



COASTAL CAROLINA UNIVERSITY
CHEMICAL HYGIENE PLAN
Department of Environmental Health & Safety

Coastal Carolina University

Chemical Hygiene Plan

This plan is based on the Occupational Safety & Health Administration (OSHA) Occupational Exposure to Hazardous Chemicals in Laboratories Standard (29 CFR 1910.1450). It covers faculty and staff who work in research laboratory settings. The requirements of this plan apply to all students while in the laboratory.

The Chemical Hygiene Plan (CHP) ensures that the hazards of chemicals in use in laboratories at CCU are communicated to students, personnel and affiliates. Safety precautions necessary to reduce chemical exposure shall be the objective of this plan.

The Chemical Hygiene Plan has the following components:

- Site-specific
- Written Standard Operating Procedures (SOPs) that outlines chemical procedures used in each lab.
- Available to students, staff, and regulatory officials.
- Reviewed annually and updated as necessary.

RESPONSIBILITIES:

Environmental Health & Safety Department (EH&S):

Environmental Health & Safety is responsible for the implementation and monitoring of safety and environmental programs, including the CHP. EH&S will assist with and monitor compliance with the CHP. EH&S will review the CHP annually, update if necessary, and notify departments of any changes. In addition, EH&S will inspect the laboratory for OSHA compliance, perform exposure and hazard assessments, and provide OSHA required training.

Chemical Hygiene Officer (CHO):

A Chemical Hygiene Officer (CHO) is required under the OSHA Laboratory Standard. The CHO is an individual who can provide technical guidance in the implementation of the CHP. The CHO will provide CHP/Laboratory Safety, Personal Protective Equipment (PPE), and Hazardous Communication training. Contact CHO at CHO@coastal.edu or 843-349-5094

Department Chairs:

Department chairs are responsible for assigning and supporting the Laboratory Supervisor and laboratory staff with the resources necessary to ensure compliance with this program. This includes providing staff with time to attend training sessions, procurement of safety equipment/supplies and PPE for use in the laboratory.

Laboratory Supervisors:

Each Laboratory Supervisor is responsible for implementing the CHP in the laboratory. The Lab Supervisor is responsible for providing lab-specific training for their employees to include safety procedures and hazard awareness training for the chemicals used within the lab. The Laboratory Supervisor shall generate a Standard Operating Procedure(s) (SOPs) for the chemicals used in laboratory activities (experiments) in each lab. The SOP must incorporate general safety practices to protect lab students and workers. Appendix A references basic chemical handling procedures for a lab. An annual review of the laboratory's SOP (Appendix B) and revisions as necessary is required also. A chemicals inventory (Appendix C) is to be maintained for each lab for each chemical and is submitted to the CHO by the 31st of January of each year.

Individuals:

Individual laboratory students and workers are responsible for wearing the appropriate PPE, ensuring that hazards are minimized and controlled, adhering to prescribed safety rules and regulations, and following the SOP for the laboratory/experiment.

HAZARD IDENTIFICATION:

Chemical hazards within the laboratory will be identified by the use of hazard communication signs, chemical labels, and Safety Data Sheets (SDS) {formally known as MSDS}.

Hazard Communication Signs:

Laboratory and other potentially hazardous work areas will have a Laboratory Door Banner on doors leading into the workspace. The Banner will identify basic safety protocols for the laboratory. Hazard communication signs will be posted inside each laboratory for specific hazards within that work space.

Emergency contact information is also required to be posted on each laboratory entrance. This emergency contact information will provide the names and phone numbers of individuals who are responsible for laboratory work within the work space.

EH&S will provide the hazard communication signs for the laboratories after receiving a completed Laboratory Inspection Checklist from the Laboratory Supervisor (Appendix D). The hazard communication signs will be reviewed annually and revised if necessary by the CHO and Laboratory Supervisor.

Chemical Labels:

All containers containing chemicals within the laboratory must be labeled as to contents. The manufacturer's label and or Safety Data Sheet (SDS) will provide hazard information on the handling of chemicals in the laboratory. Directions found on the label and SDS must be followed.

Chemicals transferred from the original container into a secondary container must be labeled with the full trade or chemical name of the contents, any dilution of the chemical and the date of the transfer. If abbreviations or codes of the chemical name are used, a key must be available in the lab identifying the code or symbol.

