



HAZARD
COMMUNICATION
PROGRAM

OFFICE OF RISK MANAGEMENT
REVISED 2019

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**HAZARDOUS MATERIALS
BUSINESS EMERGENCY PLAN:
EMERGENCY NOTIFICATION**

During an emergency involving a release or a threatened release of hazardous material you must notify appropriate agencies. Information you should be prepared to supply includes:

Name and telephone number of the reporting party;
Name and address of business;
Time and type of release (e.g., damaged containers, malfunctioning equipment, etc.);
Name and quantity of materials(s) involved;
Extent and number of injuries
Actions taken or taken to mitigate or reduce emergency;
Potential hazards to human health or the environment surrounding the business.

AGENCY NOTIFICATION:

Fire Department	911
Ambulance/Paramedic	911
Police/Sheriff	911
Hospital: Riverside Community	951-788-3000
Primary Facility Emergency Contact Person Director Security	951-785-2222
Hazardous Materials Management Division	951-358-5055
CDF/Banning Fire Service	951-922-3210
City of Corona Fire Department	951-736-2220
City of Riverside Fire Department	951-826-5321
California Office of Emergency Services	800-852-7550
National Response Center	800-424-8802
Poison Control Center	800-876-4766
Hazmat Cleanup Contractor 24/7	888-641-3940
Hazmat Contractor: Clean Harbors a Safety-Kleen Co.	800-468-1760
Other Contacts:	
Director Physical Plant	951-785-2115
Director Risk Management	951-785-2102
V P Financial Administration	951-785-2002

Hazard Communication Program

1.0 REFERENCE

This document fulfills the requirements of the Hazard Communication Standard (California Code of Regulations, Title 8, Section 337-340.2 and 5194) and specifies the methods used to inform employees of hazardous substances in their work environment. These methods include a written hazard communication program, labels and other forms of warning, safety data sheets, and information and training. Success of the program depends on the joint efforts of administration, department managers and supervisors, Risk Management and La Sierra University employees.

2.0 POLICY

La Sierra University is committed to providing a safe and healthy work environment for employees. The La Sierra University Hazard Communication Program has been established to improve communication and training associated with hazardous substances. The program is designed to maintain a healthy work environment by increasing employee awareness of hazardous substances used in the workplace. These substances include, but are not limited to, chemicals, paints, inks, glues, cleaning agents, and compressed gases.

Employees who use or may be exposed to potentially hazardous substances or harmful physical agents shall be informed about the hazards of those substances or physical agents and shall be trained in the precautions to take to prevent exposure and what to do if they are accidentally exposed. No employee shall engage in or be required to perform any task, which is determined to be unsafe or reasonably hazardous.

3.0 PURPOSE

Hazardous substances in the workplace, in some forms and concentrations, pose potential acute and chronic health hazards to employees who are exposed to these substances. Departments and employees have a right and a need to know the properties and potential hazards of substances to which they may be exposed. Such knowledge is essential in reducing the incidence and cost of occupational disease. Appendices A and B provide further explanation of the scope of health hazards covered by this program and the criteria to be used to determine if a chemical is to be considered hazardous. The purpose of this program is to improve the detection, treatment, and prevention of occupational illness and disease and to support workers' right to know. It is further intended to ensure that departments and workers have the information necessary for them to know when they are working with or may be exposed to hazardous substances. This program is also intended to ensure that departments provide their employees with training in how to avoid exposure to hazardous substances and what to do if they are accidentally exposed to such substances.

4.0 SCOPE, APPLICATION AND DEFINITIONS

- 4.1 This program shall apply to all departments that use, handle, store or dispose hazardous substances as defined in Program Definitions (Appendix C). Hazardous Management and Waste is reviewed in section 10.0
- 4.2 This program applies to any hazardous substance which is known to be present in the workplace in such a manner than employees may be exposed under normal conditions of use or in a foreseeable emergency.
- 4.3 This program does not apply to:
 - Any hazardous waste regulated by the Solid Waste Disposal Act, amended by the Resource Conservation and Recovery Act of 1976;
 - Tobacco or tobacco products;

- Wood or wood products;
- Articles (manufactured products);
- Food, drugs, or cosmetics intended for personal consumption by employees while in the workplace
- Any product sold at retail which is incidentally sold to the University or an employee, in the same form, approximate amount, concentration, and manner as it is sold to consumers.

