



# **Chemical Hygiene Plan**

**Revised September 2018**

**Office of Environmental Health and Safety**  
**211 South Jarvis St., Suite 102, Greenville, North Carolina 27858**



# East Carolina University Chemical Hygiene Plan



## East Carolina University Chemical Hygiene Plan

### EMERGENCY TELEPHONE NUMBERS

<b>ECU Main Campus Emergency</b> (Fire, Campus Police, Rescue, EMS)	<b>911</b>
<b>ECU Health Sciences Campus Emergency</b> (Fire, City Police, Rescue, EMS)	<b>911</b>
<b>East Campus Police</b>	<b>328-6787</b>
<b>Health Sciences Campus Police</b>	<b>744-2246</b>
<b>ECU Police Hearing Impaired Line (TDD)</b>	<b>328-4827</b>
Office of Environmental Health and Safety (EH&S) (Fire Protection, Safety/Industrial Hygiene, Laboratory Safety, Environmental Management, Emergency Management, Hazardous Waste, Workers' Compensation)	328-6166
ECU Chemical Hygiene Officer	328-6166
Hazardous Waste Pick-up	328-6166
Radiation Safety Office, Prospective Health	744-2070
Biological Safety Office, Prospective Health	744-2070
Office of Prospective Health	744-2070
Student Health Services	328-6841
Main Campus Facilities Services	328-6776
Health Sciences Campus Facilities Services	744-2251
Campus Emergency Information Hotline (Adverse weather delays or cancellations)	328-0062
ECU Physicians Emergency Information Hotline (Adverse weather delays or cancellations)	744-5080 1-800-745-5181
North Carolina Poison Center (information after 911 call)	1-800-222-1222
Duke Medical Center Poison Control Center (after 911 call)	1-800-672-1697
Suicide Prevention Hotline	1-800-273-8255
Laboratory Supervisor (Name)	Home:
(Office Location)	Office:

### ACCESS EH&S INFORMATION RESOURCES

Office of Environmental Health and Safety (EH&S)	211 South Jarvis St., Suite 102 Greenville, NC, 27858
Environmental Health & Safety Web Page	<a href="http://www.ecu.edu/oehs">http://www.ecu.edu/oehs</a>
Email	<a href="mailto:safety@ecu.edu">safety@ecu.edu</a>
EH&S Phone Line	328-6166
EH&S Fax Line	737-1458
ECU Library Catalogues	<a href="http://www.ecu.edu/lib/">www.ecu.edu/lib/</a>
Review/Revision Date	September 2018



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## East Carolina University Chemical Hygiene Plan

### 1.0 INTRODUCTION

#### 1.1 Scope:

East Carolina University is dedicated to protecting the health, safety and security of its laboratory users through compliance with applicable Local, State and Federal regulations. The Occupational Safety and Health Administration ([OSHA](#)) promulgated [29 CFR 1910.1450](#), Occupational Exposure to Hazardous Chemicals in Laboratories, on January 31, 1990 to provide guidelines for the safe use of chemicals in laboratories.

#### 1.2 Application:

This standard applies in locations where "**laboratory use**" of hazardous chemicals occurs. Laboratory use of hazardous chemicals means handling or use of chemicals in which **all** of the following conditions are met:

- handling or use of chemicals occurs on a "laboratory scale" (work involves containers which can easily and safely be manipulated by one person);
- multiple chemicals or chemical procedures are used;
- procedures are not part of a production process or process simulation; and
- protective laboratory practices and equipment are available and in common use to minimize the potential for employee exposures to hazardous chemicals.

*Note: This standard does not apply where the use of hazardous chemicals provides no potential for employee exposure, such as in procedures using chemically impregnated test media and commercially prepared test kits.*

The Chemical Hygiene Plan (CHP) is intended to provide the necessary framework for compliance with the OSHA Lab Standard. The OSHA Lab Standard applies only to employees, but all ECU lab users must comply with the requirements of the Chemical Hygiene Plan, regardless of employee status.

University policy requires supervisors to share its content and promote compliance with the standard operating procedures.

### 2.0 RESPONSIBILITIES

#### 2.1 ECU Chancellor, Vice Chancellors, Provost, Deans and Department Heads

- 2.1.1 Establish laboratory safety as an institutional priority;
- 2.1.2 Provide adequate financial and political support for chemical hygiene at ECU; and
- 2.1.3 Include laboratory safety, chemical storage and disposal considerations in long-range facilities planning.

#### 2.2 Environmental Safety Committee

- 2.2.1 Review the Chemical Hygiene Plan every 3 years;
- 2.2.2 Support Environmental Health and Safety implementation of laboratory safety PRRs; and
- 2.2.3 Promote the safe use of laboratory facilities at ECU.

#### 2.3 Environmental Health and Safety (EH&S)

- 2.3.1 Appoint a Chemical Hygiene Officer (CHO) who is qualified by training to provide technical guidance (The Health Sciences Coordinator with EH&S will be the University CHO);
- 2.3.2 Prepare, implement, and maintain a written Chemical Hygiene Plan, setting forth general procedures, control measures, and information intended to assist Principal Investigators and Lab Supervisors in protecting employees from harm arising from chemical exposure;
  - 2.3.2.1 The Chemical Hygiene Plan will be reviewed annually, and a full program review will occur every three years.