Chemical Inventory:

A complete chemical inventory of chemicals found in each laboratory is required to be maintained at all times by the Laboratory Supervisor. The inventory must be updated annually and available for review. The inventory must include all chemicals used in the lab. Carcinogenic, reproductive toxins, acutely toxic, or chemicals listed in Appendix E should be noted as such with special handling required of these chemical. The inventory will be submitted to the CHO in January of each year.

SAFETY DATA SHEETS (SDS) {formally Material Safety Data Sheets (MSDS)}:

SDSs for chemicals used in the laboratory are available through MSDSonline® service, contact your Lab Manager or the CHO for the internet address. This link should be placed on the Desktop of each CCU computer assigned to laboratory employees. EH&S highly recommends that the laboratory maintain a "hardcopy" of the SDS for the top 20 chemicals used in each laboratory. The Laboratory Supervisor is responsible for assuring chemicals used in their laboratories are on the CCU MSDSonline® service.

STANDARD OPERATING PROCEDURES:

The Lab Supervisor or Responsible Faculty member must complete a Standard Operating Procedure (SOP) for laboratory activities in which chemicals are used. Appendix B is the SOP form for any activity in a laboratory which must be completed, maintained and readily accessible in the appropriate laboratory area.

The Standard Operating Procedures shall detail:

- a. The location of the laboratory.
 - b. The Lab Supervisor or Faculty responsible for Chemical Hygiene Plan compliance for that laboratory.
 - c. The storage of chemicals (e.g. chemical storage cabinet, under the fume hood).
 - d. The requirements for chemical transport.
 - e. The emergency procedures and equipment.
 - f. The spill control and decontamination procedures.
 - g. The waste disposal procedures.
 - h. For each activity using chemicals (e.g. distillations, reactions, syntheses):
- The chemicals used in the process (e.g. sulfuric acid, formalin, acetone).
 - The hazard class of each chemical (e.g. corrosives, flammable, reactive).
 - The human health hazard(s) of each chemical (e.g. nephrotoxin, teratogen, and neurotoxin).
 - The PPE that shall be worn during the activity (e.g. gloves, lab coat, goggles).
 - The engineering controls that shall be used during the activity (e.g. fume hood, glove boxes, point source ventilation).

Special consideration shall be provided for particularly hazardous substances. OSHA defines these as select carcinogens, reproductive toxins and substances with a high degree of acute toxicity. Appendix E is a list of these hazardous substances.

- a. Select carcinogens are those compounds that are regulated by OSHA as a carcinogen, are listed by the National Toxicology Program (NTP) as a carcinogen, or are listed under Group 1, Group 2A, or Group 2B by the International Agency for Research on Cancer (IARC) monographs.
- b. Reproductive toxins.
- c. Acute toxins (LD50 is less than or equal to 100 mg/kg).

For these particularly hazardous compounds, the following are also required:

- a. Establishment of a dedicated work area.
- b. Use of an engineered control device such as a fume hood or glove box.
- c. Specific waste removal procedures.
- d. Specific decontamination procedures.

If the use of select carcinogens, reproductive hazards, and/or acute toxins takes place in the laboratory, please ensure that all of the information listed above (dedicated work area, the use of the fume hood or glove box, a specific waste removal procedure, and a specific decontamination procedure) is included in the SOP. If you are not sure whether a chemical meets the criteria, please check with the CHO (349-5094).

TRAINING:

The Laboratory Supervisor shall train all students and employees who work in laboratories in the following areas:

- a. The physical and health hazards of the chemicals used in the laboratory.
- b. The SOPs to be used in the laboratory.
- c. The location of the MSDS and how to use them.
- d. The location of the chemical inventory.

The CHO will train all employees who work in laboratories in the following areas:

- a. The contents of the CHP.
- b. The methods for detecting chemicals in the laboratory.

c. The measures employees can take to protect themselves from exposure to chemicals (e.g. engineering controls, personal protective equipment).

Training shall be delivered upon initial assignment and prior to work with any new chemical or new procedures using chemicals. The Employee Review of Training (Appendix F) should be used to assess the student and staff understanding of laboratory safety. Employee training records must be documented, be accessible and retained by the appropriate trainer per OSHA requirements.

