

Laboratory Health and Safety Plan
Environmental and Sustainability Engineering
Department of Civil Engineering
University of Colorado Denver

Facility Coordinator: David Mays

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This plan applies to all personnel working in Technology 102, except those with zero chemical contact.

SAFETY FIRST: If you have a health or safety concern, contact your instructor or supervisor immediately. *You are ultimately responsible for your own health and safety.*

Level 1: All Personnel

Take **Lab Safety Training** online through SkillPort at <https://my.cu.edu/>. For directions, see page 3.

BASIC RULES: (1) wear safety goggles whenever performing labwork; (2) never wear open-toed shoes; (3) wear gloves and protective clothing as appropriate; (4) use a fume hood when necessary, particularly for volatile chemicals and those representing inhalation hazards; (5) comply with regulations for safe handling of gas tanks; (6) do not eat or drink in the laboratory; (7) wash hands after lab use; and (8) comply with other rules given in the online training. Be aware of the location of safety equipment in the lab, including fire extinguisher, shower, eye wash, phone and first aid kit.

Avoid working in the laboratory alone. If working alone is absolutely necessary, follow this procedure: (1) Upon arrival, call a contact person. This person could be a faculty member, relative or friend. Tell them you are working in Technology 102 on the Auraria Campus, the phone number where they can reach you in the laboratory, your finish time, and whom to call in case of emergency (recommend the Auraria Emergency Dispatch). Instruct your contact person to call you in the laboratory if they do not hear from you by your finish time, and to call the emergency number if they cannot reach you. (2) Before leaving, call your contact person to check out.

EMERGENCY	911
Auraria Emergency Dispatch	(303) 556-5000
Teaching Lab (Tech 102)	(303) 556-4525
Research Lab (Tech 102-D)	(303) 556-6306
Dr. David Mays	(303) 352-3933

At this level, responsibility for health and safety *training* rests with the instructor. Instructors must send an e-mail to the facility coordinator to confirm that all students in their course have completed the required training within the first two weeks of each semester (fall, spring, summer). Instructors are also required to obtain and file material safety data sheets (MSDS) for each chemical used in their class, and to maintain the chemical inventory for each reagent used in their class.

Level 2: Researchers and Instructors

This section applies to all personnel performing research in Technology 102 or 102-D, and to all instructors. These personnel must follow all Level 1 requirements, plus the following:

1. Take **Chemical Waste Management** online through SkillPort at <https://my.cu.edu/>. For directions, see page 3.
2. Complete the attached Employee's Hazardous Waste On-The-Job Safety Training. Note, the last page has been customized for our laboratory. Return it to your faculty advisor before starting labwork. Send a copy to the facility coordinator (Campus Box 113).
3. Maintain the chemical inventory for each chemical you bring into the lab. Details below.
4. Obtain and file material safety data sheets (MSDS) for each chemical you use. Follow all safety procedures outlined in each MSDS.
5. Each year, starting with the second year, re-take the **Chemical Waste Management Certification Exam**. This is required by EPA regulation.

For research personnel, responsibility for health and safety *training* rests with the faculty advisor.

Chemical Inventory

The chemical inventory associates every chemical container in the laboratory with a unique number, then links that number with a person who can be contacted when questions arise. Assigning personal responsibility for each chemical in the laboratory is the basis for safe chemical management.

The following procedure applies to any product (such as reagents and cleaning products) purchased from a laboratory supply or hardware store or from any website. It does not apply to household products purchased at a local supermarket or pharmacy.

1. When it is first brought into the laboratory, each container must be permanently labeled with a unique number and entered in the chemical inventory. Note, this is upon entry, *not* on first use.
2. The unique number is the next sequential number on the hard copy chemical inventory.
3. The hard copy chemical inventory is kept in a 3-ring binder that is kept with the MSDS binder.
4. When the container is finished or disposed, this must be indicated in the chemical inventory.
5. **CHECKOUT PROCEDURE:** When a **student**, *researcher*, or instructor leaves the department, she or he must transfer responsibility for each item in the chemical inventory under her or his name. The new owner inherits the same responsibility.

Online Employee Training at UC Denver

These directions will help you access the University's SkillPort system, which provides online employee training courses including **Lab Safety Training** and **Chemical Waste Management** (both under CU Learning Programs).

1. Are you a university employee? If yes, go to step 2. If not, go to step 3.
2. Do you have a domain account? If yes, go to step 4. If not, go to step 3. Not sure? If you have an e-mail address ending with ucdenver.edu, then you probably have a domain account. To confirm, call the ITS Help Desk at 303-315-HELP, and provide your name and six-digit employee number.
3. Go to your home department office and ask your Program Assistant to submit an electronic Sponsored User Request Form (SURF) to ITS on your behalf. You will need to provide the following information to your Program Assistant:
 - A. Full name.
 - B. Student ID number.
 - C. Month and day of your birthday.
 - D. Last four digits of social security number.

ITS will then create a domain account for you. Go to step 4.

4. To access SkillPort, point your browser to the "myCU portal" at <https://my.cu.edu/>. Enter the username and password for your domain account. Forgot? Call the ITS Help Desk at 303-315-HELP.
5. Once inside myCU, click on "My Training", then the hyperlink "Click here for SkillPort - CU's Online Learning". After SkillPort has loaded (this may take a while), click on "CU Learning Programs", then on "Lab Safety Training" or "Chemical Waste Management" and "Add To My Plan". From there, follow the links to take the course and the quiz. You must pass the quiz to get credit for the course.