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- 2.3.3 Provide employees with initial chemical hygiene training as scheduled and upon request;
- 2.3.4 Assist lab users in locating and obtaining SDSs upon request;
- 2.3.5 Maintain a master chemical inventory;
- 2.3.6 Maintain an emergency contact list;
- 2.3.7 Provide monitoring services for anticipated or suspected employee exposures and where required by chemical specific OSHA standards to determine proper protective measures upon request. (See the EH&S [lab safety web site](#) for a listing of chemical specific monitoring requirements.);
- 2.3.8 Evaluate performance of chemical fume hoods at least annually;
- 2.3.9 Coordinate required medical surveillance, treatment and exposure related recordkeeping through the Workers' Compensation Manager;
- 2.3.10 Perform annual and follow-up laboratory inspections and submit detailed report of identified deficiencies to principle investigators and Department Chairs;
- 2.3.11 Perform new lab start-up inspections prior to principle investigator beginning work in their laboratory;
- 2.3.12 Perform lab close-out inspections prior to principle investigators and/or lab staff leaving the University;
- 2.3.13 Review all grant proposals involving the use of hazardous chemicals and perform an additional lab inspection prior to approval.
- 2.4 Principal Investigators, Lab Supervisors
  - 2.4.1 Maintain a current copy of the ECU Chemical Hygiene Plan and ensure that laboratory personnel comply with the content of the Plan;
  - 2.4.2 Post [Emergency Telephone Numbers](#) (page 2 of this document) by the laboratory phone.
  - 2.4.3 Create and maintain appropriate standard operating procedures/[laboratory safety plans](#) to supplement this Plan and forward to EH&S;
  - 2.4.4 Train and/or arrange for training of laboratory workers, including students and visitors, at the time of initial employment and each time new procedures or hazards are introduced in accordance with section 3.2;
  - 2.4.5 Maintain records of training (see [Lab Specific Training Documentation Form](#)) and make available to EH&S during annual inspections;
  - 2.4.6 Implement and enforce the use of safety procedures including appropriate lab attire, necessary personal protective equipment, engineering controls or work practices;
  - 2.4.7 Assure that the areas where hazardous chemicals are used or stored are secured when not in use; lab doors are closed and locked when not occupied.
  - 2.4.8 Assure that all chemical containers are properly labeled and stored by compatibility;
  - 2.4.9 Correct identified deficiencies on lab inspection report and submit a written action plan including completion date to EH&S by the indicated due date;
  - 2.4.10 Maintain current [chemical inventory](#) on required format and forward to EH&S at least annually;
  - 2.4.11 Maintain current [door posting](#) with emergency contact information and forward to EH&S at least annually;
  - 2.4.12 Ensure availability of written emergency action plan in the lab (update annually). This plan must be communicated to all lab personnel at the time of lab specific training.
  - 2.4.13 Assure that interim (weekly, semester, and annual) inspections are conducted using the lab self-inspection worksheets available on the EH&S [lab safety web site](#). Individual rooms must be clearly identified.





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- 2.4.14 Maintain employee exposure to hazardous chemicals below permissible exposure limits set forth in OSHA 29 CFR 1910.subpart Z. (See EH&S [lab safety web page](#));
  - 2.4.15 Arrange for EH&S to conduct appropriate air monitoring when required by a chemical specific standard. Contact EH&S immediately when exposure is anticipated or suspected and notify affected lab users in a timely manner;
  - 2.4.16 Arrange for appropriate routine medical surveillance as required by OSHA regulation for specific hazardous chemicals through EH&S;
  - 2.4.17 Initiate EH&S medical surveillance review and follow-up of all exposure incidents;
  - 2.4.18 Maintain records of any student and/or employee exposure determinations and all lab related exposure incidents. Forward copies to EH&S;
  - 2.4.19 Provide necessary personal protective clothing and equipment (at no charge to employees) Note: Respirator use must comply with requirements of the Respiratory Protection Standard. Users must be included in the ECU Respiratory Protection Program. Contact EH&S before purchasing or issuing respiratory protection;
  - 2.4.20 Assure that engineering controls are functioning properly and arrange for maintenance if required;
  - 2.4.21 If carcinogens, reproductive toxins, or acutely toxic chemicals are used in the lab, identify "designated use areas" and post signage. It is advisable to keep the area as small as possible (highly recommended chemical fume hood only) and insure designated area is listed in the lab safety plan. Train all lab personnel on substances, designated areas and PPE requirements.
  - 2.4.22 Ensure the availability of Safety Data Sheets and relevant reference materials for each chemical used or stored in the lab;
  - 2.4.23 Collect, store and dispose of chemical waste properly through the ECU hazardous waste disposal system;
  - 2.4.24 Contact EH&S for lab start-up instruction and inspection prior to beginning work in the lab;
  - 2.4.25 Complete the lab close-out form (see EH&S [lab close-out model](#)) and contact EH&S to schedule a final inspection within 10 business days prior to leaving the University;
  - 2.4.26 Submit all awarded grant involving the use of hazardous chemicals to EH&S for approval (See EH&S [Grant Review web page](#)); and
  - 2.4.27 Include chemical hygiene and laboratory safety compliance in employee annual work plans for performance review.
- 2.5 Laboratory Users
- 2.5.1 Read and follow the guidelines in the Chemical Hygiene Plan and standard operating procedures/lab safety plans;
  - 2.5.2 Participate in initial and refresher training;
  - 2.5.3 Follow all safety procedures including appropriate lab attire, necessary personal protective equipment and engineering controls and work practices.
  - 2.5.4 Do not remove or deface labels on incoming chemical containers;
  - 2.5.5 Immediately label all secondary containers with the chemical constituents (no formulas or abbreviations), hazard warning, responsible party, and date of preparation;
  - 2.5.6 Report all exposure incidents or hazardous conditions to your Lab Supervisor;
  - 2.5.7 Use provided materials to become familiar with the hazards associated with the chemicals and procedures used in your lab (lab safety plans, SDS, [lab safety resource index](#), etc.);
  - 2.5.8 Use prudent practices and prescribed hazard control measures;
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- 2.5.9 Request information or training when unsure about how to handle a hazardous chemical or procedure;
- 2.5.10 Inform supervisor of any potential hazard, accident or near miss; and
- 2.5.11 Perform only authorized work, preparations and experiments in the laboratory.
- 2.6 Open/Shared Laboratory Users
  - 2.6.1 Identify the individual to serve as lab representative/person of contact.
  - 2.6.2 Assign and identify responsibility for benches and storage areas.
  - 2.6.3 All laboratory users must receive lab specific training that includes all hazards and control measures associated with lab equipment/protocols performed in the laboratory, including all lab safety plans, chemical storage and hazardous waste areas.
  - 2.6.4 Identify and train all laboratory users regarding procedures for shared chemicals and equipment.
  - 2.6.5 Maintain chemical storage and labeling requirements.
  - 2.6.6 Maintain good housekeeping and personal diligence to prevent exposures and contamination.
  - 2.6.7 Immediately report any hazardous condition to the immediate supervisor and/or lab representative.
  - 2.6.8 Maintain responsibilities and requirements as listed in the CHP based on user status.

### 3.0 TRAINING

- 3.1 Chemical Hygiene Training
  - 3.1.1 Availability
    - 3.1.1.1 EH&S staff provides Chemical Hygiene Training to laboratory employees in general sessions.
    - 3.1.1.2 Chemical Hygiene Training is available on the EH&S [lab safety web site](#) and [Cornerstone](#) for individuals unable to attend the class. A passing score of 100% is required on the online training quiz.
    - 3.1.1.3 Additional training sessions can be scheduled for groups upon request. To request training, send an email to [safety@ecu.edu](mailto:safety@ecu.edu).
    - 3.1.1.4 All laboratory employees will be required to attend refresher training after the three year revision of the Chemical Hygiene Program.
  - 3.1.2 Content
    - 3.1.2.1 Methods and observations that may be used to detect the presence or release of a hazardous chemical.
    - 3.1.2.2 Permissible exposure limits and exposure guidelines.
    - 3.1.2.3 Physical and health hazards of chemicals.
    - 3.1.2.4 Measures employees can take to protect themselves from these hazards.
    - 3.1.2.5 The content of this Plan, its location and availability.
    - 3.1.2.6 Signs and symptoms associated with exposure to hazardous chemicals.
  - 3.1.3 Information
    - 3.1.3.1 The entire text of the Occupational Exposure to Hazardous Chemicals in Laboratories standard (29 CFR 1910.1450) is available on the EH&S [lab safety web page](#).
    - 3.1.3.2 Safety Data Sheets (SDS) detailing chemical or mixture specific physical and hazard assessment information are available on the SDS web page.
    - 3.1.3.3 Reference materials including [access to SDS](#), chemical profiles and hazard information is located on the [Lab Safety web page](#).