USING CHEMICALS SAFELY:

Prior to purchasing chemicals for lab use, survey the work area and ensure that there is adequate storage and equipment necessary to work safely. Complete a SOP (Appendix B) for the experiment or chemical procedure. Conduct any training necessary to introduce the new chemical and procedure or experiment.

Obtaining Chemicals for Laboratory Use:

Most chemicals may be ordered directly by each Department. Some chemicals require EH&S approval prior to purchase. EH&S must approve work with carcinogens, mutagens, teratogens, acute toxins, and radioactive materials as listed in Appendix E.

Engineering Controls:

Fume hoods shall be used when individuals are using any hazardous chemical. All work must be performed a minimum of four inches from the front edge of the hood. The sash should be lowered to the stops or prescribed height as designated by EH&S. If the hood is not working correctly, all work in the hood must cease until the hood has been repaired. To have a hood repaired or serviced, contact the Facilities Department. Other protective devices such as glove boxes, shields, increased ventilation, point source vapor collection, and others may be necessary, depending upon the activity.

Personal Protective Equipment (PPE):

PPE may include gloves, safety glasses, splash goggles, lab coats, aprons, or gowns, and under special conditions, respirators. Laboratory members shall use (PPE) as necessary to protect against exposure to chemicals used in the laboratory. The PPE must be fitted to the individual wearer and be specific for the hazard. Individuals shall be trained regarding the use and wearing of the PPE.

- **Splash Protection: Any time there is a risk of chemical splash in the laboratory the following PPE is required: Non vented or indirect vented goggles; when pouring chemicals, a face shield and chemical resistant apron or other resistant clothing.**
- **Gloves: One type of glove does not offer universal protection for all chemicals. To determine which glove is appropriate for your use by reading the MSDSs or a glove compatibility guide from the glove manufacture. The following web site provides useful information for glove selection:**
<http://www.ehs.cornell.edu/lrs/chemInfo/protection.htm> .
- **Respirators: Respirators may not be worn without EH&S approval. Respirator use should be the last line of defense against chemical hazards and only considered if engineering controls are not adequate. EH&S manages a Respiratory Protection Program that includes initial training, fit-testing, and medical monitoring. Employees are not allowed to use a respirator at CCU without being on this program. Contact the CHO for information on this program.**

Chemical Waste and Disposal:

Chemicals cannot be poured down the drain or tossed into the trash. Laboratory chemical wastes must be collected, stored, handled and disposed of properly to comply with EPA and DHEC regulations. Lab wastes must be stored in sealed containers that are compatible with the waste chemicals. The container must have a waste label

(Appendix G) attached and remain closed except when adding material to the container.. Once the waste container is full, complete a Hazardous Material Transfer Form (Appendix H) and submit to the CHO for pick-up. Empty chemical containers can be placed into the refuse dumpster.

Chemical Spills:

A bench scale spill can be cleaned up by laboratory staff with proper spill media. If the spill is large or there are concerns about the safety of laboratory individuals, call University Police (349-2911) or CHO (349-5094) for assistance.

Spill Kits:

The laboratory should have a spill kit large enough to handle a bench-scale spill. Since each laboratory uses different chemicals, the spill kit should be specific to the chemical(s) present in that laboratory. Spill kits should be readily accessible and be inspected monthly by the laboratory supervisor/responsible faculty for adequate supply of spill media. For assistance creating an appropriate spill kit, please contact the CHO (349-5094).

EXPOSURE MONITORING:

Personnel monitoring will be performed if there is reason to believe that the exposure level of any chemical exceeds the OSHA Permissible Exposure Limit (PEL). Monitoring will be performed through EH&S staff. Results of the monitoring will be discussed with laboratory employee(s). Concerns about chemicals exposures should be directed to the CHO (349-5094).

MEDICAL CONSULTATION AND EXAMINATIONS:

The opportunity to receive medical attention is available to personnel who work with hazardous chemicals in the laboratory, under the following circumstances:

- **When an employee develops signs or symptoms associated with exposure to a hazardous substance.**
- **When exposure monitoring reveals an exposure level above the OSHA regulated level.**
- **When an event takes place in which employees are exposed to hazardous substances (i.e. chemical spill, release, explosion, etc.).**

Contact the CHO (349-5094) to arrange a medical consultation and examination. For an incident or exposure requiring immediate medical attention, please contact University Police (349-2911). Staff member working at an off-campus facility who needs immediate medical attention should contact the nearest emergency health care provider.