University of Colorado Denver

Environmental Health and Safety Department

Employee's Hazardous Waste On-The-Job Safety Training

Employee Name: (Print) _____ (Sign) _____

Supervisor Name: (Print) _____ (Sign) _____

Job Title: _____

Dept/Division: _____ Date Completed: _____

Important Note:

On-the-job (OJT) training is a requirement by state and federal law for those individuals working with and generating hazardous waste. This checklist has been prepared by the UCD Environmental Health and Safety (EH&S) Department to be used by supervisors when providing OJT training for their individual laboratories. This OJT must be documented and available for audit by internal and outside agencies.

Table with 4 columns: Training Item, Supervisor Initials, Employee Initials, Date. Rows include Initial EH&S Training (Hazardous Waste Generator, Radiation Safety, Bloodborne Pathogens) and General Safety Training (PPE, Decontamination, Safety Equipment, Emergency Procedures, etc.).

Informed of lab standard operating procedure (where/what are they and how to use them?)			
Informed of labeling protocol for all containers e.g. contents, conc., date, initials			
Informed of decontamination protocol for work area, equipment, glassware etc.			
Informed of procedure to secure chemical, bio/infectious & radioactive hazards			
Hazardous Material Safety Training	Supervisor Initials	Employee Initials	Date
Aware of posted warning signs/symbols e.g. flammables, corrosives, toxins, carcinogens, biohazards, and radioactives. Informed of location & use of material safety data sheets (MSDS)			
Trained in proper chemical storage & segregation e.g. acids/bases, liquids/solids, oxidizers/flammables			
Informed of chemical location/inventory			
Aware of chemical hygiene plan, if applicable	n/a	n/a	n/a
Informed of requirements to transport hazardous material across campus			
Trained to receive hazardous substances e.g. UPS, Fed Ex etc.			
Medical surveillance program availability			
Chemical Waste Disposal Training			
Training is required to handle chemical waste; new employees must be under direct supervision of a trained person until all training requirements have been completed (up to 6 months)			
Review Sink Disposal Guidelines sign posted near sinks (nothing can be dumped down the drain without prior EH&S approval)			
Location of chemical waste containers, labels & chemical waste disposal forms in lab			
Labeling requirement for chemical waste containers (label required for first drop added)			
Chemical waste removal/disposal procedure (submission of Chemical Waste Disposal Form)			
Segregation of different waste streams, e.g. chemical, bio/infectious, radioactive, household			
Segregation of chemical waste by hazard class, oxidizers, flammables, acids, bases, water-reactives, halogenated solvents			
Chemical waste containers must remain closed at all times, except when adding or removing waste from the container			

Weekly SAA inspection required to be completed and documented on EH&S form for waste containers—check for leaks, bulging, etc.			
Do not add incompatible wastes to the same container e.g. acid/base, acid/cyanide, oxidizer/flammable.			
Secondary containment is used where needed e.g. acid/base, acid/cyanide, oxidizer/flam.			
Maintain adequate aisle space in laboratory to access waste containers			
Chemical waste must be under control of the operator at all times, e.g. under visual observation			
Chemical waste containers must remain at the point of generation (inside the lab); never take chemical waste containers out of the laboratory			
Do not treat or destroy hazardous chemical waste in the lab without permission from EH&S, some treatment is not allowed			
Reporting procedure for chemical spills or chemical exposures, call University Police at (303) 556-5000 at DDC			
AT RC-1, RC-2 AND BDC: Register all laboratory spaces with EH&S	n/a	n/a	n/a
EVERYWHERE ELSE ON THE ANSCHUTZ CAMPUS: Register all Satellite Accumulation Areas and laboratory spaces with EH&S	n/a	n/a	n/a
AT 9TH AND COLORADO: Register all Satellite Accumulation Areas and laboratory spaces with EH&S	n/a	n/a	n/a
AT THE DOWNTOWN DENVER CAMPUS: Register all Satellite Accumulation Areas and laboratory spaces with EH&S			

Footnotes

- ¹ Required for individuals who generate chemical waste.
- ² Required for individuals who work with radioactive materials.
- ³ Required for individuals who work with human blood, serum, or other human specimens.

EYE PROTECTION

Colorado law requires "the governing board of every school district, university, college, or other institution of higher learning...to provide eye protective devices for the use of all students, teachers, and visitors" and requiring supervisors of activities involving "working with hot liquids, solids, or chemicals which are flammable, toxic, corrosive to living tissues, irritating, sensitizing, radioactive, or which generate pressure through heat, decomposition or other means" to "require such eye protective devices be worn by students, teachers and visitors." The requirement for providing appropriate eye protection also applies to all UCD employees, students and visitors engaged in research. It is the policy of the University of Colorado Denver that full compliance with the provisions of this law in accordance with CDPHE guidelines is the responsibility of managers, principal investigators, supervisors and employees for all teaching, research, and maintenance activities.

EATING AND DRINKING IN HAZARDOUS AREAS

Eating, drinking, applying cosmetics, and smoking in areas where toxic, radioactive, or infectious materials are used increase the risk of harmful exposure by ingestion and are prohibited by regulations and standards adopted by Centers for Disease Control/National Institutes of Health, Colorado Department of Health/Nuclear Regulatory Commission, and other governmental and standards setting organizations. Departments, schools, or other work units shall designate appropriate areas for lunches and breaks where eating and drinking are permitted and no hazardous materials are present. The supervisor of an employee or student area or activity shall be responsible for assessing the potential exposure for an area or activity in accordance with CDPHE guidelines.

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Name: _____

Student/Employee Number: _____

Phone: _____

Address: _____

Project Name: _____

Brief Description (no more than 3 lines):

Chemical Used	MSDS on file? (Yes or No)	Stored appropriately?	Used appropriately?	Disposed appropriately?
	Known Hazards (List hazards)	List where?	List where/how?	List where/how?

Attach additional pages if necessary.

I have read and will follow the laboratory safety rules and chemical handling procedures outlined above.

Signature: _____ Date: _____