Chemical Hygiene Plan

California State University, Chico

Department of Environmental Health and Safety
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1.0 Introduction & Overview

The purpose of the Chemical Hygiene Plan (CHP) is to outline laboratory work practices and procedures which are necessary to ensure that members of the University community are protected from the health hazards associated with chemicals with which they work.

This Chemical Hygiene Plan is a resource for, and a supplement to, the University Injury and Illness Prevention Plan (IIPP). The IIPP is the comprehensive safety policy for the entire University (all locations, including laboratories). Authority for enforcement of adherence to standards set forth in this Chemical Hygiene Plan rests with the President of the University, as described in the IIPP. This plan has been developed by the Department of Environmental Health & Safety (EHS) at California State University, Chico, for laboratories on campus.

This Chemical Hygiene Plan is required under of the California Code of Regulations (CCR) and the Code of Federal Regulations (CFR).

2.0 General Laboratory Guidelines

The following guidelines shall be used for essentially all laboratory work with chemicals.

If there is an accident where a chemical comes in contact with a part of the body, consider the following.

- Eye contact - promptly flush eyes with water for a prolonged period of time. Proper eye protection should be worn at all times in the laboratory.
- Skin contact - promptly flush the affected area with water and remove any contaminated clothing. If symptoms persist after washing, seek medical attention.
- Ingestion - check MSDS for response. Seek medical assistance depending on amount swallowed.
- Injection - check MSDS. Seek medical assistance depending on severity.
- Inhalation - check MSDS. Seek medical assistance depending on severity.

Promptly clean-up spills, using appropriate protective apparel and equipment. Follow proper disposal procedures as found in Section 8.0.

Develop safe habits to avoid unnecessary exposure to chemicals by any route.

Do not smell or taste chemicals. Use chemicals with a low vapor pressure in fume hoods to reduce the amount of exposure.

Eating or drinking in laboratory(s) where chemicals are present, is not permitted.

Handle and store laboratory glassware with care to avoid damage, do not use damaged glassware. Properly dispose of broken glassware.

Do not use mouth suction for pipetting.

Wear proper shoes that have a rubber or slip resistant sole. Sandals and open toed shoes are not allowed to be worn in the laboratory or chemical stockrooms.

Wear appropriate clothing that fully covers the body, arms and legs. Comfortable cotton clothing is the best choice.

Confine long hair and loose clothing.

Inspect gloves before each use.

Keep the work area clean and uncluttered. Clean-up the work areas on completion of an operation or at the end of each work day.

Assure the appropriate eye protection is worn by all persons, including visitors, where chemicals are being stored or handled.

Only well, understood reactions shall be permitted to run unattended. If a reaction is permitted to be left unattended, lights should be left on, and a sign should be placed on the door with the following information: The experimenter's name and phone number, supervisor's name and phone number, chemical reagents, products, as well as, quantities used in the experiment.

Guidelines of '*Prudent Practices in the Laboratory*' shall apply to all work being conducted in the laboratory.

2.1 Responsibilities of Environmental Health & Safety (EHS)

Environmental Health and Safety provides training and technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan. Environmental Health & Safety responsibilities include:

Develop and update, as necessary, the Chemical Hygiene Plan policies and practices.

Provide hazard communication training on an annual basis. This training will inform employees on the procedures to follow in the event an accident occurs.

Dispose of chemical wastes generated from laboratories in accordance with approved disposal methods.

Provide updates to departments on federal, state, and local legislation and regulations concerning chemicals and worker safety issues.

Perform chemical hygiene and lab safety inspections and maintain inspection records, and notify departments/lab supervisor(s) of the results of these inspections.

Assist departments and laboratory supervisors in making Material Safety Data Sheets (MSDS) available to laboratory workers as needed.

Ensure proper labeling guidelines are followed.

Conduct or arrange for exposure assessments when necessary.

Coordinate efforts to clean large spills.

2.2 Responsibilities of the Laboratory Supervisor

The Laboratory Supervisor has overall responsibility in the laboratory. It is their responsibility to institute the Chemical Hygiene Plan and ensure compliance with requirements within their respective laboratories. Responsibility of each laboratory supervisor includes:

Know the current requirements of the Chemical Hygiene Plan.

Ensure everyone in the laboratory is wearing appropriate shoes and clothing.

Prepare for accidents that may result in the unexpected exposure of personnel or the environment. This includes stocking laboratories with spill clean-up material.

Determine that the level of personal protective equipment being used is appropriate, and it is in proper working order.

Ensure that action is taken to correct work practices and conditions that may result in employee overexposure or the release of toxic chemicals.

Ensure that proper disposal of unwanted hazardous chemicals and/or hazardous waste is done so with the assistance of EHS.