4.4 Terminology used in this manual is defined in Appendix C, Hazard Communication Program Definitions.

5.0 RESPONSIBILITIES

5.1 RISK MANAGEMENT OFFICE

- Develop, implement, and monitor the Hazard Communication Program.
- Assist departments in complying with program requirements including labeling, Safety Data Sheets (SDS), employee information and training, and record keeping.
- Provide the department with copies of SDS for hazardous materials they have ordered through the Purchasing Department.
- Outside contractors working at the university shall be provided information regarding hazards that they may encounter during their work at the university.

5.2 DEPARTMENTS

- Department Chairs and Directors are responsible for providing the resources to effectively implement this program throughout their department(s), and for establishing systems to ensure departmental compliance
- Develop departmental procedures to ensure effective compliance with the hazard communication requirements of Section 5194, Title 8, of the California Administrative Code.
- Ensure that all requirements of the Hazard Communication Program have been met before employees are exposed to hazardous substances under normal conditions of use or in a foreseeable emergency.
- Maintain master file of SDS in each department.
- Develop and maintain an inventory of hazardous substances present in all work areas within the department.
- When ordering suspected hazardous substances through the Purchasing department via the electronic vendor database, an SDS is requested where one is not currently present in the department.
- Maintain a file of SDS' in a location readily accessible to department employees.

5.3 PURCHASING AND SUPPORT SERVICES

- Forward any SDS received to the Office of Risk Management, noting requesting department's name on the SDS sheet.

5.4 PHYSICAL PLANT SERVICES

- Ensure a physical copy of an SDS is available for all hazardous material.
- Coordinate the collection and disposal of the department's hazardous waste.
- Coordinate the inventory of hazardous substances.
- Provide updated inventory biannually.
- Notify outside contractors of the hazards which they may be exposed.

5.5 EMPLOYEE

Due to the number of potential hazards that may exist or be created in the work environment, employees must first use common sense and good judgment at all times. Each employee assigned to work with a hazardous substance shall read and comply with all hazard communication procedures, whether written or oral, before performing assigned duties. Although no single set of safety procedures can guarantee accident

free employment or place of employment, the minimum safety standards are listed in Sections 6.0 through 10.0.

6.0 LABELING

- 6.1 Each department shall ensure that each container of hazardous substances in the workplace is labeled, tagged or marked with the following information:
 - a. Identify the hazardous substance(s) contained therein; and
 - b. Appropriate hazard warnings.
- 6.2 Departments may use alternative signs, placards, or operating procedures in lieu of affixing labels as long as the information in Section 6.1 is conveyed to the employees.
- 6.3 Departments are not required to label portable containers into which hazardous substances are transferred from labeled containers if intended only for immediate use by the employee who performs the transfer.
- 6.4 Employees shall not remove or deface existing labels on incoming containers of hazardous substances.
- 6.5 The labeling requirements of this program do not apply to the following substances:
 - Any pesticide regulated by the Federal Insecticide, Fungicide, and Rodenticide Act;
 - Any food, food additive, color additive, drug, or cosmetic regulated by the Federal Food, Drug, and Cosmetic Act;
 - Any distilled spirits, wine, or malt beverage intended for non-industrial use regulated by the Federal Alcohol Administration Act; and
 - Any consumer product or hazardous substance regulated by the Consumer Product Safety Act.

7.0 SAFETY DATA SHEETS (SDS)

- 7.1 All SDS information shall be forwarded by Shipping and Receiving to the Office of Risk Management when delivered to campus from the manufacturer or supplier of the hazardous substances.
- 7.2 Each SDS shall be in English and shall contain specific information
- 7.3 All the departments (Biology, Chemistry, and Physical Plant) shall maintain an inventory of hazardous substances and SDS on campus, and maintain an electronic master file of SDS information.
- 7.4 The Office of Risk Management shall obtain the SDS information on hazardous substances present in the workplace from the departments with chemicals. Departments shall maintain a copy of the SDS for each hazardous substance used in the department. Departments shall ensure that this information is readily accessible during each work shift to employees when they are in their work area(s).
- 7.5 If an SDS is not provided by a manufacturer, the Office of Risk Management shall:
 - a. Send a written request to the manufacturer within seven (7) working days from the date of the employee request.
 - b. Provide a copy of the written request to the employee requesting the SDS.
 - c. Notify the employee within fifteen (15) days of receipt of the SDS.
 - d. Notify the Director of the State Department of Industrial Relations if a response has not been received from the manufacturer within twenty-five (25) working days from the date of the request.