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- 3.1.3.4 [How to Read a SDS](#) – is a short, section-by-section explanation of the SDS components available on the [Lab Safety Resource Index](#).
- 3.2 Laboratory Specific Training. Each laboratory supervisor will provide lab specific training to all authorized lab users prior to working in the laboratory. Training will include:
  - 3.2.1 Location of emergency equipment such as eyewash stations, fire extinguishers, fire pull stations, safety showers, etc.;
  - 3.2.2 How to locate and use personal protective equipment in the laboratory;
  - 3.2.3 Emergency Action Plan, including exits, evacuation routes and designated meeting locations;
  - 3.2.4 Chemical labeling, storage, and EH&S waste disposal procedures;
  - 3.2.5 Location of designated areas for use of carcinogens, reproductive toxins or acutely toxic substances;
  - 3.2.6 Location and access instructions for a copy of the laboratory chemical inventory, Chemical Hygiene Plan, safety data sheets and laboratory specific standard operating procedures/lab safety plans or methodologies; and
  - 3.2.7 Any other pertinent information deemed important by the laboratory supervisor;
  - 3.2.8 A record of lab specific training, including the trainee's printed name and signature and list of items covered shall be maintained in each laboratory (see [Lab Specific Training Documentation Form](#)). A copy of all training records shall be available for review by EH&S during annual laboratory inspections.

### 4.0 STANDARD OPERATING PROCEDURES

The following standard operating procedures are general safety standards applicable to all ECU laboratories. Individual laboratories should supplement these with laboratory specific lab safety plans. EH&S can assist supervisors in developing these plans.

#### 4.1 Personal Protection

The employee's department, without cost to the employee, must supply personal protective equipment. Protective equipment remains the property of the University. The laboratory supervisor will identify additional protective devices required in individual laboratories. Personal protective equipment must be stored protected from damage or exposure.

##### 4.1.1 Eye Protection

4.1.1.1 All people in laboratories, including visitors, must wear appropriate ANSI/ISEA Z87.1 approved eye protection when the potential exists for eye injury (chemical use, high/low temperature, high/low pressure, and compressed gas use, vibrating or rotating apparatus use, continuous operations). Safety goggles or glasses with side shields may be used as appropriate. Standard prescription eyeglasses are not sufficient.

4.1.1.2 Contact lenses may be worn in the laboratory with appropriate safety glasses;

4.1.1.3 Face shields and/or standing guards must be available where face or neck protection is required. Eye protection must be worn with face shields/standing guards.