ACCIDENT REPORTING:

All accidents and injuries, regardless of severity, involving employees must be reported to the Risk Manager (349-6559) and EH&S (349-2770).

RECORD KEEPING:

The accident report form will be retained by the Workers' Compensation Administrator. The medical records will be retained by the health care provider. Training records will be kept by the department or facility and monitored by EH&S to comply with OSHA requirements.

LABORATORY MOVES AND CLOSURES:

Prior to planning the movement or closure of a laboratory, please contact the CHO (349-5094). EH&S Department will monitor lab closures to ensure that laboratory wastes are properly disposed.

OSHA RULE:

The OSHA Standard is available electronically at: http://www.osha-slc.gov/OshStd_data/1910_1450.html

Appendix List:

- A. Basic Chemical Handling Procedures
- B. Laboratory Specific Standard Operating Procedures (SOP)
- C. Chemical Profile Sheet
- D. Laboratory Inspection Checklist
- E. OSHA Highly hazardous Chemical List
- F. Employee Review of Training Checklist
- G. Laboratory Chemical Waste Label
- H. Chemical Waste Collection Request
- I. Important Contacts

APPENDIX A: BASIC CHEMICAL HANDLING PROCEDURES

Chemical Handling

Proper PPE is required when handling all chemicals. Chemicals must be stored, handled and disposed per manufacturer's direction or MSDS information provided for the material. Incompatible chemicals must not be stored together (i.e. acid/bases, flammable/oxidizers). Liquids should not be stored above dry or powdered chemicals. Containers used for chemical storage must be compatible with the chemicals stored in them. All chemical containers must be clearly labeled as to contents and hazards. Care should be used to prevent spillage when transferring chemicals from one container to another. Be sure to use proper PPE and ventilation. Contact the EH&S Department with any questions or concern about chemical and laboratory safety

Flammable Chemicals:

NFPA and OSHA limit the amount of flammable materials that may be stored indoors and the type of containers and capacity. Flammable liquids must be stored in approved safety cans (UL or FM approved) or in fire-rated flammable storage cabinets. Polypropylene or Nalgene containers are not allowed for flammable storage unless they are shipped from the manufacturer in such containers. Glass containers are discouraged because of potential of breakage.

Flammable Containers Requirements:

<u>Container Type</u>	<u>Class 1A</u>	<u>Class 1B</u>	<u>Class 1C</u>
Glass	1 pint	1 quart	1 gallon
Metal or approved plastic cans	1 gallon	5 gallon	5 gallon Safety
2 gallon	2 gallon	2 gallon	
Metal drums	Contact the CHO for storage requirements (349-5094)		

Class 1A – Flash point < 73 °F (22.78 °C), boiling point < 100 °F (37.78 °C)

Class 1B – Flash point < 73 °F (22.78 °C), boiling point >= 100 °F (37.78 °C)

Class 1C – Flash point >= 73 °F (22.78 °C), boiling point < 100 °F (37.78 °C)

Flammable Liquids – Maximum Quantities

<u>Location</u>	<u>Max. Volume</u>
Open laboratory (including safety cans)	10 gallons
Fire rated storage Cabinet	60 gallons

Flammable Storage Refrigerators and Environmental Rooms:

Never store flammable liquids in a domestic refrigerator. Flammable liquids requiring refrigeration must use an approved “flammable storage” refrigerator or freezer. Domestic refrigerators have a variety of ignition sources that could ignite vapors. Flammable storage refrigerators have no ignition sources inside the cabinet. In extremely rare occasions it may be necessary to use an “explosion proof” refrigerator or freezer.

Refrigerators used for food storage shall be labeled with “No Chemicals Storage”, while refrigerators used for chemical storage shall be labeled “No Food Storage”.

Environmental Rooms (cold/warm rooms) have many ignition sources and little or no air circulation from outside. They should never be used for storage of flammable or other hazardous materials.

APPENDIX B

STANDARD OPERATING PROCEDURES Guidelines:

The Lab Supervisor or Responsible Faculty member must complete a Standard Operating Procedure for laboratory activities in which chemicals are used. See Appendix C for the Chemical Inventory template.