Follow proper signage and labeling guidelines set forth in the regulations.
Material Safety Data Sheets (MSDS's) are available, up-to-date and located in an area readily accessible for review.

Ensure all laboratory workers receive training regarding general safety in the laboratory and attend hazard communication training on an annual basis.

Report to Environmental Health & Safety all incidents when either of the following applies:

Cause laboratory workers to be exposed to hazardous materials where symptoms of exposure are evident and/or medical treatment (including first aid) is rendered. Exposure means skin contact with (or skin penetration), eye contact with, ingestion of, or inhalation of a hazardous chemical; or

Constitute a danger of environmental contamination, this means the spill or release of a hazardous chemical when the nature of the material or the circumstances of the spill are such that personnel in the immediate area cannot clean-up the spill safely.

2.3 Responsibilities of Laboratory Workers

This includes those employees who are laboratory assistants, teaching assistants, and student employees.

Comply with the procedures outlined in the Chemical Hygiene Plan.

Understand and comply with all standard operating procedures which apply to the laboratory.

Wear appropriate clothing and shoes in the laboratories and chemical stockrooms.

Develop good personal chemical hygiene habits.

Understand the function and proper use of all personal protective equipment. Use (wear) personal protective equipment when mandated or necessary.

Report to the laboratory supervisor any significant problems arising during standard operating procedures.

Report to the laboratory supervisor all facts of which they are aware of pertaining to accidents which occur in the laboratory or if conditions or actions exist that could result in an accident.

Understand and know the location of the MSDS's for the laboratory.

Attend all laboratory safety training as required.

3.0 Procurement, Distribution, and Storage

3.1 Procurement and Distribution

Before a chemical is received, information on the proper handling, storage, and disposal should be known to those who will be handling the chemicals. MSDS's shall be maintained in an area where they are easily accessible. A copy of all new chemical MSDS's shall be given to EHS. No container should be accepted without an adequate identifying label. Chemicals which are highly toxic or other chemicals whose containers have been opened should be stored appropriately. Stored chemicals should be examined periodically (at least annually) for replacements (expired chemicals), deterioration, and container integrity. During this examination, a chemical inventory shall also be taken and a copy forwarded to EHS.

3.2 Storage

The inventory of chemicals kept on-hand should be as small as practical. Storage on bench tops and in fume hoods is not advised. Exposure to heat or direct sunlight should be avoided. The expiration dates which appear on labels made by chemical manufacturers should be adhered to. Many chemicals lose their usefulness over time due to degradation with age (shelf life). Economies of scale - buying large or bulk amounts – usually cost more in the long run due to the cost of disposing of old, unwanted chemicals as hazardous waste and seriously increases the potential and severity of fire, explosion or spills in the event of an accident.

A physical inventory of chemicals on hand should be conducted periodically:

1. To identify containers which are leaking;
2. To identify containers which are damaged (corroded, cracked, or dented) and may begin leaking;
3. To identify materials which are unknown (labels missing or illegible); and
4. To identify chemicals which are no longer needed.

Chemicals in damaged or leaking containers shall be repackaged into new, sound containers and relabeled. Fading or damaged labels need to be reattached or replaced before the material(s) become unknown. A list of unwanted chemicals should be submitted to EHS for pick-up and disposal.

Chemicals shall be segregated to minimize the hazard(s) associated with accidental mixing. In general, chemicals should be segregated according to the following categories:

- Solvents, which include flammable/combustible liquids and halogenated hydrocarbons. For example, acetone, benzene, ethers, alcohols to name a few.
- Acids
- Bases
- Oxidizers
- Poisons
- Flammable
- More categories or segregation may be required depending on the specific chemical being stored.

3.3 Requirements for Possession of CDC & USDA Select Agents

The Center for Disease Control and Prevention (CDC) regulates the possession, use, and transfer of select agents and toxins that have the potential to pose a severe threat to public health and safety. The CDC Select Agent Program oversees these activities and registers all laboratories and other entities in the United States that possess, use, or transfer a select agent or toxin. Please see Appendix A for the list of Select Agents. Possession of any of these Select Agents requires registration with the CDC (unless amounts are exempt as outlined in Section 3.4). Please contact the Department of Environmental Health and Safety at ext. 5126 to begin the registration process.

3.4 Requirements for Possession of Exempt Quantities of CDC Select Agent Toxins

The Center for Disease Control and Prevention, (CDC), has established a list of Select Agent toxins with allowable maximum limits which may be possessed without registering with the CDC, provided the maximum limits are not exceeded by each Principal Investigator (PI). Please see Appendix B for the list of exempt quantities of Select Agent Toxins and the requirements for storage and handling of these agents at California State University, Chico.