##### 4.1.2 Protective Clothing

4.1.2.1 Laboratory users must wear closed toed and heeled shoes made of a non-woven material with non-slip soles;

4.1.2.2 Laboratory users must wear clothing that covers exposed arms and legs;

4.1.2.3 Laboratory users must wear a closed appropriate lab coat;

4.1.2.4 Lab coats must be removed before leaving the laboratory;

4.1.2.5 Launder clothing worn in the laboratory separately from personal laundry;





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- 4.1.2.6 Nonflammable, nonporous, chemical resistant aprons must be available where corrosive liquid chemicals are used.
  - 4.1.3 Respiratory Protection
    - 4.1.3.1 Respirators should not be used where mechanical means can be used to control exposure;
    - 4.1.3.2 No respirator (including disposable, N95s) may be stored or used in a laboratory until the intended laboratory user has completed the requirements of the ECU Respiratory Protection Program including medical clearance, fit testing and training.
  - 4.1.4 Gloves
    - 4.1.4.1 Use a glove that is compatible with the chemical(s) or other hazards, i.e. temperature, in use. (See ECU [Lab Safety Resource Index](#) for more information).
    - 4.1.4.2 Inspect gloves to assure the absence of wear, cracks or discoloration before use.
    - 4.1.4.3 Remove gloves before leaving the laboratory or handling uncontaminated items (e.g. a doorknob or telephone receiver).
    - 4.1.4.4 Clean or discard gloves immediately after use (consistent with use and contamination).
    - 4.1.4.5 Wash hands immediately after removing gloves.
    - 4.1.4.6 Do not use disposable latex gloves for chemical protection. Be aware of signs and symptoms associated with the latex allergy. (See the EH&S [Lab Safety web page](#) for more information.)
    - 4.1.4.7 Store gloves protected from heat or cold (e.g. window sill or cold room).
  - 4.1.5 Personal Hygiene
    - 4.1.5.1 Do not prepare, store or consume food or beverages in the laboratory. Food and appliances must be maintained in a location physically separated by a wall from the chemical laboratory.
    - 4.1.5.2 Do not smoke, use or store tobacco products in the laboratory.
    - 4.1.5.3 Do not apply or store cosmetics in the laboratory.
    - 4.1.5.4 Do not use deionized water or laboratory ice for personal consumption.
    - 4.1.5.5 Wash hands and arms thoroughly before leaving the laboratory, even if gloves have been worn.
    - 4.1.5.6 Never pipette by mouth.
    - 4.1.5.7 Do not smell or taste chemicals.
    - 4.1.5.8 Long hair and loose clothing must be constrained.
  - 4.2 Laboratory Practice
    - 4.2.1 Transporting Chemicals
      - 4.2.1.1 Assure all chemical containers have a secure cap that will not allow spillage prior to transport. (Para film or corks are not considered a secure cap.)
      - 4.2.1.2 Transport chemicals within a tightly sealed chemically resistant container inside of a chemically resistant secondary container that can contain any spill or leak. Use a cart to where appropriate.
      - 4.2.1.3 Use freight elevators for chemical transport where available.
      - 4.2.1.4 No chemical containers may be transported outside a University building without prior approval from EH&S.
      - 4.2.1.5 Ground all metal containers when dispensing flammable liquids. Only small quantities of flammable liquids should be transferred to glass containers.
    - 4.2.2 Shipping Hazardous Materials
      - 4.2.2.1 Must comply with DOT and IATA (International Air Transport Association) regulations
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- 4.2.2.2 Personnel who directly affect hazardous material transportation must receive general awareness, function-specific, safety and security awareness training.
- 4.2.2.3 Covered activities include: loading/unloading hazardous materials, preparing hazardous materials for shipment (Packaging/labeling), shipping specimens/samples in dry ice, liquid nitrogen or other hazardous preservative.
- 4.2.2.4 Training is provided by Prospective Health and must be taken every 2 years.
- 4.2.2.5 Researchers coming to or leaving the university must contact EH&S to ship or receive any chemicals, biologicals or radioactive materials.
- 4.2.2.6 Security plans and additional in-depth security training are required when shipping certain types or quantities of hazardous materials.
- 4.2.2.7 For additional information or questions regarding hazardous material transportation and security, please contact:
- Biological/Infectious Materials: Prospective Health/Biological Safety
  - Radioactive Materials: Prospective Health/Radiation Safety
  - Chemicals: Environmental Health and Safety
- 4.2.3 Chemical Labeling
- 4.2.3.1 Labels must be maintained on all incoming chemical containers.
- 4.2.3.2 Torn or defaced labels must be replaced immediately. Any style of label may be used that maintains:
- the identity of the hazardous chemical,
  - appropriate hazard warnings,
  - expiration date (if applicable) and
  - name and address of the manufacturer or importer.
- 4.2.3.3 Secondary containers must be immediately labeled with
- the name of the product (in English, no abbreviations, no chemical structures, no formulas),
  - hazard warning,
  - date of preparation,
  - name of the responsible party, and
  - expiration date if applicable.
- 4.2.3.4 Vacuum flasks should be inside secondary containment and labeled with contents, including used or spent media. Do not store hazardous waste in a vacuum flask.
- 4.2.4 Chemical Purchase
- 4.2.4.1 Choose the least hazardous chemical that will meet your needs in the laboratory procedures.
- 4.2.4.2 Purchase the smallest quantity of hazardous chemicals necessary to complete laboratory procedures for up to one year.
- 4.2.4.3 Chemical purchases with personal funds for use in University laboratories are prohibited.
- 4.2.4.4 Distance Education lab kits and protocols must have prior approval from EH&S.
- 4.2.5 Chemical Storage
- 4.2.5.1 Minimize the quantity of chemicals stored in the laboratory. Inventories must not exceed maximum allowable quantities as indicated in the North Carolina Building Codes. Be particularly aware of materials with a high hazard designation or shelf life, including peroxide formers.
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- 4.2.5.2 Chemical inventory must correspond with written lab manual and/or lab safety plans.
  - 4.2.5.3 Chemicals that have not been used in the past three years and are not anticipated to be used in identified laboratory procedures should be placed in the RECY-CHEM program for redistribution or the EH&S hazardous waste disposal system.
  - 4.2.5.4 Store chemicals in compatibility groups (see EH&S [compatible storage classes web page](#) for additional information).
  - 4.2.5.5 A maximum total of 10 gallons of flammable liquids, including hazardous waste, may be stored in a laboratory outside of a flammable storage cabinet.
  - 4.2.5.6 Refrigerators/freezers used for the storage of flammable materials must be rated as such.
  - 4.2.5.7 Store all chemicals in a manner that minimizes potential spillage onto personnel, equipment and other chemical containers.
  - 4.2.5.8 Chemicals should be stored in closed cabinets. If open shelving must be used, it must be secured to the wall. Each shelf must have a minimum ¾ inch lip.
  - 4.2.5.9 Store liquids, corrosives, and flammables below eye level (4 to 4.5 feet).
  - 4.2.5.10 Provide a barrier between compatibility groups in storage. A compatible tray capable of holding the content of the largest 2 containers in the hazard class will fill this need.
  - 4.2.5.11 Inspect container and label integrity as part of the weekly lab inspection checklist. Clean any spill immediately.
  - 4.2.6 Housekeeping
    - 4.2.6.1 Keep chemical use areas clean and free from contamination. (To protect staff safety, Housekeeping Services will not clean bench tops or other lab areas where chemical contamination is possible.)
    - 4.2.6.2 Close and cap all chemical containers not in use.
    - 4.2.6.3 Clean drips and/or spillage off container exteriors immediately.
    - 4.2.6.4 Maintain minimal equipment on working surfaces.
    - 4.2.6.5 Maintain clear exits and aisles.
    - 4.2.6.6 Maintain clear access to fire extinguishers, emergency eyewash and safety shower equipment.
    - 4.2.6.7 Label all doors that are blocked on the interior side of the door and not intended for use.
    - 4.2.6.8 Keep storage items out of hallways and stairwells. Such items may be removed to campus surplus without notice.
    - 4.2.6.9 Store all supplies and non-floor mounted equipment off the floor.
    - 4.2.6.10 Follow the [Contaminated Surplus Property Procedures](#) when transferring or attempting to surplus lab equipment.
  - 4.2.7 Compressed Gas Cylinders
    - 4.2.7.1 Must be stored according to compatibility.
    - 4.2.7.2 Untrained lab personnel should not tamper with compressed gas cylinders; including pressure relief valves and product labels.
    - 4.2.7.3 Must be fully labeled including cylinder content and status (full, empty, or in-service).
    - 4.2.7.4 Must be installed and leak tested by lab personnel who are trained to connect the cylinder properly.
    - 4.2.7.5 Must be secured in an upright position and tightly double-chained at all times (1/3 from the top and 1/3 from the bottom).
    - 4.2.7.6 Must be capped when not in use.
-



