluded from the Hazard Communication Standard. The Chemical Hygiene Plan is directed to those faculty, staff and students working in laboratories with chemicals.

## VI. HEALTH DETERMINATION

A. The following criteria shall be used in making hazards determinations meeting the requirements of the standard:

1. **Carcinogenicity:** a determination by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA a chemical is a carcinogen or potential carcinogen will be considered conclusive evidence.
2. **Human Data:** Where available, epidemiological studies and case reports of adverse health effects shall be considered in the evaluation.
3. **Animal Data:** Human evidence of health effects in exposed populations is generally not available for the majority of chemicals produced or used in the workplace. Therefore, the available results of toxicological testing in animal populations shall be used to predict the health effects experienced by exposed workers. In particular, the definitions of certain acute hazards refer to specific animal testing results.

### B. Adequacy & Reporting of Data

1. The results of any studies which are designed and conducted according to established scientific principles, and which reports statistically significant conclusions regarding the health effects of a chemical, shall be a sufficient basis for a hazard determination and reported on any material safety data sheet.
2. The chemical manufacturer, importer, or employer may also report the results of other scientifically valid studies which tend to refute the findings of hazards.

## VII. RESPONSIBILITIES

### A. Individual Departments/Units

1. Verify all containers received are labeled, marked or tagged with:
  - a. Identity of the hazardous chemical
  - b. Appropriate hazard warning(s)
  - c. Name and address of the manufacturer, importer or other responsible party
2. Each department/unit is responsible for the obtaining and delivering the SDS to the Environmental Health & Safety Department in conjunction with the Office of Research Services to be placed in the MSDS Pro® System. A list of hazardous chemicals can be generated by the department via the MSDS Provider® System.
3. Information on each listed chemical can be obtained by reviewing a SDS. SDS can be obtained through MSDS® Provider located on the Loyola intranet. Hardcopies of all SDS are maintained in the laboratories as well as the Environmental Health & Safety Department in conjunction with the Office of Research Services.

**B. Department Managers/Supervisors**

1. Department Managers and Supervisors shall be responsible for assuring their employees attend new employee orientation and complete annual safety training.
2. Managers are responsible for departmental specific responsibilities including knowing:
  - a. Overview of the requirements contained in the Hazard Communication Standard.
  - b. Chemicals present in their department or work area.
  - c. Location and availability of the written hazard program and SDS.
  - d. To ensure labels are properly affixed to chemical containers.
  - e. How to lessen or prevent exposure to hazardous chemicals through usage of control/work practices and personal protective equipment (PPE).
  - f. Submit an accurate, updated chemical inventory on an annual basis.

**C. Office of Research Services/Environmental Health & Safety Department**

1. Responsible for coordinating annual safety education for all employees.
2. Notifies the affected departments of any SDS changes requiring employee education.
3. Maintains an updated chemical inventory of chemicals stored within the main campus.

**D. LUCHSD Staff**

1. Individual employees are responsible for conducting activities in a manner that will not endanger him/her or any others.
2. Any difficulty in performing procedures safely is to be reported to the immediate supervisor.

**VIII. CHEMICAL INVENTORY**

**A. Department Managers**

1. A chemical inventory listing of all the hazardous materials in each department and/or area is required to be completed annually.
2. Complete a chemical inventory form. A copy of the Department's chemical inventory will be submitted to the Environmental Health & Safety Department/Office of Research Services for review.

**IX. SAFETY DATA SHEET (SDS)**

- A.** The SDS includes the following valuable information about the chemical:
1. Chemical identification
  2. Chemical composition

3. Information on ingredients
4. Hazards identification
5. First-aid measures
6. Fire fighting measures
7. Accidental release measures
8. Handling and storage
9. Exposure controls
10. Personal protection
11. Physical and chemical properties
12. Stability and reactivity information
13. Toxicological information
14. Other pertinent information

- B.** All employees have access to SDS's to review according to OSHA guidelines through the MSDS Pro® System or the Environmental Health & Safety Department/Office of Research Services.