4.0 Housekeeping and Inspections

It is the responsibility of the laboratory workers and the laboratory supervisor to conduct formal inspections which focus on housekeeping and chemical hygiene practices in the laboratory, on a continuous basis. Environmental Health & Safety will conduct inspections of laboratories on campus periodically. Some of the areas that these inspections will focus on include general safety guidelines, housekeeping, storage of chemicals and training requirements.

4.1 Housekeeping

1. Access to emergency equipment, eye washes, safety showers, fire extinguishers, circuit breakers, fire alarm pull boxes, emergency spill equipment, and exits must never be blocked.

2. Lab areas and aisles are to be kept clean and uncluttered.

3. All hallways, exits, and stairs shall be clear of chemicals and clutter.

4. Contaminated glassware is to be cleaned regularly.

5. All chemicals should be placed in their assigned storage areas at the end of each workday.

6. Promptly clean-up all small spills. Properly dispose of the spilled chemicals and clean-up all surfaces and equipment. Report all large spills to the laboratory supervisor.

7. All working surfaces and floors should be cleaned regularly. Bench tops should be cleaned at the end of a particular operation or experiment or at the end of each workday.

8. All compressed gas cylinders shall be secured.

4.2 Inspections

Personal Protective Equipment shall be evaluated before each use. This includes inspections of:

1. Safety glasses / splash goggles
2. Gloves (integrity and type)
3. Shoes
4. Clothing
5. Hearing protection
6. Respirators
7. First aid kits

Facilities Management and Services (FMS) conducts inspections as specified on selected emergency equipment, which include:

1. Eye washes
2. Safety showers

Eye wash stations should be checked by the laboratory supervisor to ensure that inspections are done monthly. Other safety equipment shall be inspected regularly every 3 to 6 months. Out-of-service equipment shall be reported immediately to FMS for corrective action.

5.0 Medical Program

Medical surveillance, including medical consultation and follow-up, shall be provided to employees under the following circumstances:

1. Where exposures have been shown to be over the action level for a regulated substance, which has medical surveillance requirements.

2. Whenever a laboratory employee develops signs or symptoms that may be associated with a hazardous chemical to which the employee may have been exposed to in the laboratory.

3. Whenever a spill, leak, or explosion results in the likelihood of a hazardous exposure, as determined by the laboratory supervisor.

4. All students working in the laboratory who are pregnant must receive doctor's approval to work in the laboratory as stated in Section 5.2.

5. All employees who are required to wear a respirator, as stated in the University's Respiratory Protection Program.

All examinations shall be provided by a licensed occupational medical physician or under the direct supervision of a physician licensed in occupational medicine, at no cost to the employee, without loss of pay, and at a reasonable time and place where medical consultations or examinations are provided. The examining physician shall be provided with the following information:

1. The identity of the hazardous chemical(s) or material(s) to which the employee may have been exposed to and the MSDS's, if available.

2. A description of the conditions under which the exposure occurred.

3. A description of the signs and symptoms of exposure that the employee is experiencing, if any.

5.1 Medical Emergency Procedure

If someone in your area is injured or becomes ill and it appears that treatment or intervention by a medical professional (doctor, nurse, etc.) is required, call 911, and tell the dispatcher that you have a medical emergency. The dispatcher will ask you for more information. Stay on the telephone until you are asked to hang-up.

If the injury is the result of contact with chemical(s), very hot or very cold liquid, or burning (flaming) material, immediately flush the affected area with faucet WATER ONLY, eye wash, or shower as necessary, depending on location and area of injury, and keep flushing for 15-minutes.

In the event of a major burn, burn medication, ointment, spray, etc., is not recommended. If further medical action is necessary for severe burns the physician will need to scrape the burn medication or ointment off in order to properly treat the burn. A minor burn (heat burn) can be treated by running cold water over the burned area. The use of ice is not recommended as this can cause frostbite, or even shock depending on the severity of the burn. The time recommended for cold applications (cold water straight from the faucet/tap) varies from 10 to 30-minutes or until the pain does not recur after the cold water is stopped.

5.2 Pregnant Students in the Laboratory

A Physician's consent to fully participate in the University classroom laboratory setting is required of all pregnant students. The University cannot eliminate all risk factors faced by pregnant students in the classroom laboratory setting.

Pregnant students who continue in the program with Physician's consent must be cautious to avoid unnecessary risks. It should be noted that because of ethical considerations, virtually no comparable clinical tests have been conducted on humans, but empirical studies have indicated a causative effect between exposure to some chemicals and reproductive abnormalities. There are approximately four million chemical compounds currently in use worldwide. Virtually none of them have been tested for their effects on general or reproductive health.

Pregnant students who continue to participate in the classroom laboratory are not covered by the University for any exposure they may come into contact with that has the potential or the capability to cause harm to the woman or child.