## East Carolina University Chemical Hygiene Plan

- 4.2.7.7 Must be used with a compatible regulator and other auxiliary equipment. Assure all threads match those on the cylinder valve outlet.
  - 4.2.7.8 Must only be transported by trained personnel using a suitable hand truck or cart.
  - 4.2.8 Controlled Substances
    - 4.2.8.1 Contact EH&S before purchase of controlled substances.
    - 4.2.8.2 Ensure all required documentation has been completed in compliance with state and federal regulations.
    - 4.2.8.3 Store controlled substances based on state and federal regulations (e.g. double locked cabinet).
    - 4.2.8.4 Keep use log available at all times.
    - 4.2.8.5 Maintain an updated inventory.
    - 4.2.8.6 Contact the manufacturer for proper disposal. If unavailable contact EH&S for guidance.
  - 4.3 Personal Safety
    - 4.3.1 Laboratory Access
      - 4.3.1.1 Only authorized lab personnel may perform approved protocols in University laboratories. Authorized lab personnel is defined as any current East Carolina University faculty or staff member or approved and documented visitors or currently enrolled student that has successfully completed the required training, including but not limited to EH&S Chemical Hygiene/Laboratory Safety Training.
      - 4.3.1.2 Laboratory staff must accompany visitors to the laboratory at all times and provide the necessary training. All visitors to the Health Sciences Campus must comply with the Brody School of Medicine Student/Visitor Policy. All visitors to the East Campus must be approved by the hosting Department Chair. Lab Principal Investigator/Lab Supervisor maintains approval documentation.
      - 4.3.1.3 No minors may be present in any laboratory where hazardous chemicals are stored or used.
      - 4.3.1.4 Laboratory doors must be locked when the laboratory is unoccupied by laboratory staff.
      - 4.3.1.5 Lab staff that know or suspect they might be pregnant should be encouraged to consult their personal physician concerning the potential risks and additional precautions necessary during pregnancy. A copy of the lab chemical inventory, individual laboratory safety plans and current procedures should be provided. See the EH&S [lab safety web site](#) for additional resources.
      - 4.3.1.6 Administrative, clerical and other non-lab personnel are prohibited from maintaining workstations in a laboratory.
    - 4.3.2 University assets, including but not limited to laboratory equipment and chemical containers, may not be removed from University property. Contact EH&S to coordinate all chemical moves.
    - 4.3.3 Horseplay will not be tolerated in the laboratory.
    - 4.3.4 Limit laboratory work after normal business hours. If circumstances require after-hours work, it must be authorized by the Laboratory PI/Supervisor and arrangements must be made to assure the workers' safety.
    - 4.3.5 No laboratory user should work alone. If circumstances require working alone, it must be authorized by the Laboratory PI/Supervisor and arrangements must be made to assure the workers' safety.
    - 4.3.6 Operations should not be allowed to run unattended without **ALL** of the following:
      - 4.3.6.1 Laboratory Supervisor's review and permission;
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## East Carolina University Chemical Hygiene Plan

- 4.3.6.2 A fail-safe provision (E.g., 1) A temperature sensor attached to your reflux apparatus can stop the reaction when cooling is lost. 2) Clamp flasks to prevent vibration movement; 3) Secure/clamp condenser hose connections to prevent a break in connection; 4) Place catch pans or trays under apparatus to collect potential spills);
- 4.3.6.3 Emergency instructions including the nature of the operation, identity of hazardous materials involved, location of emergency cutoff switches and contact information for the individual most familiar with the operation posted outside of the door; and
- 4.3.6.4 Laboratory lights left on.
- 4.3.7 Hazardous Materials Security Awareness
- 4.3.7.1 All hazardous materials are potential targets for sabotage and theft but of particular concern are flammables, explosives, corrosives, reactive substances, toxic substances, radioactive materials and infectious agents.
- 4.3.7.2 Measures must be taken to secure hazardous materials and recognize/respond to security threats.
- Identify and assess vulnerabilities.
  - Share information only on a need-to-know basis.
  - Someone you hire may pose a security risk. Conduct thorough \_\_\_\_\_ background checks.
  - Maintain updated and accurate inventories.
  - Conduct regular inspections and report missing material.
  - Secure hazardous materials in appropriate cabinets.
  - Lock doors and limit access to authorized personnel.
  - Be aware of surroundings and report suspicious activity.
  - Do not stereotype an individual as a terrorist or potential perpetrator. Individuals may not fit a preconceived idea of a criminal.
  - Most terrorist threats are external but could also include internal threats such as disgruntled employees.
  - Take all threats seriously and report them to your supervisor and ECU Police.
- 4.3.8 Eyewash Stations
- 4.3.8.1 Must meet the requirements of ANSI/ISEA Z358.1. (Portable eyewash bottles or drench hoses will not meet this requirement.)
- 4.3.8.2 Signage for eyewash stations must be posted and clearly visible.
- 4.3.8.3 Must be used to supply 15 minutes worth of clear running water to fully clean the eye.
- 4.3.8.4 Use should be followed by appropriate medical treatment and notify EH&S as soon as possible.
- 4.3.8.5 Must be operated weekly to assure proper function and minimize bacterial contamination. Weekly functional tests must be documented.
- 4.3.8.6 Shall be tested at least annually by Facilities Services.
- 4.3.8.7 Access to the equipment must be unimpeded.
- 4.3.9 Safety Showers
- 4.3.9.1 Must meet the requirements of ANSI/ISEA Z358.1.
- 4.3.9.2 Signage for safety showers stations must be posted and clearly visible.
- 4.3.9.3 Use should be followed by appropriate medical treatment and notify EH&S as soon as possible.



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- 4.3.9.4 Shall be tested at least annually by Facilities Service.
  - 4.3.9.5 Access to the equipment must be unimpeded.
  - 4.3.10 Fire Extinguishers
    - 4.3.10.1 Fire extinguishers will be installed by Facilities Services when required. The type of extinguisher provided shall be determined by the type of hazards present.
    - 4.3.10.2 All uses of fire extinguishers shall be reported to Facilities Services through the online work order system to assure extinguishers are fully charged and operational.
    - 4.3.10.3 Facilities Services will inspect all fire extinguishers monthly.
    - 4.3.10.4 It is University Policy to evacuate and activate the fire alarm upon the discovery of a fire. Only individuals who have completed fire extinguisher training and are comfortable safely discharging the unit should try to use extinguishers.
  - 4.4 Laboratory Controls
    - 4.4.1 Ventilation
      - 4.4.1.1 General room ventilation patterns must not be altered, including room pressurization. Do not block room air supply grills, return duct grills or remove drop ceiling tiles. Laboratory doors should remain closed (laboratory doors should be provided with self-closing hardware to assure proper operation of ventilation system).
      - 4.4.1.2 Canopy style local exhaust ventilation may only be used when no other form of ventilation is practical or when no toxic substances will be released (e.g. heat control for large apparatus).
      - 4.4.1.3 Local exhaust should be used to capture point source discharges of toxic chemicals from apparatus as appropriate.
      - 4.4.1.4 Toxic chemicals should not be used outside of a chemical fume hood or other containment system in rooms where air is re-circulated, (e.g. clean rooms or cold rooms).
    - 4.4.2 Chemical Fume Hoods
      - 4.4.2.1 Use the chemical fume hood for all operations that might result in an odoriferous, volatile, toxic or harmful release.
      - 4.4.2.2 Assure that the hood is drawing properly prior to use. A mounted monometer, digital display or sash mounted telltale may be used.
      - 4.4.2.3 Work at least 6 inches into the fume hood.
      - 4.4.2.4 Elevate large apparatus 2 inches off of the hood deck with blocks at each end to allow airflow under the apparatus except where the elevation would make the equipment unstable.
      - 4.4.2.5 Maintain the sash no higher than the posted height while in use and close sash when hood is not in use.
      - 4.4.2.6 Do not use the fume hood for storage. (Vented storage cabinets should be used for vented storage.)
      - 4.4.2.7 A continuous monitoring device such as a thin strip of tissue paper or manometer should be installed on chemical fume hoods to allow the user to assure proper direction of flow before beginning a task.
      - 4.4.2.8 No ductless or recirculating fume hoods may be in ECU facilities.
      - 4.4.2.9 All fume hoods will be evaluated at least annually by EH&S. Report any malfunctions or expired certifications to EH&S immediately.
      - 4.4.2.10 All fume hood installations and removals must be in accordance with State and Federal regulations and be reviewed by EH&S.
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- 4.4.3 Specialized Hoods
- 4.4.3.1 The Radiation Safety Office inspects radiation use hoods at least annually.
- For more information contact the Radiation Safety Office at 744-2070.
- 4.4.3.2 Biosafety Cabinets
- Biosafety Cabinets are inspected and certified by the Biological Safety Office annually and when the unit must be moved.
  - Contact the Biological Safety Office for more information at 744-2070.
- 4.4.3.3 Gloveboxes
- Seals and gloves must be inspected prior to each use of a glovebox.
  - Gloveboxes will be evaluated by EH&S annually. Gloveboxes using radioactive or biological material will be referred to the Radiation and Biological Safety Offices.