8.0 EMPLOYEE INFORMATION AND TRAINING

- 8.1 The Office Human Resources will inform all new employees of the University Hazard Communication program as part of the New Employee Safety Orientation.
- 8.2 The Office of Risk Management will furnish employees with an explanation of what the SDS is, and of the contents of the SDS for any hazardous substance to which the employees are exposed, or equivalent form, either in written form or through training programs. Departments charged with providing this information to employees and student assistants.
- 8.3 Departments shall provide employees with information and training on hazardous substances in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.
- 8.4 When training employees who may be exposed to hazardous substances, the department shall ensure that each of the following hazard communication training requirements are covered.

a. Safety Data Sheets Sheet (SDS)

SDSs containing the hazard and precautionary information required by the Hazard Communication Standard should be kept for each hazardous substance listed on the work site's "Hazardous Chemicals Inventory." The most current SDS supplied by the chemical manufacturer or distributor should be kept on file and made accessible to all employees, their representatives, and contractors for viewing or copying during each work shift.

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

If the manufacturer or distributor does not automatically provide a complete SDS with the chemical purchased, the supervisor should send a written request to the vendor. If the vendor does not provide an SDS, the problem should be reported to Risk Management, who will contact the vendor and obtain the legally required SDS for the product in question.

An SDS binder must be in a central location of departments managing chemicals that can be accessed immediately in the event of an emergency. Electronic copies may be kept in a file on a shared drive, or hard copies maintained in a central location at the worksite (i.e. SDS Binder). Supervisors must provide information to their employees within 30 days of receipt of any new or revised SDS. This information should indicate any increased risks to health and safety, as well as any new measures necessary for employees to protect themselves.

b. Employee Rights.

Each department shall inform employees of the right:

- To personally receive information regarding hazardous substances to which they may be exposed.
- For their physician or collective bargaining agent to receive such information.
- Against dismissal or other discrimination due to the employee's exercise of their rights afforded by State law.

c. Hazard Communications

Departments shall ensure that employees receive and informed of:

- The requirements of the Hazard Communication Program.
- Any operations in their work area where hazardous substances are present.
- The location and availability of the written Hazard Communication Program.

d. Training--Departments shall ensure that employees trained in:

Employees have the right to understand the risks associated with hazardous substances in the workplace to which they may be exposed. Employee training must be completed before the employee is assigned work that places them at potential risk of exposure to hazardous substances. Training on new or revised SDS information must be completed within 30 days of receipt of that information (8 CCR 5194[h]). Additional training is required as necessary when new hazardous substances are introduced into the work area. Hazard information training conducted by formal or informal meetings with employees, incorporating the use of written materials such as the following (SDS Binder, Emergency Handbook, Chemical Hygiene Plan, NFPA signs, Right to understand labels, etc.) and /or additional relevant resources. These training sessions must be documented and attendance lists maintained for a minimum of five (5) years. Risk Management can provide assistance with planning and conducting safety training.

Training must include:

- Information on departmental operations where hazardous substances are present
- Information regarding the hazardous properties of the chemicals with which the employees work or may be exposed to.
- A basic description of the Hazard Communication Standard, including the requirements for container labels, SDSs and training on hazardous substances. The training should emphasize the fact that the employees have the right to receive or have their personal physician receive information contained in SDSs, and that no discriminatory action may be taken against them if they exercise this right
- An explanation of the purpose and contents of an SDS, interpretation of the hazard information contained within, and description of how to access departmental and campus SDSs
- Methods to detect the presence of hazardous substances in the workplace (alarms, odors, label information, warnings, signs etc.)
- Labeling procedures
- Methods to minimize exposure to hazardous substances in the workplace, including proper hygiene practices, personal protective equipment (PPE), and emergency procedures
- Specific hazard information covering any non-routine work assignment
- Information regarding the location and availability of this written Hazard Communication Program

9.0 ACCESS TO HAZARDOUS AREAS

- 9.1 Due to the potential for exposure to hazardous substances, designated areas on campus shall have limited access to University employees.
- 9.2 Hazardous areas are identified by signage on the location door. A contact person(s) is identified along with their phone number.
- 9.3 Work orders will indicate work is scheduled for a hazardous location. If you are called to a room while in the field, rooms can be identified with the poster.
- 9.4 During normal business hours, the Physical Plant's Control Center x2113 will notify the contact person that work has been scheduled in a room under their supervision. The area (drains, fume hoods, cabinets, etc.) must be cleared of all hazardous chemicals. If the contact person cannot be located, notify the department office; or Risk Management Office at x2102; Palmer Hall at x2367; San Fernando Hall x2137; Thayne B. Price Science Complex x2106, Art Dept. x2170, Physical Plant x2113.
- 9.5 If University employees respond to an emergency call to a hazardous location during off hours, University Security must notify the contact person of the department, the Department Chair, Chemical Hygienist-x2367 or the Office of Risk Management. If an emergency requires the room to be entered without official clearance, to use good judgment and proper protective equipment prior to entry.
- 9.6 The Physical Plant On-Call personnel will meet with the contact person to verify that the hazardous area has been contained and cleared.
- 9.7 Work should not begin until the area is clear of hazardous materials. If there are further questions about the safety of the area, notify the Office of Risk Management at x2102.