6.0 Protective Apparel and Equipment

6.1 Eye and Face Protection

1. Safety glasses with side shields or safety goggles are required for everyone, even visitors, entering the laboratory.

2. Employees wearing contact lenses must be informed of the special hazards associated with their use.

3. Before each use, eye and face protection is to be inspected for damage. If deficiencies are noted, the equipment should be cleaned, repaired or replaced before use.

6.2 Gloves

1. Chemical resistant gloves shall be worn whenever the potential for hazardous skin contact exists. The Material Safety Data Sheet (MSDS) for the substance or glove selection charts should be referenced when selecting a suitable glove.

2. Heat resistant gloves shall be used for handling hot objects. Asbestos containing gloves should not be used.

3. Abrasion resistant gloves (i.e., leather) should be worn for handling broken glass or other potentially abrasive materials. They should not be worn when handling chemicals.

4. Inspect gloves before each use. Check for tears, punctures, and discolorations. Replace as needed.

6.3 Shoes

1. Federal and State regulations state that no sandals or open toed shoes are to be worn in laboratories. The shoes worn in the laboratory should have a non-skid sole and should have a reasonable heel height.

2. Shoes should be inspected for damage, deterioration, and contamination.

6.4 Clothing

1. Appropriate clothing should be worn at all times in the lab or stockroom.

2. Laboratory coats or aprons shall be worn by laboratory employees whenever in the work area or when handling liquids which are easily absorbed through the skin.

3. If laboratory coats are used they must be cleaned regularly. If a spill occurs in the laboratory and gets on the lab coat or personal clothing, the clothing shall be removed immediately. If use of a safety shower is necessary remove all contaminated clothing prior to showering.
4. Inspect clothing for damage, deterioration, or contamination before and after each use.

6.5 Respirators

All employees who are issued respirators for any reason must follow all the requirements set forth in the Respiratory Protection Program. Please contact EHS for more information.

6.6 Emergency Equipment

Each laboratory employee shall be familiar with the location, application, and correct ways to operate the following equipment:

6.6.1 Eye Wash Units

Eye washes should be within the work area for immediate emergency use. Water should be potable and provide at least 15-minutes of flushing. Eye washes should be inspected monthly by a qualified person to check for any defaults in the system and documented. Eye wash covers should be kept on at all times.

6.6.2 Safety Showers

Safety showers should be within 10-seconds of travel for immediate emergency use. Safety showers shall provide potable water and provide 15-minutes of flushing. Safety showers should be inspected monthly by a qualified person by flushing the line to verify proper operation and documented.

6.6.3 Fire Extinguishers

University policy does not require employees to use a fire extinguisher. Employees may extinguish a fire in the incipient stage if they have received training and feel comfortable using a fire extinguisher. Fire extinguishers should be provided within 75-feet of travel and located along normal paths of travel. Access must be maintained and the location should be conspicuously marked in an appropriate manner. The fire extinguisher type and size must be selected for the appropriate hazards.

6.6.4 First Aid Kits

First aid kits should be available and maintained for treatment of minor injuries or short-term emergency treatment before receiving medical assistance. Inspections should be conducted monthly to ensure it is properly stocked. The Student Health Center will refill first aid kits.

6.7 Fire Response Guide

If there is a fire, immediately notify those nearby. **YELL "FIRE!"**

1. Pull the nearest fire alarm station.
2. Immediately evacuate the room (all occupants).
3. Close the door(s).
4. If there is no fire alarm pull box in the area, call 911 from a campus telephone or 911 from a cell phone at a nearby, but safe location to report the fire. The dispatcher will ask you for more information. Stay on the telephone until you are asked to hang up. (Note: The assumption is made that the location you are calling from is still safe.)

In the event of a fire, the University does not require employees to use a fire extinguisher. However, if the employee had received proper fire extinguisher training and they feel comfortable in extinguishing an incipient stage fire, they may do so. Employees who wish to extinguish a fire should remember the **PASS** method.

Pull the pin: This will allow you to squeeze the handle in order to discharge the extinguisher.

Aim at the base of the fire: Aiming at the middle will do no good. The agent will pass through the flames.

Squeeze the handle: This will release the pressurized extinguishing agent.

Sweep side to side: Cover the entire area that is on fire. Continue until fire is extinguished. Keep an eye on the area for re-lighting.

If a fire extinguisher is discharged or a University employee extinguishes a fire, call the University Police and EHS afterwards to report the fire extinguisher use.