**Note:** There are no water-wash hoods available on campus. Heating of highly concentrated acids are prohibited. Contact EH&S for assistance.

- 4.4.4 Other Laboratory Control Equipment
- 4.4.4.1 Laboratory staff shall inspect specialized laboratory control equipment prior to each use to insure function.
- 4.4.4.2 Local exhaust should be used to capture point source discharges of toxic chemicals from apparatus and shall be evaluated annually by EH&S.

### 5.0 Chemical Waste Management

Chemicals must be identified as waste for disposal or surplus for redistribution.

#### 5.1 Training:

- 5.1.1 Hazardous Waste/Satellite Accumulation training is required for all employees who produce, handle, or accumulate hazardous waste.
- 5.1.2 The training is to be completed upon initial employment/assignment to a laboratory, if an employee is in need of retraining due to hazardous waste deficiencies in their respective laboratory, as well as after the 3-year revision of the Chemical Hygiene Program.
- 5.1.3 Individuals must pass the required online quiz to receive credit for the training.
- 5.1.4 The training is included in the Chemical Hygiene/Laboratory Safety Training, and it is located on the EH&S [Chemical and Hazardous Waste](#) web page.

#### 5.2 Chemical/Hazardous Waste for Disposal:

##### 5.2.1 Containers

- 5.2.1.1 Collect materials in original type containers that are compatible with the collected material. Improper containers (i.e. milk jugs, vegetable oil bottles) will not be collected for disposal and it will be the laboratory's responsibility to transfer the waste to an appropriate container.
- 5.2.1.2 Collect material in containers free of incompatible residue. Triple rinse chemical containers prior to collecting waste. Do not use bottles that previously contained highly toxic, carcinogenic, or reproductive toxins.
- 5.2.1.3 Containers must have a closed, tight fitting screw cap that will not leak if the container is tipped on its side. (Corks, stoppers, etc., are not acceptable.)
- 5.2.1.4 Containers must be free from exterior damage or contamination.

##### 5.2.2 Collection

- 5.2.2.1 Collect waste by hazard classification.





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- 5.2.2.2 Collect a minimum number of different chemicals in the same container.
- Each incompatible experiment should be in a separate container for waste collection.
- 5.2.2.3 Collect chemicals by disposal groups as listed below:
- Acids, unless neutralized in procedure;
  - Bases, unless neutralized in procedure;
  - Sulfides;
  - Amines;
  - Heavy Metals;
  - Acutely Toxics;
  - Ethers/Peroxide Forming Agents;
  - Chlorinated Solvents;
  - Non-Chlorinated Solvents/Alcohols;
  - Antineoplastic Drugs;
- 5.2.2.4 Maintain 1 to 1 1/2 inches of air space in the top of any container.
- 5.2.2.5 Keep containers closed at all times except when materials are being added. (i.e. remove funnels once waste is poured up and screw on cap)
- 5.2.2.6 Transfer materials inside of a chemical fume hood.
- 5.2.2.7 Maintain hazardous waste collection containers inside of secondary containment labeled "Satellite Accumulation Area".
- Clean up any spills or residual chemicals on containers immediately upon discovery.
- 5.2.2.8 Chemical compounds that decompose to dangerous explosive compounds (e.g., dry picric acid, expired ethyl ether) require special handling. Do not move the container. Contact EH&S immediately upon discovery.
- 5.2.3 Chemical/Hazardous Waste Container Labels
- 5.2.3.1 When the first waste product enters the container an EH&S Hazardous Waste Tag must be completed and securely attached.
- 5.2.3.2 Original manufacturer's container with original contents does not need a EH&S Hazardous Waste Tag.
- 5.2.3.3 The container will not be picked-up without a fully completed tag. Tags are available through EH&S at 328-6166 or [safety@ecu.edu](mailto:safety@ecu.edu), on the EH&S [Hazardous Waste website](#).
- 5.2.3.4 The generator must fill in all information on the label except the gray EH&S use box.
- 5.2.3.5 The date (month/day/year) in which the first waste product entered the container is required to be recorded in the "Accumulation Start Date" area.
- 5.2.3.6 List all chemicals by name in the content section. (Chemical formulas or abbreviations are not acceptable.) Include the names of non-hazardous components (i.e. water).
- 5.2.3.7 Identify the % of each component in each container in the % column. Each tag must equal 100%.
- 5.2.3.8 Enter the total amount of product in the container on the line marked Amount.
- 5.2.3.9 Sign the Generator Signature line on the bottom of the tag.
- 5.2.3.10 Attach the tag to the container with a rubber band, wire, lab tape, or string.
- 5.2.4 Pick-up Process
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- 5.2.4.1 Contact EH&S for pick up at [safety@ecu.edu](mailto:safety@ecu.edu) to schedule a pick-up when the waste container is  $\frac{3}{4}$  full and before one year from accumulation start date.
- 5.2.4.2 Provide a list of chemicals for pick-up on the EH&S [Hazardous Chemical Waste Pick-up Request](#) form located on the EH&S web site.
- 5.2.4.3 Waste will be picked up on the regularly scheduled weekly pick-up day unless special arrangements are necessary. No more than 6 x 4L bottles will be collected from individual labs each week.
- 5.2.4.4 Dangerously reactive materials cannot be collected on the normal pick-up route. Contact EH&S to arrange for a special pick up.
- 5.2.4.5 Large-scale pick-ups (e.g., lab clean-outs) will be done by special arrangement.
- 5.2.4.6 Improperly packaged or labeled waste will not be accepted.
- 5.2.5 Drain Disposal
  - 5.2.5.1 No chemical may be disposed to the drain without prior EH&S approval.
  - 5.2.5.2 Approved material disposed to the drain shall be logged on a [drain disposal log form](#) including the disposal date, chemical name, discarded amount, pH and responsible party. (See the [Chemical and Hazardous Waste web page](#) for further instruction and disposal form.)
  - 5.2.5.3 Flush drain system with water at a minimum 3:1 ratio following all drain disposals.
- 5.3 RECY-CHEM: any unwanted, unopened chemical, which another researcher may be able to use.
  - 5.3.1 Send an email request to EH&S at [safety@ecu.edu](mailto:safety@ecu.edu) requesting pick-up of a surplus chemical for redistribution through the RECY-CHEM program.
    - 5.3.1.1 Include the name of the chemical, quantity, location in laboratory, and indicate if the bottle has been opened.
    - 5.3.1.2 Mark the container with a note indicating that the container is intended for redistribution.
    - 5.3.1.3 Improperly packaged or labeled surplus stock will not be accepted.
    - 5.3.1.4 Materials not accepted for RECY-CHEM due to age or condition must be relabeled by the laboratory staff for disposal through the ECU hazardous waste disposal system.
- 5.4 The Radiation Safety Office will collect radioactive waste. Leave a voice mail at 744-3867.
- 5.5 The Biological Safety Office will collect biological waste. Leave a voice mail at 744-3867.
- 5.6 Unknown or unidentified materials will not be accepted and must remain in the laboratory until it can be picked-up for disposal by the waste contractors. Departments may be charged directly for any costs associated with identification and disposal of an unknown material.
- 5.7 Glass and Sharps
  - 5.7.1 Sharps Storage and Disposal
    - 5.7.1.1 Sharps and blades may not be stored on the benchtop. They must be stored in a cardboard sleeve, closed container or Styrofoam™ to prevent accidental sticks or cuts.
    - 5.7.1.2 Do not recap used syringes.
    - 5.7.1.3 Used or contaminated needles, syringes, small bore pipettes, slides, lancets, scalpels and razor blades are to be placed in a red sharps container available through the Biological Safety Office.
    - 5.7.1.4 No part of a sharp may extend beyond the cap of the sharps container at any time.
    - 5.7.1.5 Seal sharps container when they reach  $\frac{3}{4}$  full and call the Biological Safety Office at 744-3867 for disposal.
  - 5.7.2 Broken Glass





