

Hazard Communication Program

**University of California,
San Francisco**

Table of Contents

I. Introduction.....	2
II. List of Hazardous Substances.....	2
III. Proposition 65 Chemicals.....	2
IV. Material Safety Data Sheets (MSDS).....	2
V. Labels and Other Forms of Warning.....	2
VI. Employee Information and Training.....	3
VII. Hazardous Non-Routine Tasks	4
VIII. Labeled/Unlabeled Pipes (if applicable)	4
IX. Informing Contractors.....	4
X. Appendix A.....	5

I. Introduction

To enhance our employees' health and safety, UCSF has developed, implemented, and maintains a hazard communication program as required by Title 8, California Code of Regulations, §5194, the Hazard Communication Regulation. According to the provisions of this section all employees at UCSF including their personal physicians and collective bargaining agents have the right to personally receive information regarding hazardous substances to which UCSF employees may be exposed. In addition employees have the right against discharge or other discrimination due to the employee's exercise of the afforded rights pursuant to the provisions of the Hazardous Substances Information and Training Act.

The UCSF Chemical Safety Officer is the designated hazard communication manager and has full authority and responsibility for developing, and maintaining the hazard communication program. UCSF provides information about the hazardous substances in our workplace, the associated hazards, and the control of these hazards through a comprehensive hazard communication program that includes the elements listed below.

II. List of Hazardous Substances

The UCSF Business Plan Coordinator in the Office of Environmental Health and Safety (OEHS) will prepare and keep current an inventory list of all known hazardous substances present at UCSF. All laboratories maintain a current copy of this laboratory list. Contact OEHS at 476-1300 to obtain a current copy if one is not available in your work area. A detailed explanation of health hazard definitions and assessment can be found in Appendix A. Specific information on each noted hazardous substance can be obtained by reviewing the MSDS available at:

<http://www.ehs.ucsf.edu/MSDS/oehsMSDS.asp>

III. Proposition 65 chemicals

*** As a state agency UCSF is exempt from Proposition 65 requirements according to CA Health and Safety Code, Section 25249.11(b)**

An updated list of chemicals known to the state of California to cause cancer or reproductive toxicity is available on the web at:

http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html.

IV. Material Safety Data Sheets (MSDS)

MSDS are available through an online database on the Environmental Health and Safety website <http://www.ehs.ucsf.edu/>. In addition, electronic copies of MSDS for all hazardous substances to which employees at UCSF may be exposed are kept in the Office of Environmental Health and Safety (OEHS). If the online MSDS database is not accessible, call OEHS at 476-1300 to have a copy sent.

*If an employee is potentially exposed to a chemical whose identity is a trade secret AND a medical professional (nurse or doctor) determines there is a medical emergency, then a manufacturer's representative must provide that information to the medical professional for treatment purposes.

V. Labels and Other Forms of Warning

UCSF policy prohibits the defacing or removal of labels on materials obtained from manufacturers. UCSF policy is that **all** containers of hazard materials are labeled with the identity of the hazardous substance(s).

Labels must be legible, in English, and prominently displayed on the container. If applicable, the laboratory supervisor will arrange for labels, signs, and other warnings to be printed in other languages as needed. OEH&S also provides labels for the use of the laboratories and for hazard signage for all areas on campus where hazardous materials are used. If OEH&S does not provide specific labels, then a Department Safety Adviser (DSA) will refer laboratory personnel to procurement resources.

In addition, all containers of hazardous substances which leave the workplace must be labeled with the name and address of the responsible party. In the case of laboratories at UCSF, the required information includes: the name of the principal investigator, campus location, building and room number. Hazardous waste tags with this information are provided for laboratory personnel by OEH&S. Prior to shipment of hazardous materials, a DSA must be contacted regarding safe shipping requirements.

VI. Employee Information and Training

Prior to beginning work in the laboratory, UCSF employees, volunteers, students, or visitors who work in laboratories are required to complete a health and safety training course.