6.8 Fume Hoods

An inventory of laboratory fume hoods and their locations on campus is maintained by EHS. This inventory will be comprised of all campus laboratory type fume hoods which are described/defined in Federal and State regulations. Each campus laboratory type fume hood shall be tested bi-annually by EHS, unless other testing arrangements have been made, to verify and document adequate air flow. Records of this annual testing are kept at EHS. A properly operating hood has an average airflow of 100 linear feet per minute (LFM) into the hood through the front opening with a minimum of 70 LFM at any point on the face of the opening. Most hoods have a feature whereby the area of the hood face opening can be varied, usually by adjusting a vertically moving sash. The airflow of 70 to 100 LFM should be achieved by adjusting the size (height) of the face opening.

6.9 Biosafety Cabinets

An inventory of biosafety cabinets and their locations is also maintained by EHS. Biosafety cabinets are similar to laboratory fume hoods in appearance and function, but protects workers from exposure to bacteria or viruses.

7.0 Signs and Labels

Chemical Wastes (hazardous waste) must be kept in closed, appropriately labeled containers which are in good condition. Environmental Health & Safety has a specific label to use for hazardous waste. An example of the Hazardous Waste Label is shown below. These labels must contain 5 pieces of information:

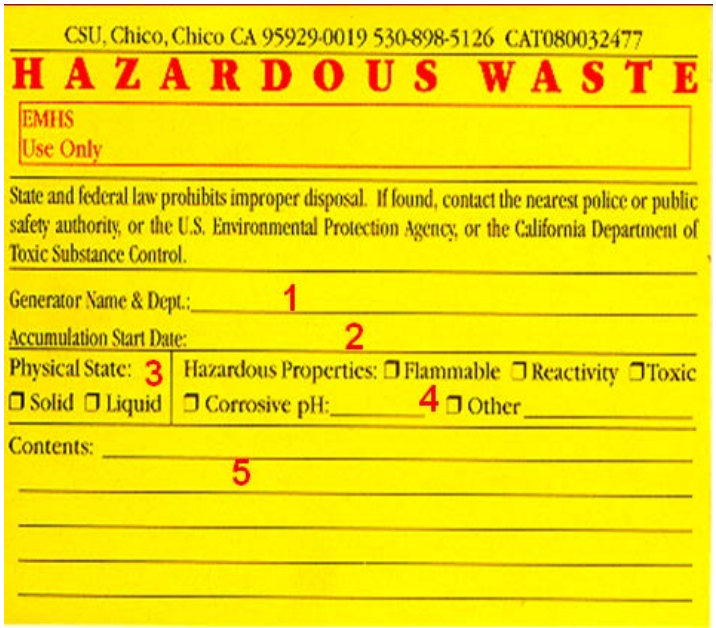
1. The label must contain a description of the waste.
   a) The chemical name or common name of the waste material.
   b) A statement of the proportions of constituents if a mixture (percents, parts per million, molarity, etc.)
   c) An estimate of the proportions is okay, based on knowledge of the process that made the waste.

2. The label must contain a statement of what the hazard is. Check the appropriate boxes to indicate the hazardous properties of the waste (flammable, reactive, toxic, or corrosive). If pH is known please list it on the label.

3. The label must say whether the waste in the container is solid or liquid.

4. The label must contain the start date for that container of waste. That is the date when the first amount of waste is added to the empty container. It is legal to specify the date when the empty waste container is put in place, even though the first drop of waste might not go in until a few days later, although this reduces the time the container can remain on campus.

5. The label must state the name of the department that generated the waste. This function identifies which department or program generated the waste in the container(s). It is common for questions to arise about the nature of a specific hazardous waste, and EHS needs to know who to contact.



A frequently cited detail of hazardous waste handling is the containers themselves. The regulations require that hazardous waste containers must:

1. Be of sound construction and in good condition (not leaking).
2. Be constructed of material compatible with the waste being stored.
3. Be kept closed at all times except when material is being added or removed. This means with an appropriate screw cap or bung screwed on tight enough not to leak if the container is inverted. A waste drum or bottle which is left open is a citable EPA violation.

8.0 Spills and Accidents

Every location where chemicals are stored should have available a supply of equipment and materials for use in the event of a chemical spill. A good rule of thumb is that the quantity of spill response material should be sufficient to handle twice the size of the largest container in storage.

Spill response materials at a minimum should include:

1. Absorbent (granular or “pillows”).
2. Personal protective equipment (Minimum: rubber gloves and protective eye wear).
3. Scoops and/or pans for picking up granular solids.
4. Plastic bags to contain contaminated absorbent (use heavy bags, such as trash compactor).
5. A permanent marker to use for labeling the bag of contaminated clean-up material.

8.1 Minor Chemical Spill

The range and quantity of chemicals in the laboratory require pre-emergency planning to respond safely to chemical spills. A minor chemical spill is a spill or release of hazardous material that laboratory personnel are capable of handling safely without the assistance of safety or emergency personnel. A minor chemical spill becomes a major chemical spill whenever circumstances change so that laboratory personnel can no longer safely handle the situation (i.e. flammable material spill ignites). The clean-up of a chemical spill should be done only by workers who are familiar with the material and its hazards. The following precautions should be followed if in the event of a minor chemical spill.