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- 5.7.2.1 When collecting broken glass use forceps, broom and dustpan, etc. to prevent cuts.
- 5.7.2.2 Place uncontaminated large bore pipettes, broken laboratory glass, and broken plastic into a small rigid cardboard box.
- 5.7.2.3 If chemical contaminated broken glass, consult EH&S before disposal.
- 5.7.2.4 If biohazard contaminated broken glass, consult Biosafety before disposal.
- 5.7.2.5 Label the box Broken Glass.
- 5.7.2.6 Seal the box when  $\frac{3}{4}$  full for housekeeping to transport to the dumpster.

### 5.8 Spills

#### 5.8.1 Chemicals

- 5.8.1.1 Laboratory user may clean up small spills when they have the necessary materials in the laboratory and have the appropriate training to clean it up safely. (See the [EH&S web page](#) for specific spill clean-up recommendations.)
- 5.8.1.2 Departmental spill kits are available, storage locations should be clearly identified, and location recorded on each laboratory door posting.
- 5.8.1.3 All spills involving mercury must be reported to EH&S immediately at 328-6166.
- 5.8.1.4 Spills involving a large quantity of material, high level of toxicity, materials capable of causing damage to the laboratory structure, or a material the laboratory user is not comfortable with should be referred to EH&S at 328-6166.
- 5.8.1.5 Evacuate the laboratory, shut the door, and notify lab/building occupants any time the following occur:
  - A fire or potential for a fire - dial 911 and activate fire alarm.
  - Serious injury or a hazardous chemical exposure - dial 911.
  - Beyond your ability to control - call EH&S (328-6166).
  - The spill has left the immediate area or threatens other areas – call EH&S (328-6166) or 911.
  - Unknown materials are involved – call EH&S (328-6166).
- 5.8.1.6 Spills that the user cannot clean up that occur after normal business hours should refer to ECU Police by calling 911 (from hard lined ECU telephone). If calling from a cellular phone from any campus call 328-6787. Evacuate the area and wait to meet ECU Police and/or EH&S.
- 5.8.2 Radioactive materials - Contact the Radiation Safety Office at 744-2070 for instructions.
- 5.8.3 Biological or infectious materials - Contact the Biological Safety Office at 744-2070 for instructions.

### 6.0 MEDICAL CONSULTATION

- 6.1 All accidents/potential exposures/near misses must be reported to Laboratory Supervisors immediately. A [Lab Incident Investigation form](#) or a [Lab Near Miss Investigation](#) form must be completed and submitted to EH&S.
- 6.2 Availability - All employees who work with or may have been exposed to hazardous chemicals will have an opportunity to receive medical attention and any necessary follow-up care through the Workers' Compensation Program at no cost under the following circumstances. See section 6.4 for required documentation. (NOTE: Students who work with hazardous chemicals should seek medical attention and any necessary follow-up care through ECU Student Health Services. Injured students must complete a [Student Statement of Injury](#) form):