- 9.8 If the area cannot be cleared of hazardous materials, personal protection shall be worn to avoid whatever hazard is involved. The personal protective equipment (gloves, goggles, respirators, etc.) is available from the Physical Plant Department. Judgment should be used in all cases if there is a risk of exposure. Consult with either the Chemical Hygienist or the Office of Risk Management for the proper procedures and clothing.
- 9.9 If working on the roof of Palmer Hall, clearance must be obtained from the Office of Risk Management. Note: Every fume hood motor has the corresponding room number stenciled on the motor housing.
- 9.10 Custodians should be in contact with persons in charge of hazardous locations to determine what areas can be safely cleaned.
- 9.11 In the event of a spill, immediately vacate the area.
- 9.12 Immediately notify Campus Security at x2222, the Chemical Hygienist x2362 and Risk Management at x2102.
- 9.13 Report breakage of any equipment or glassware to the contact person.

10.0 HAZARDOUS MANAGEMENT & WASTE

- 10.1 **Summary:** Federal and State regulations define hazardous wastes as a substance which poses a hazard to human health or the environment when improperly managed.
- 10.2 **Chemical waste** is considered hazardous if it is either listed on one of the lists found in Federal or State regulations or if it exhibits one or more of the four following characteristics:
- ❖ **Flammable** - flammable wastes generally are liquids with a flash point below 60°C or 140°F (however, just because a material has a higher flash point, it still cannot be drain disposed).
 - ❖ **Corrosive** - corrosive wastes are generally aqueous wastes with a pH less than or equal to two (2) or greater than or equal to 12.5 (although University policy includes any waste that is not neutral).
 - ❖ **Reactive** - reactive wastes are those wastes that are unstable, explosive capable of detonation or react violently with water.
 - ❖ **Toxic** - a chemical that poses a hazard to health or the environment (this can be a gray area).
- 10.3 **Determination of hazardous waste** can be difficult. It is University's policy that faculty, staff, and students **assume all chemicals are hazardous and must be managed through Risk Management and Physical Plant Services**. Strict sewer, air emissions and landfill regulations require that hazardous waste is not drain disposed, evaporated in fume hoods or disposed of in the normal trash. Contact Physical Plant for help in classifying waste as hazardous or non-hazardous.
- 10.4 **Hazardous chemical waste** also includes the following:
- Chemicals that can no longer be used for their intended use (e.g. aged or surplus inventory)
 - Mislabeled or unlabeled chemicals
 - Abandoned chemicals
 - Material in deteriorating or damaged containers
 - Residuals in chemical containers
 - Diluted solutions containing hazardous chemicals
 - Used photographic fixer and developer
 - Debris contaminated with a hazardous material (rags, paper towels, lab diapers, gloves, etc.)

Note: If it is a chemical, manage it as a hazardous waste.

10.5 E-Waste

The Department of Toxic Substance Control regulations define "electronic device" very broadly as "any electronic device that is identified as hazardous waste." Some kinds electronic devices are "covered

electronic devices" (see next section below), but many more are not. Below are examples of some common electronic devices; this is by no means a complete list.

Electronic Device

- CRT devices including older televisions and computer monitors
- LCD desktop computer monitors and laptop computers
- LCD televisions
- Plasma televisions
- Portable DVD players with LCD screens
- Cash registers and oscilloscopes containing CRTs
- Computers
- Computer keyboards and other peripherals
- Telephones, cell phones, and answering machines
- Stereo equipment, radios, tape and CD players/recorders, phonographs
- Video cassette recorders and calculators
- Microwaves

Covered Electronic Devices (CEDs)

A "covered electronic device" (CED) is an electronic device that is covered by the Electronic Waste Recycling Act. The purchaser of a CED pays a fee at the time of purchase, which is used to pay collectors and recyclers of CEDs that are no longer wanted. The law defines a CED as a "a video display device containing a screen greater than 4 inches, measured diagonally, that is identified in the regulations adopted by" DTSC. Any video display device with a screen greater than four inches in size that fits into one of the following categories is a CED:

- Cathode ray tube containing devices (CRT devices)
- Cathode ray tubes (CRTs)
- Computer monitors containing cathode ray tubes
- Laptop computers with liquid crystal display (LCD)
- LCD containing desktop monitors
- Televisions containing cathode ray tubes
- Televisions containing liquid crystal display (LCD) screens
- Plasma televisions
- Portable DVD players with LCD screens

California universal waste regulations (Chapter 23 of title 22) define an [electronic device](#) as "any electronic device that is identified as hazardous waste." An electronic device that meets this definition can be managed under simple requirements as a universal waste. The person who decides to discard an electronic device is responsible for determining if the device is a hazardous waste, either by sending it to a laboratory for testing or by applying his or her knowledge of the waste.

By placing electronic equipment in the trash, contaminants ultimately end up in our water supply. Physical Plant does not charge individual departments for the disposal of this waste. The improper storage of electronic wastes can result in fines from the Environmental Protection Agency. Your department will be responsible for these fines! Do not hold on to equipment that is no longer usable.

10.6 Universal Waste

Common examples of Universal Wastes include Televisions, Computers, Computer Monitors, Batteries, and Fluorescent Lamps. Universal wastes are hazardous upon disposal but pose a lower risk to people and the environment than other hazardous wastes. State and Federal regulations identify which unwanted

products are universal wastes and provide simple rules for handling and recycling of them. These regulations are found in the California Code of Regulations, title 22, division 4.5, chapter 23. To request a copy of the Universal Waste Fact Sheet, July 2008, please contact Risk Management x2102.

APPENDIX A

HEALTH HAZARD DEFINITIONS

Although safety hazards related to the physical characteristics of a substance can be objectively defined in terms of testing requirements (e.g. flammability), health hazard definitions are less precise and more subjective. Health hazards may cause measurable changes in the body such as decreased pulmonary function. These changes are generally indicated by the occurrence of signs and symptoms in the exposed employees such as shortness of breath, a non-measurable, subjective feeling. Employees exposed to such hazards must be apprised of both the changes in body function and the signs and symptoms that may occur to signal that change.

The determination of occupational health hazards is complicated by the fact that many of the effects or signs and symptoms occur commonly in non-occupationally exposed populations, so that effects of exposure are difficult to separate from normally occurring illnesses. Occasionally, a substance causes an effect that is rarely seen in the population at large, such as angiosarcomas caused by vinyl chloride exposure, thus making it easier to ascertain that the occupational exposure was the primary causative factor. More often, however, the effects are common, such as lung cancer. The situation is further complicated by the fact that most substances have not been adequately tested to determine their health hazard potential, and data do not exist to substantiate these effects.

There have been many attempts to categorize effects and to define them in various ways. Generally, the terms acute and chronic are used to delineate between effects on the basis of severity or duration. Acute effects usually occur rapidly as a result of short-term exposures, and are of short duration. Chronic effects generally occur as a result of long-term exposure, and are of long duration.

The acute effects referred to most frequently are those defined by the American National Standards Institute (ANSI) standard for Precautionary Labeling of Hazardous Industrial Chemicals (Z129.1-1982)-irritation, corrosively, sensitization and lethal dose. Although these are important health effects, they do not adequately cover the considerable range of acute effects, which may occur as a result of occupational exposure, such as, for example, narcosis.

Similarly, the term chronic effect is often used to cover only carcinogenicity, teratogenicity, and mutagenicity. These effects are obviously a concern in the work place; but again, do not adequately cover the area of chronic effects, excluding, for example, blood dyscrasias (such as anemia), chronic bronchitis and liver atrophy.

The goal of defining precisely, in measurable terms, every possible health effect that may occur in the workplace as a result of chemical exposures cannot realistically be accomplished. This does not negate the need for employees to be informed of such effects and protected from them.

Appendix B, which is also mandatory, outlines the principles and procedures of hazard assessment.

For purposes of this section, any substances, which meet any of the following definitions, as, determined by the criteria set forth in Appendix B are health hazards:

1. **Carcinogen:** A substance considered a carcinogen if:
 - a. It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or
 - b. It is listed as a carcinogen or potential carcinogen in the Annual Report and Carcinogens published by the National Toxicology Program (NTP); or,
 - c. It is regulated by OSHA as a carcinogen.
2. **Corrosive:** A substance that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a substance 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.
3. **Highly toxic:** A substance falling within any of the following categories:
 - a. A substance 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.

- b. A substance 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.
- c. A substance 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 within one hour) to albino rats weighing between 200 and 300 grams each.