## **X. LABELS & OTHER FORMS OF WARNING**

### **A. Labels**

1. The label is any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals or materials.
2. Labeling must be done on all hazardous materials shipped and used in the workplace.
3. Chemical manufacturers, importers, and distributors must make sure each container of hazardous materials leaving their facility is labeled, tagged, or marked with the following information:
  - a. Identity of the hazardous material
  - b. Appropriate hazard warnings
  - c. Name and address of the chemical company or manufacturer.
4. Department Managers and Supervisors must ensure the original label is not removed or defaced on the chemical container.

### **B. Secondary Containers**

1. A secondary container is a container in which hazardous chemicals are transferred from labeled containers and are intended **only** for the immediate use of the employee who performs the transfer.
2. Secondary containers should be clearly labeled with the chemical name and date of the chemical transfer into the secondary container.

### **C. Signage**

1. Warning labels are posted on equipment or in areas where special or unusual hazards exist.

2. Eyewash stations, safety showers and exits are labeled.
3. All containers (including waste receptacles) need to be labeled with the chemical content and associated hazard (toxic, corrosive, flammable, explosive, carcinogenic or radioactive).

## **XI. PERSONAL PROTECTIVE EQUIPMENT (PPE)**

### **A. Gloves**

1. Employees are required to wear gloves when there is the potential for direct skin contact with blood, hazardous materials, and infectious materials.

### **B. Lab Coats/Aprons**

1. Lab coats should be worn in the lab area and are to be buttoned to protect associates clothing.
2. In areas where chemical splashes are likely, an apron appropriate for the task is worn.

### **C. Eye/Face Protection**

1. Masks and eye protection or chin-length face shields are worn to prevent splashes or sprays of blood, infectious materials, or hazardous materials if there is a potential for the eyes, nose, or mouth contamination.
2. Where the use of respirators are necessary to maintain exposures below permissible exposure limits, the employer provides, at no extra cost to the employee, the proper respirator equipment recommended by Occupational Health Services.
  - a. The respirators shall be selected and used in accordance with the requirements of 29 CFR 1910.134.

## **XII. HAZARDOUS MATERIALS STORAGE**

### **A. General Safety Guidelines**

1. Carefully read the label before storing a chemical.
2. General rules for chemical storage include:
  - a. Do not store hazardous chemicals above eye level
  - b. Do not store chemicals on the floor
  - c. Completely close all container lids
  - d. Label storage cabinets and shelves with the name of the chemical group

### **B. Storage of Chemicals**

1. Ensure incompatible chemicals are not stored in close proximity to each other.
2. Store all chemicals as instructed by the label or SDS. Make sure the following chemicals are stored separately:
  - a. **Acids (Corrosive)**- Store separate from flammables, bases, and poisons. Store in a dedicated area, preferably, in a separate storage

cabinet. Use secondary containment when storage in an acid storage cabinet is not permissible.

- b. **Bases (Corrosive)**- Store bases separate from acids, flammables and poisons. Organic bases may be stored with flammables. Use secondary containers if complete separation from incompatibles is not possible.
- c. **Flammables** (liquids with a flash point less than 100 degrees F)- Should be stored in a flammable cabinet away from chemicals.
- d. **Reactive Solids** (Flammable/Water/Air) - These solids should be packaged in mineral oil and/or secondary container. Store in a flammable storage cabinet, if possible.
- e. **Poisons/Toxins**- Do not store near food or drink. Make sure that toxic containers are sealed tightly.

#### **C. Storage of Hazardous Waste**

- 1. Hazardous waste will be stored in Building 159 (LUHS main campus). Arrangements will be made to transport hazardous materials off site by a licensed hazardous waste hauler.

#### **D. Storage of Compressed Gas Cylinders**

- 1. Cylinders must be stored in the appropriate cart or properly chained.
- 2. Cylinders will not be stored by elevators or other locations where objects may strike or fall on them.
- 3. Do not chain cylinders to portable or movable equipment such as beds, or oxygen tenets.
- 4. Cylinders are not to be supported or located near radiators, steam pipes or heat ducts, etc.
- 5. Valves shall be closed on empty cylinders in storage.
- 6. When cylinders are not in use, the valve protection caps shall be kept in place, when provided.
- 7. Oxygen cylinders not being used will be stored in an appropriate fire rated cabinets or a designated room.