1. Alert people in the immediate area of the spill.

2. If the spilled material is flammable, turn off all sources of ignition which may cause the spilled material to ignite.

3. Check the MSDS for recommendations on clean-up of spills.

4. Wear protective equipment appropriate for the spilled material and/or location of the spill. Protective equipment includes, but is not limited to, eye/face protection, gloves (rubber and/or appropriate gloves), a lab coat or apron, and boots or other impermeable shoe covers. Use as much protective equipment as is necessary to prevent the spilled material or contaminated clean-up material from contacting your skin or regular clothing.

5. Avoid breathing any vapors, fumes, or dust from the spilled material.

6. Confine the spill to as small an area as possible.

7. If the spill is a liquid:

    a) Use appropriate absorbent material (sponge, spill pillow, spill pads, socks, disposable rags, towels, or granular absorbent) to absorb and/or pick-up the spill.

b) Begin at the outer edges of the spill area, surround the spilled material and work toward the center.

c) Allow the liquid to be completely absorbed into the absorbent.

d) Absorb (and neutralize, if appropriate and safe to do) the spilled chemical with effective and compatible spill clean-up materials.

8. Spills of solid material can usually be picked up without the aid of an absorbent.

9. Collect the residue, used absorbent (if any), rinse water (if any), and any contaminated gloves, suits, etc. which are to be discarded appropriately.

10. Place all the spill clean-up material in a container(s) for disposal as hazardous waste. As a minimum, the container may be (temporarily) a heavy plastic bag, 4 mil thicknesses or more.

11. Do not place hazardous chemicals or spill clean-up material from such a spill into the normal trash or flush down the drain.

12. Notify EHS of the spill and arrange for pick-up of the used absorbent and collected residues. Or if assistance is needed to help clean-up the spill call EHS at ext. 5126.

List of Absorbent Material and Uses

Absorbent Material	Uses	Limitations
Common sand or soil.	Works for organic and aqueous liquids.	NOT recommended for: nitric, hydrochloric, sulfuric, or hydrofluoric acids. Heavy material, affects disposal cost and handling in large amounts.
Diatomaceous earth, kitty litter.	Works for organic oil and aqueous liquids.	Not recommended for hydrogen peroxide, hydrofluoric acid.
Sawdust, sweeping compound.	Works for oil and organic liquids.	Not recommended for acids, oxidizing materials, aqueous liquids.
Paper towels, sponges.	Works for small spills of organic oil, or aqueous liquids. Wear rubber gloves when using these. May need to dispose of sponge as hazardous waste.	Not recommended for concentrated acids, oxidizing materials, spills containing sharps.
Spill-specific absorbent pillows, socks, granular material.	Follow manufacturer's instructions.	Designed for cleaning up spills of a specific chemical.

8.2 Major Chemical Spill

If there is a major chemical spill or release of hazardous material that cannot be safely handled by laboratory personnel; the following steps below are best carried out by more than one person and should be done as quickly and safely as possible.

1. Attend to injured or contaminated persons, if any, and remove them from exposure if you can do so safely without endangering yourself.

2. If the spilled material is flammable, turn-off ignition and heat sources if you can do so safely without endangering yourself or others.

3. Alert people in the laboratory to evacuate. Notify your supervisor/lab instructor immediately or as soon as possible. If necessary, initiate evacuation of the building by pulling the fire alarm. Upon evacuating spill release area, close the door(s) to the affected area.

4. From a safe but nearby location, call 911 from a campus telephone or 911 from a cell phone at a nearby, but safe location, and tell the dispatcher that you have a chemical emergency (and/or medical emergency, if any). The dispatcher will ask you for more information. Stay on the telephone until you are asked to hang-up. Have the following information ready for the emergency responder:

    a) Your name
    b) Location of the spill
    c) Chemical spilled
    d) Estimated quantity of the chemical spilled
    e) Your phone number

5. Have a person knowledgeable of the incident and the laboratory stand by to assist by providing information to emergency personnel when they arrive.

9.0 Information and Training Program

9.1 Responsibility to Provide Information and Training

The laboratory supervisor shall be responsible for providing to laboratory workers information and training concerning the hazardous materials and processes in their laboratory(s).

9.2 Employee Training shall include:

1. Employees shall be trained on the information contained in this Chemical Hygiene Plan.

2. The methods and observations that may be used to detect the presence or release of a hazardous chemical.

3. The physical and health hazards of chemicals in the work area.

4. The measures employees can take to protect themselves from hazards. This includes emergency procedures, proper personal protective equipment, and specific procedures to protect laboratory workers from exposure.