4. **Irritant:** A substance, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A substance 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 substance is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.

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

6. **Toxic.** A substance falling within any of the following categories:

- a. A substance that has a median lethal dose (LD50) of more than 50 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.
- b. A substance that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but 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.
- c. A substance 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.

7. **Target organ effects:** The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and substances 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.

- a. Hepatotoxins: Substances, which produce liver damage. Signs and Symptoms: Jaundice; liver enlargement. Substances: Carbon tetrachloride; nitrosamines.
- b. Nephrotoxins: Substances, which produce kidney damage. Signs and Symptoms: Edema; proteinuria. Substances: Halogenated hydrocarbons; uranium.
- c. Neurotoxins: Substances, which produce their primary toxic effects on the nervous system. Signs and Symptoms: Narcosis behavioral changes; decrease in motor functions. Substances: Mercury; carbon disulfide.
- d. Agents, which act on the blood or hematopoietic system: Decrease hemoglobin function; deprive the body tissues of oxygen. Signs and Symptoms: Cyanosis; loss of consciousness. Substances: Carbon monoxide; cyanides.
- e. Agents, which damage the lung: Substances, which irritate or damage the pulmonary tissue. Signs and Symptoms: Cough; tightness in chest; shortness of breath. Substances: Silica; asbestos.
- f. Reproductive toxins: Substances which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis). Signs and Symptoms: Birth defects; sterility. Substances: Lead; dibromochloropropane (DBCP)-a pesticide.
- g. Cutaneous hazards: Substances, which affect the dermal layer of the body. Signs and Symptoms: Defatting of the skin; rashes; irritation. Substances: ketones chlorinated compounds.

APPENDIX B

HAZARD DETERMINATION

The quality of a hazard communication program is largely dependent upon the adequacy and accuracy of the hazard determination. The hazard determination requirement of this standard is performance-oriented. Manufacturers, importers, and employers evaluating substances are not required to follow any specific methods for determining hazards, but they must be able to demonstrate that they have adequately ascertained the hazards of the substances produced or imported in accordance with the criteria set forth in this Appendix.

Hazard evaluation is a process, which relies heavily on the professional judgment of the evaluator, particularly in the area of chronic hazards. The performance orientation of the hazard determination does not diminish the duty of the manufacturer, importer or employer to conduct a thorough evaluation, examining all relevant data and producing a scientifically defensible evaluation. For purposes of this standard, the following criteria shall be used in making hazard determinations that meet the requirements of this standard.

1. **Carcinogenicity:** As described in subsection 5194(d)(4) and Appendix A, a determination by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA that a substance is a carcinogen or potential carcinogen will be considered conclusive evidence for purposes of this section.
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 substances produced or used in the workplace. Therefore, the available results of toxicological testing in animal populations shall be used to predict the health effects that may be experienced by exposed workers. In particular, the definitions of certain acute hazards refer to specific animal testing results (see Appendix A).
4. **Adequacy and reporting of data:** The results of any studies which are designed and conducted according to established scientific principles, and which report statistically significant conclusions regarding the health effects of a substance shall be a sufficient basis for a hazard determination and reported on any Safety Data Sheets sheet. The manufacturer, importer, or employer may also report the results of other scientifically valid studies, which tend to refute the findings of hazard.

APPENDIX C

HAZARD COMMUNICATION PROGRAM DEFINITIONS

Access The right and opportunity to examine and copy.

Article A manufactured item: (1) Which is formed to a specific shape or design during manufacture; (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (3) which does not release, or otherwise result in exposure to, a hazardous substance under normal conditions of use or in reasonable foreseeable emergency resulting from workplace operations.

CAS Number The unique identification number assigned to specific chemical substances.

Chemical Name The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) other Chemical Abstracts Services (CAS) rules of nomenclature, or a name which will clearly identify the substance for the purpose of conducting a hazard evaluation.

Combustible Liquid Any liquid having a flashpoint at or above 100F (37.8C), but below 200F (93.3C), except any mixture having components with flash points of 200F (93.3C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

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

Compressed Gas (a) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70F (21.1 C); or (b) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130F (54.4C) regardless of the pressure at 70F (21.1 C); or (c) A liquid having a vapor pressure exceeding 40 psi at 100F (37.8C).

Container Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous substance. For purpose of this program pipes or piping systems are not considered to be containers.

Corrosive Acids or bases (pH less than or equal to 2, or greater than or equal to 12.5) that are capable of corroding metal containers, such as storage tanks, drums, and barrels. e.g., Battery acid.