### **XIII. EMEREGENCY RESPONSE**

#### **A. Chemical Spill Response (Code Orange)**

- 1. All spills, will be handled by Clean Harbors Inc, an onsite an approved vendor in conjunction with LUHS Security Departments who are trained to clean up hazardous material spills.
- 2. Department staff should evacuate the area, closing all doors to the area to prevent the spread of vapors, and contact Security at extension 911 from a safe location:
  - a. Identify name, location and the chemical involved.



- b. If the spill involves a chemical mixture, identify the major chemical constituent and the most toxic chemical in the mixture and use the appropriate clean up technique for the major chemical component of the mixture.

**B. Biohazardous Spill/Cleanup Procedures**

1. Selected healthcare and ancillary staffs are trained to contain, neutralize and clean-up spills of blood/body fluids.
2. Neutralizing agents include chlorinated compounds, bleach, alcohol and other products approved by the Infection Control Department.
3. Staff members are also able to decontaminate and sanitize surfaces that have been affected by a spill. All related refuse is disposed of in the appropriate PIMW waste receptacle.

**C. Chemotherapeutics and Cytotoxic Spill/Cleanup Procedures**

1. Areas preparing or administering chemotherapeutic agents maintain materials for controlling and absorbing small spills of these items.
2. Refuse from a small spill is discarded into the chemotherapeutic/sharps containers.

**D. Radioactive Isotope Spill/Decontamination Procedures**

1. All staff using isotopes are trained on the protocols for clean up and decontamination of work surfaces involving small volume isotope spills.
2. Staff members are instructed to contact the Radiation Control Department for assistance with all but nominal spills. Departments are instructed to contact the Radiation Control Department at 63239 for removal of all contaminated waste.

**E. Fire Response**

1. Do not block exits or use stairways or hallways as storage areas.
2. Refer to the *LUHS/LUCHSD Code Red: Fire Plan* for fire response and procedures.
3. Refer to the *LUHS/LUCHSD Code Purple Evaluation Plan* for evacuation response and procedures.

**XIV. EXPOSURE MONITORING**

**A. Periodic Monitoring**

1. The Department Manager, in consultation with the Office of Research Services/ Environmental Health & Safety Department, conduct annual monitoring of airborne concentrations of specific hazardous chemicals on selected staff, room locations and processes.
2. Results of this monitoring are reviewed by Department Manager and are

presented to the staff for their review within fifteen (15) days.

**B. Personal Monitoring**

1. Personal monitoring or badge testing will be the responsibility of the specific department/unit.
  - a. Department Manager/Supervisor is responsible for ordering, distributing and collecting badges and sends badges to accredited lab for monitoring results.
  - b. Designated employees will wear monitoring badges depending on periodic exposure evaluation frequencies.

**C. Medical Surveillance Program**

1. Persons who experience accidental hazardous materials exposure must report to Occupational Health for examination and treatment. Occupational Health is open Monday - Friday, 7:30 AM to 7:30 PM. If the exposure occurs when Occupational Health is closed, report to the Emergency Department. Contact Security at extension 911 for assistance.
2. Medical surveillance shall be established for employees working in an area where exposure monitoring results reveals an exposure level above the OSHA action level (or in absence of an action level, exposure above the OSHA action level).

**XV. DOCUMENTATION & RECORD KEEPING**

**A. Occupational Health Services**

1. Maintains medical consultation records.
2. Illness and injury records and environmental monitoring records are maintained by Occupational Health Services.

**B. LUCHSD Departments**

1. Annual chemical inventory and training/education records are maintained by each individual department.
2. Each department/unit is trained and has knowledge of how to access the *Hazardous Materials Communication Plan*.

**C. Environmental Health & Safety Department/Office of Research Services**

1. Maintains master listing of Safety Data Sheets (SDS). MSDS are maintained for 30 years.