5. A description of the signs and symptoms associated with exposure to hazardous materials.

6. Hazard Communication Training covers a description of sources of information on the hazardous properties of hazardous materials present in the laboratory. These sources of information may include MSDS, manufacturers' labels on containers, manufacturers' catalogs, the Chemical Hygiene Plan, or other reference works available in the laboratory.

7. A description of the step or steps to be taken in the event of an accident:

    a) Injury
    b) Exposure
    c) Leak
    d) Spill

9.3 Documentation of Training

A written record of all information and training shall be kept. This record shall include:

1. A written summary of the information given.
2. The name of each laboratory worker who receives this information and training.
3. The date on which the training was completed.

A copy of this training should be sent to EHS at zip 019. A copy of these training records shall be kept for a period of 5-years.

10.0 Additional Information

If a University employee has any questions and would like more information regarding the Chemical Hygiene Plan, or would like to arrange for training, please contact EHS at extension 5126. The Department of Environmental Health and Safety is located in the Park II Building, at the corner of Normal and 2nd Streets.

CDC AND USDA SELECT AGENTS AND TOXINS
7 CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73

HHS SELECT AGENTS AND TOXINS

Abrin
Cercopithecine herpesvirus 1 (Herpes B virus)
Coccidioides posadasii
Conotoxins
Crimean-Congo haemorrhagic fever virus
Diacetoxyscirpenol
Ebola virus
Lassa fever virus
Marburg virus
Monkeypox virus
Reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments (Reconstructed 1918 Influenza virus)
Ricin
Rickettsia prowazekii
Rickettsia rickettsii
Saxitoxin
Shiga-like ribosome inactivating proteins
South American Haemorrhagic Fever viruses
- Flexal
- Guanarito
- Junin
- Machupo
- Sabia

Tetrodotoxin
Tick-borne encephalitis complex (flavi) viruses
- Central European Tick-borne encephalitis
- Far Eastern Tick-borne encephalitis
- Kyasanur Forest disease
- Omsk Hemorrhagic Fever
- Russian Spring and Summer encephalitis

Variola major virus (Smallpox virus) and Variola minor virus (Alastrim)
Yersinia pestis

OVERLAP SELECT AGENTS AND TOXINS

Bacillus anthracis
Botulinum neurotoxins
Botulinum neurotoxin producing species of *Clostridium*
Brucella abortus
Brucella melitensis
Brucella suis
Burkholderia mallei (formerly *Pseudomonas mallei*)
Burkholderia pseudomallei (formerly *Pseudomonas pseudomallei*)
Clostridium perfringens epsilon toxin
Coccidioides immitis
Coxiella burnetii
Eastern Equine Encephalitis virus
Francisella tularensis
Hendra virus
Nipah virus
Rift Valley fever virus
Shigatoxin
Staphylococcal enterotoxins
T-2 toxin
Venezuelan Equine Encephalitis virus

USDA SELECT AGENTS AND TOXINS

African horse sickness virus
African swine fever virus
Akabane virus
Avian influenza virus (highly pathogenic)
Bluetongue virus (Exotic)
Bovine spongiform encephalopathy agent
Camel pox virus
Classical swine fever virus
Cowdria ruminantium (Heartwater)
Foot-and-mouth disease virus
Goat pox virus
Japanese encephalitis virus
Lumpy skin disease virus
Malignant catarrhal fever virus (Alcelaphine herpesvirus type 1)
Menangle virus
Mycoplasma capricolum/ M.F38/*M. mycoides Capri* (contagious caprine pleuropneumonia)
Mycoplasma mycoides mycoides contagious (bovine pleuropneumonia)
Newcastle disease virus (velogenic)
Peste des petits ruminants virus
Rinderpest virus
Sheep pox virus
Swine vesicular disease virus
Vesicular stomatitis virus (Exotic)

USDA PLANT PROTECTION AND QUARANTINE (PPQ) SELECT AGENTS AND TOXINS

Candidatus Liberobacter africanus
Candidatus Liberobacter asiaticus
Peronosclerospora philippinensis
Ralstonia solanacearum race 3, biovar 2
Schlerophthora rayssiae var *zeae*
Synchytrium endobioticum
Xanthomonas oryzae pv. *oryzicola*
Xylella fastidiosa (citrus variegated chlorosis strain)

CSU, CHICO REQUIREMENTS FOR POSSESSION OF EXEMPT QUANTITIES OF CDC SELECT AGENT TOXINS

I. Purpose:

This document outlines the California State University, Chico, institutional requirements for possession of exempt quantities of Select Agent toxins regulated by the Centers for Disease Control and Prevention (CDC).