Designated Representative Any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this program. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization, except that access to records requires the employee's written consent.

Distributor A business, other than a manufacturer or importer, which supplies hazardous substances to the University.

E-Waste: Electronic equipment that is no longer useful as originally intended, but can be reused or recycled into a new product.

Employee -- A current University employee, former employee, student assistant, graduate assistant, or contract employee.

Explosive A substance that causes a sudden, almost instantaneous release of pressure, gas, and heat when subject to sudden shock, pressure, or high temperature.

Exposure or Exposed A situation arising from a work operation 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:(a) "Aerosol, flammable" means an aerosol that, when tested yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening; (b) "Gas, flammable" means a gas that, at ambient temperature and pressure, forms a flammable mixture with air. (c) "Liquid, flammable" means any liquid having a flashpoint below 100F (37.8C). (d) "Solid, flammable" means a solid, other than blasting agent or explosive, that is liable to cause fire through friction, absorption or moisture, spontaneous chemical change, or 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.

Flashpoint The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite.

Foreseeable Emergency Any potential occurrence such as, but not limited to, spills, fires, explosions, equipment failure, rupture of containers, or failure of control equipment which may or do result in a release of hazardous substance into the workplace.

Hazard Warning Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the health hazards and physical hazards of the substance(s) in the container(s).

Hazardous Substance Any substance, which is a physical hazard or a health hazard or is included in the list of Hazardous Substances published by Cal/OSHA.

Hazardous Waste With properties that make it dangerous, or capable of having harmful effects on human health and the environment. This falls into one of 4 categories: flammable (can catch fire), toxic (poisonous), corrosive (can cause burns), reactive (can explode). Refer to California hazardous waste regulations for clarification on products.

Health Hazard A substance for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes substances which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendices A and B provide further definitions and explanations of the scope of health hazards covered by this program, and describe the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this program.

Immediate Use The hazardous substance will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label Any written, printed, or graphic material displayed on or affixed to containers or hazardous substances.

Manufacturer A person, who produces, synthesizes, extracts, or otherwise makes a hazardous substance,

Safety Data Sheets Written or printed material concerning a hazardous substance (SDS)

Mixture Any solution or a mixture of two or more substances, at least one of which is present as a hazardous substance, which do not react chemically with each other.

Oxidizer A substance other than a blasting agent or explosive that initiates or promotes combustion in other materials, thereby causing fire, either to itself or through the release of oxygen or other gases.

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

Pyrophoric A substance that will ignite spontaneously in air at a temperature of 130F (54.4C) or below

Reactivity A characteristic of hazardous waste. It is the ability of a substance to explode or react violently when agitated or when coming in contact with oxygen, water, or another chemical substance.

Substance Any element, chemical compound or mixture of elements and/or compounds.

Toxic Harmful or fatal when ingested or absorbed (e.g., containing mercury, lead, etc.).

Unstable (reactive) A substance which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure or temperature.

Use To package, handle, react, or transfer.

Universal Waste: Lower risk hazardous waste generated universally by business, industry, and residential and contain mercury, lead, cadmium, copper and other substances hazardous to human and environmental health. These wastes also have lower management requirements. Examples are batteries, fluorescent tubes, computers, TVs, switches containing mercury, non-empty aerosol cans). These wastes shall not be disposed into the trash.

Water-reactive A substance that reacts with water to release a gas that is either flammable or presents a health hazard

APPENDIX D

Potentially Explosive Chemicals Safe Storage and Handling Guideline

Potentially explosive chemicals (PECs) are peroxidizable chemicals that may explode if subjected to heat, light, friction, or mechanical shock. To handle and dispose of PECs properly, La Sierra University campus uses a specialty contractor. The specialty contractor transports the PEC to an isolated location where the chemical is opened and stabilized, making it safe to ship and dispose.

1. Common Laboratory PECs

There are many PECs used in academic research and teaching laboratories. The following are some commonly used chemicals that can become an explosion hazard under certain conditions:

- Organic chemicals that form peroxides through exposure to air or light
- Hydrated picric acid that becomes dry or becomes contaminated with metals that form metal picrate salts
- Sodium amide that reacts with air or moisture to form superoxides, as evidenced by yellow or brown discoloration
- Certain alkyl nitrates (e.g., butyl nitrate or propyl nitrate) that become contaminated with nitrogen oxides
- Certain normally stable perchlorates (e.g., pyridium perchlorate or tetraethylammonium perchlorate) that becomes unstable at elevated temperatures

Note: Most explosions occur while purifying or distilling mixtures. Therefore, use extreme caution before concentrating or purifying any mixture that may contain an explosive chemical (e.g., a peroxide forming chemical or perchlorate).