## East Carolina University Chemical Hygiene Plan

- 6.2.1 When the employee develops signs or symptoms associated with a hazardous chemical to which the employee may have been exposed in the laboratory.
- 6.2.2 When exposure monitoring reveals an exposure level above an action level or permissible exposure limit for an OSHA regulated substance for which there is a medical surveillance requirement.
- 6.2.3 When an event likely to produce a hazardous exposure occurs while the employee is in the laboratory. (E.g., a spill, leak or explosion.)
- 6.3 Options
  - 6.3.1 Life or limb threatening injury or illness
    - 6.3.1.1 Dial 911; (Notify dispatchers of potential contamination to assure prompt and appropriate care).
    - 6.3.1.2 Proceed to the Vidant Hospital Emergency Room; for outlying facilities, proceed to local hospital.
    - 6.3.1.3 Notify your Laboratory Supervisor as soon as possible.
    - 6.3.1.4 Notify EH&S at 328-6166 as soon as possible.
  - 6.3.2 Non-life or limb threatening injury or illness
    - 6.3.2.1 Notify your Laboratory Supervisor.
    - 6.3.2.2 Call the EH&S Worker's Compensation Program Manager, 328-6166.
    - 6.3.2.3 Worker's Compensation Program Manager, based upon the recommendation of a licensed physician or physician's assistant, will make referral to the appropriate health care provider for necessary medical treatment.
- 6.4 Information
  - 6.4.1 The following information should be provided to the attending physician by the laboratory user or laboratory supervisor:
    - 6.4.1.1 Identity of the hazardous chemical to which the laboratory user may have been exposed. (Including the SDS if available. EH&S will assist in obtaining this if necessary);
    - 6.4.1.2 Description of the conditions under which the exposure occurred; and
    - 6.4.1.3 Description of the symptoms experienced by the employee.
  - 6.4.2 The following information should be provided to EH&S:
    - 6.4.2.1 The above listed information; and
    - 6.4.2.2 A completed copy of the Workers' Compensation forms (available through your departmental office, EH&S or the EH&S [Worker's Compensation web site](#)).
  - 6.4.3 The following information should be provided by the examining physician and must be provided to the exposed worker:
    - 6.4.3.1 Recommendations for further medical follow-up.
    - 6.4.3.2 The results of the medical examination and any associated tests.
    - 6.4.3.3 Any medical condition revealed during the examination that may place the individual at increased as a result of exposure to a hazardous chemical in the workplace.
    - 6.4.3.4 A statement that the worker has been informed of the results of the consultation/medical examination and any medical condition that may require further examination or treatment. This must not to reveal any specific findings/diagnosis unrelated to occupational exposure.
- 6.5 Follow-up
  - 6.5.1 All events that require medical treatment must be reported to EH&S Workers' Compensation Manager as soon as possible. No payment for medical treatment will be





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made until the Workers' Compensation Manager has reviewed the case. Contact EH&S at 328-6166 or [safety@ecu.edu](mailto:safety@ecu.edu).

- 6.5.2 Each incident will be investigated by the laboratory supervisor and/or EH&S in an attempt to identify potential causal factors and possible corrective actions.



**APPENDIX 1****ECU EH&S References:**

[Online Chemical Hygiene/Lab Safety Training](#)

[Lab Specific Training Documentation Form](#)

[Setting Up a New Lab](#)

[Laboratory Door Posting](#)

[Lab Safety Plan \(Editable\)](#)

[Lab Safety Self-Inspection Checklist](#)

[Drain Log and Instructions](#)

[Lab Close-Out Form](#)

[Chemical Inventory Template](#)

[Contaminated Surplus Property](#)

[Chemical/Hazardous Waste Disposal](#)

[Emergency Evacuation Plans](#)

[Hazard Communication](#)

**Useful Links:**

[Prudent Practices \(National Academy Press\)](#)

[OSHA Lab Standard 1910.1450](#)

[OSHA Table Z1 - Air Contaminants PEL](#)

[OSHA Table Z2 - Air Contaminants STEL and Ceiling](#)

[OSHA Table Z3 - Mineral Dust PELs](#)

[OSHA Z Table – Text](#)

[CDC-NIOSH Workplace Safety and Health Topics \(Chemicals\)](#)

[SDS \(Online Search\)](#)

[Hazard Communication](#)



# East Carolina University Chemical Hygiene Plan



## Hazard Communication Standard Labels

OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). All labels are required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the right. Supplemental information can also be provided on the label as needed.

For more information:



[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)

**SAMPLE LABEL**

CODE \_\_\_\_\_ } **Product Identifier**  
 Product Name \_\_\_\_\_ }  
 \_\_\_\_\_ }  
 \_\_\_\_\_ }

Company Name \_\_\_\_\_ } **Supplier Identification**  
 Street Address \_\_\_\_\_ }  
 City \_\_\_\_\_ State \_\_\_\_\_ }  
 Postal Code \_\_\_\_\_ Country \_\_\_\_\_ }  
 Emergency Phone Number \_\_\_\_\_ }

Keep container tightly closed. Store in a cool, well-ventilated place that is locked.  
 Keep away from heat/sparks/open flame. No smoking.  
 Only use non-sparking tools.  
 Use explosion-proof electrical equipment.  
 Take precautionary measures against static discharge.  
 Ground and bond container and receiving equipment.  
 Do not breathe vapors.  
 Wear protective gloves.  
 Do not eat, drink or smoke when using this product.  
 Wash hands thoroughly after handling.  
 Dispose of in accordance with local, regional, national, international regulations as specified.

**In Case of Fire:** use dry chemical (BC) or Carbon Dioxide (CO<sub>2</sub>) fire extinguisher to extinguish.

**First Aid**  
 If exposed call Poison Center.  
 If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

**Hazard Pictograms**

**Signal Word**  
**Danger**

**Hazard Statements**  
 Highly flammable liquid and vapor. May cause liver and kidney damage.

**Precautionary Statements**

**Supplemental Information**  
**Directions for Use**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Fill weight: \_\_\_\_\_ Lot Number: \_\_\_\_\_  
 Gross weight: \_\_\_\_\_ Fill Date: \_\_\_\_\_  
 Expiration Date: \_\_\_\_\_

OSHA 3492-01R 2016





## East Carolina University Chemical Hygiene Plan

### HCS Pictograms and Hazards

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

For more information:

**OSHA**<sup>®</sup> Occupational Safety and Health Administration  
 U.S. Department of Labor  
[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)





## Hazard Communication Safety Data Sheets

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

**Section 1, Identification** includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

**Section 2, Hazard(s) identification** includes all hazards regarding the chemical; required label elements.

**Section 3, Composition/information on ingredients** includes information on chemical ingredients; trade secret claims.

**Section 4, First-aid measures** includes important symptoms/effects, acute, delayed; required treatment.

**Section 5, Fire-fighting measures** lists suitable extinguishing techniques, equipment; chemical hazards from fire.

**Section 6, Accidental release measures** lists emergency procedures; protective equipment; proper methods of containment and cleanup.

**Section 7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.

*(Continued on other side)*

For more information:



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Administration  
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## Hazard Communication SafetyDataSheets

### Section 8, Exposure controls/personal protection

lists OSHA's Permissible Exposure Limits (PELs); ACGIH Threshold Limit Values (TLVs); and any other exposure limit used or recommended by the chemical

manufacturer, importer, or employer preparing the SDS where available as well as appropriate engineering controls; personal protective equipment (PPE).

**Section 9, Physical and chemical properties** lists the chemical's characteristics.

**Section 10, Stability and reactivity** lists chemical stability and possibility of hazardous reactions.

**Section 11, Toxicological information** includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information\* Section 13, Disposal considerations\* Section 14, Transport information\* Section 15, Regulatory information\*

**Section 16, Other information**, includes the date of preparation or last revision.

\*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15 (29 CFR 1910.1200(g)(2)).

**Employers must ensure that SDSs are readily accessible to employees.**

See Appendix D of 29 CFR 1910.1200 for a detailed description of SDS contents.

For more information:



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