Depending upon the individual's job description one or more of the following training courses will be required:

- Laboratory Safety for Researchers
- Annual Safety Training - Medical Center
- Annual Safety Training CPM (tailored to crafts, engineers, custodians, etc)
- Hazardous Waste Management
- New Employees Training (primarily for office workers)
- Safety for Laboratory Assistants
- Right to Know- Hazard Communication

These training modules will provide information on the following:

- The requirements of the hazard communication regulation, including the employees' rights under the regulation
- The location and availability of the written hazard communication program
- Methods and observation techniques used to determine the presence or release of hazardous substances in the work area
- Protective practices to minimize or prevent exposure to these substances
- How to read labels and review MSDS to obtain hazard information
- Physical and health effects of hazardous substances
- Symptoms of overexposure
- Measures employees need to put into practice to reduce or prevent exposure to these hazardous substances by engineering controls, work practices, and use of personal protective equipment
- Emergency and first-aid procedures to follow if employees are exposed to hazardous substances
- The location and interpretation, if needed, of warning signs or placards to communicate that a chemical known to cause cancer or reproductive toxicity is used in the workplace.
- Where applicable, training is conducted in languages other than English.

Supervisors are required to provide additional training on specific hazards which their employees may encounter in the workplace. In addition, supervisors are required to provide employees with additional training when a new hazard is introduced into the workplace or whenever employees might be exposed to hazards at another employer's work site.

VII. Hazardous Non-Routine Tasks

Periodically, UCSF employees are required to perform hazardous non-routine tasks. Prior to beginning work on a project, the employee will be given information by his/her supervisor regarding hazards to which they may be exposed. Health and safety professionals within the office of Environmental Health and Safety are available to assist supervisors to provide the appropriate training to their employees.

This information will cover:

- specific hazards
- measures the UCSF and the supervisor has taken to reduce the risk of these hazards, such as providing ventilation, ensuring the presence of another employee, providing a respiratory protection program, and establishing emergency procedures
- required protective/safety measures

*Example of a non-routine tasks performed by employee at UCSF: Cleaning sewage tank with sodium hydroxide.

VIII. Labeled/Unlabeled Pipes (if applicable)

Aboveground pipes transporting hazardous substances (gases, vapors, liquids, semi-liquids, or plastics) shall be identified in accordance with T8 CCR, Section 3321, "Identification of Piping." Other above-ground pipes that do not contain hazardous substances but may have associated hazards if disturbed or cut (e.g., steam lines, oxygen lines) shall be addressed as follows: Before employees enter the area and initiate work, (*persons/position*) will inform them of:

- The location of the pipe or piping system or other known safety hazard
- The substance in the pipe
- Potential hazards
- Safety precautions

IX. Informing Contractors

To ensure that outside contractors work safely at UCSF and to protect members of UCSF community from chemicals used by outside contractors, the department of Capital Projects/Facilities Management (CPFM) managers are responsible for giving and receiving the following information to and from contractors:

- hazardous substances to which contractors may be exposed while on the job site.
- precautions and protective measures the contractors may take to minimize the possibility of exposure
- This information is provided verbally and through a written handout- Guidelines for Contractors.

Contractors who come on to UCSF property to perform work are required to provide CPFM with MSDS for the hazardous materials they will be using and measures they will employ to minimize exposure of UCSF employees to those materials. CPFM is responsible for communicating this information to affected UCSF employees with assistance of the Chemical Hygiene officer where needed.

X. Appendix A: Health Hazard Definitions and Assessment

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 change 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 populations; the 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 (Z129.1-1988)--irritation, corrosivity, 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 workplace; 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 substance exposures cannot realistically be accomplished. This does not negate the need for employees to be informed of such effects and protected from them.

For purposes of this section, any substances which meet any of the following definitions, as determined by the criteria set forth here are health hazards. However, this is not intended to be an exclusive categorization scheme. If there are available scientific data that involve other animal species or test methods, they must also be evaluated to determine the applicability of the HCS (Hazard Communications Standard, section 5194).

1. Carcinogen: A substance is considered to be 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 on Carcinogens published by the National Toxicology Program (NTP) (latest edition) 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 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 24 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 animals 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; DBCP.
- 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.
- h. Eye hazards: Substances which affect the eye or visual capacity. Signs and Symptoms: Conjunctivitis; corneal damage. Substances: Organic solvents; acids.