These requirements have been established to ensure:

- Safe laboratory handling, use, and storage procedures.
- Effective tracking and security of the regulated toxins.
- Compliance with federal regulations.

Per the federal regulations, each Principal Investigator (PI) may possess up to a specified amount of toxin and not be required to register with the CDC or USDA. Following is a list of the Select Agent toxins and the maximum quantities that are allowed in order to remain exempt from federal registration.

Toxin	Max. Allowable per PI for exemption
Abrin	100 mg
Botulinum neurotoxin	0.5 mg
Clostridium perfringens epsilon toxin	100 mg
Conotoxins	100 mg
Diacetoxyscirpenol	1000 mg
Ricin	100 mg
Saxitoxin	100 mg
Shigatoxin and Shiga-like ribosome inactivating proteins	100 mg
Staphylococcus enterotoxins	5 mg
Tetrodotoxin	100 mg
T-2 Toxin	1000 mg

The following toxins are also exempt:

- Any toxin that is in its naturally occurring environment, provided it has not been intentionally introduced, cultivated, collected, or otherwise extracted from its natural source.
- Nonfunctional toxins.

It is important to ensure that the total amount of toxin per PI is maintained below these limits at all times in order to remain exempt from registration with the CDC and the attendant restrictive requirements. Due to the severe penalties associated with non-compliance with the Select Agent rules, it is imperative that each laboratory using and storing toxins maintains current inventory information for these substances. Failure to register a Select Agent toxin is now a criminal offense, punishable by up to five (5) years in prison and/or $500,000 in fines (Public Health Security & Preparedness Response Act of 2002).

II. CSU, Chico, Requirements for Possession of Exempt Quantities of CDC Select Agent Toxins:

1. The Principal Investigator is responsible for ensuring the following:

A. **Standard Operating Procedures (SOPs):** Prepare written SOPs for toxin-involved research processes.

B. Personnel Training: Provide initial lab-specific safety training to staff on toxin-involved processes, with updates as necessary. Ensure documentation of training is maintained. Training topics should include:

- Toxin-associated hazards
- Engineering controls used to minimize exposure (e.g., fume hood use.)
- Personal protective equipment (PPE) to be used when handling the toxin
- Safe handling and storage
- Proper decontamination and disposal
- Administrative requirements (recordkeeping, inventory, security)

C. Proper Personal Protection Equipment: Appropriate Personal Protection Equipment (PPE) is to be provided (e.g., gloves, safety goggles, lab coat or disposable lab coat). Note: if respirators are necessary, contact EHS at ext. 5126 for required respirator use approval and compliance documentation.

D. Engineering Controls: Ensure proper use of the fume hood, biosafety cabinet, or glove box with toxin-associated procedures.

E. Inactivation: Use accepted inactivation procedures prior to disposal of remaining stock and/or empty containers

F. **Disposal:** After inactivation, dispose of residual wastes (liquids/solids) as follows:

- Liquids: can be disposed of in a biohazard waste container, provided there is no other characteristic of the waste that makes it a hazardous waste, such as heavy metals, flammability, etc.
- Stock vials and other materials: Deface container labeling. Collect in non-leaking container and place in biohazard waste container, with the same conditional statement as above.

G. Storage/Security: Items must be

- Stored with compatible materials within secondary containment; and
- Provided one layer of physical security (e.g., toxin secured within a locked freezer or secured within a permanently fixed lockbox).

H. List of PI-Approved Users: Maintain a list of PI-approved toxin users (include those having access to toxin materials). The lab must keep track of who uses the stock (and who has access to the freezer), recording each use. Before becoming an Approved User, the PI must ensure that each person has received training under Section II.B above.

I. Inventory Maintenance: Inventory of toxins must be kept current. To ensure that the exempt quantity limits are not inadvertently surpassed, inventories are to be promptly updated after every container of toxin is:

- Acquired (by purchase/intra-campus transfer)
- Depleted (by consumption /intra-campus transfer)
- Inactivated

2. Security Inspection: Each laboratory with select agent toxins will be audited periodically by the Department of Environmental Health & Safety. The inspection will include:

- Review of approved users list to verify authorized access to toxins.
- Verification of appropriate labeling, storage, secondary containment, and security measures.
- Comparison of physical inventory with what is accounted for in the records.

III. Possession of Select Agent Toxins above the Exempt Quantities:

For possession of Select Agent toxins in quantities above the maximum allowable limits, a Principal Investigator must have submitted all appropriate information to the Responsible Official (RO) J. Marvin Pratt, Interim-Assistant Director, Environmental Health & Safety for submission to the CDC and the FBI, in addition to having received CDC approval to conduct the work in an approved facility.

For any questions regarding the CDC Select Agent Program at California State University, Chico, contact the Department of Environmental Health & Safety at 898-5126.