Contact Risk Management immediately (951-785-2102) if you suspect a material is a PEC. Post warning signs so others do not handle or disturb the material. A third party Environmental Agency will inspect the chemical and devise an appropriate action plan to safely dispose of the chemical.

2. General Storage Precautions

It is important that chemical users track and dispose of chemicals before they become a problem. Proper inventory management can help lessen the risk to personnel and avert higher than normal disposal costs.

- Identify all potentially explosive chemicals in the inventory. Never store unlabeled chemicals.
- Record the opening date and the date that the chemical should be discarded on the label of chemicals that may degrade to become potentially explosive.
- Keep PECs away from all ignition sources such as open flames, hot surfaces, spark sources, and direct sunlight.
- Store PECs in an explosive magazine, and inspect areas weekly to comply with the California Fire Code.

- Periodically check containers of chemicals that could become over-pressurized. Note: Release the pressure by unscrewing the cap, using protective heavy-duty gloves, chemically resistant coveralls, safety glasses, face shield, and a safety glass screen between you and the container.
- As part of the Chemical Hygiene Plan, the department will make sure everyone who uses chemicals that could become potentially explosive are thoroughly trained in safe storage methods, conditions to avoid (e.g., contamination), the hazards of the chemical, and disposal procedures.










3. Specific Storage and Testing Guidelines for Peroxide Forming Chemicals

With all peroxide forming chemicals, it is preferable to use small containers the content of which can be completely used and emptied, rather than a large container where contents are used slowly over time. Ethers should be stored in amber bottles or other opaque containers over a reducing agent to inhibit formation of peroxides. Containers of ether and other peroxide forming chemicals should be marked with the date they are opened and with the date of required disposal. Mark these dates on the container using a PEC warning label and fill out the date section. By the expiration date, all peroxide forming chemicals should be marked for disposal immediately. The third party vendor dispatched to lab pack and remove the hazardous materials or they shall advise the University if they are unable to pick up, dispose and transport. The University will contact the County of Riverside Hazmat Division for further evaluation and instruction.

4. Tracking & Handling of Flammable & Explosive Chemicals in Laboratories

Explosive material(s), defined by Riverside Fire Department, as any quantity of Class A, B or C explosives as classified by the Department of Transportation (D.O.T.) and any other chemical compounds or mixtures are NOT permitted to be used or stored in LSU laboratories. Any current supplies will be tagged and shall immediately be disposed of through the Hazardous Waste Disposal Program (refer to separate LSU Hazardous Waste disposal policy).

HAZCOM STANDARD PICTOGRAMS

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

Hazardous Materials Symbols DOT Shipping Labels



Potential liability in the handling of hazardous materials has reached crisis proportions. To comply with DOT safety requirements, all air, water, rail and highway packages and containers must be properly labeled for quick and easy recognition. All labels include UN class numbers and meet DOT specification 49CFR172.400 for color, size and durability.

Cat No.	Legend	Class
DT-01	Non-Flammable Gas	2
DT-02	Flammable Gas	2
DT-03	Inhalation Hazard	2
DT-04	Flammable Liquid	3
DT-05	Flammable Solid	4
DT-06	Spontaneously Combustible	4
DT-07	Dangerous When Wet	4
DT-08	Oxidizer	5.1
DT-09	Organic Peroxide	5.2
DT-10	Poison	6
DT-11	Stow Away From Food	6
DT-12	Infectious Substance	6
DT-13	Corrosive	8
DT-14	Misc. Hazardous Material	9
DT-15	Cargo Aircraft Only	-
DT-17	Empty	-
DT-18	Explosive (Specify 1.1, 1.2 or 1.3)	1
DT-19	Explosive 1.4	1
DT-20	Blasting Agent 1.5	1
DT-21	Explosive 1.6	1
DT-22	Oxygen	2

Chemical Spill Response
Contact List (for non-injury situation)
(Print and Post)

Call

Risk Management
(951)-785-2102

- Inform of a chemical spill
with no injuries
- Spill location (room & building)
- Identity of chemical (if known)
- Identity of person reporting spill

Call

Physical Plant
(951) 785-2113

- Inform of a chemical spill
with no injuries
- Spill location (room & building)
- Identity of chemical (if known)
- Identity of person reporting spill

If you do not get a response from
either place or if nobody from
those departments knows how to
access the chemical danger &
cleanup
CALL 9-1-1

Chemical Spill Response (Quick Sheet)

(Print and Post)