The Standard Operating Procedures for laboratory activity shall detail:

- i. The location of the laboratory.
- j. The Faculty responsible for the laboratory activity.
- k. The laboratory activity procedures and equipment.
- l. A listing of all materials to be used in the activity
- m. The location of activity chemicals (e.g. chemical storage cabinet, under the fume hood).
- n. For each activity using chemicals (e.g. distillations, reactions, syntheses):
 - 1. A completed Chemical Inventory sheet for each chemical (Appendix C)
 - 2. The chemicals used in the process (e.g. hydrofluoric acid, formaldehyde, benzene).
 - 3. The hazard class of each chemical (e.g. corrosives, flammable, reactive).
 - 4. The human health hazard(s) of each chemical (e.g. nephrotoxin, teratogen, neurotoxin).
 - 5. The PPE that shall be worn during the activity (e.g. gloves, lab coat, goggles).
 - 6. The engineering controls that shall be used during the activity (e.g. fume hood, glove boxes, point source ventilation).
- o. The requirements for proper chemical handling.
- p. The laboratory activity waste disposal procedures.
- q. The spill control and decontamination procedures.

Special consideration shall be provided for particularly hazardous substances. OSHA defines these as select carcinogens, reproductive toxins, and substances with a high degree of acute toxicity. See Appendix E for a list of these hazardous substances.

- a. Select carcinogens are those compounds that are regulated by OSHA as a carcinogen, are listed by the National Toxicology Program (NTP) as a carcinogen, or are listed under Group 1, Group 2A, or Group 2B by the International Agency for Research on Cancer (IARC) monographs.
- b. Reproductive toxins.
- c. Acute toxins (LD50 is less than or equal to 100 mg/kg).

For these particularly hazardous compounds, the following are also required:

- a. Establishment of a dedicated work area.
- b. Use of an engineered control device such as a fume hood or glove box.
- c. Specific waste removal procedures.
- d. Specific decontamination procedures.

If the use of select carcinogens, reproductive hazards, and/or acute toxins takes place in the laboratory, please ensure that all of the information listed above (dedicated work area, the use of the fume hood or glove box, a specific waste removal procedure, and a specific decontamination procedure) is included in the SOP. If you are not sure whether a chemical meets the criteria, please check with the CHO (349-5094).

APPENDIX C

CHEMICAL PROFILE SHEET

This form is to be completed for EACH chemical in your laboratory.

Chemical Name: _____

CAS#: _____

Building: _____

Room: _____ Lab Manager or

Responsible Faculty: _____

This substance should be considered particularly hazardous if any boxes at the right are marked.	<input type="checkbox"/> Carcinogen <input type="checkbox"/> Embryotoxin/Mutagen/Teratogen <input type="checkbox"/> Highly/Acutely Toxic
Personal Protective Equipment (PPE)	<input type="checkbox"/> Gloves, list type: ____ <input type="checkbox"/> Lab coat <input type="checkbox"/> Safety glasses with side shields <input type="checkbox"/> Respirator: type <input type="checkbox"/> Closed-toe shoes only
Engineering and Ventilation Controls	<input type="checkbox"/> Chemical fume hood <input type="checkbox"/> Glove box <input type="checkbox"/> Canopy or snorkel hood <input type="checkbox"/> Other ventilation
Transport/Storage Requirements Chemical container labeling strategy: containers must be labeled with chemical name and hazard warnings	Chemical is transported from one location to another: <input type="checkbox"/> Using secondary container <input type="checkbox"/> Traveling least trafficked areas Chemical Segregation guidelines: <input type="checkbox"/> Avoid storing near: Other handling precautions:
Exposures/Accidental Contact	<input type="checkbox"/> Flush eyes for 15 min. in emergency eyewash <input type="checkbox"/> Utilize drench shower for exposures to body <input type="checkbox"/> Change gloves once contact is noted
Method for Handling a Small Spill	<input type="checkbox"/> Neutralize and dilute the spill <input type="checkbox"/> Ventilate the area <input type="checkbox"/> Use absorbent material for clean-up <input type="checkbox"/> Containerize and dispose of properly
Method for Handling a Large Spill	<input type="checkbox"/> Remove all persons from the area <input type="checkbox"/> Close doors to affected area <input type="checkbox"/> Call 2911 or EH&S (843-349-2770) <input type="checkbox"/> Other comments: ____
Waste Disposal	<input type="checkbox"/> Material must be disposed of as hazardous waste through EH&S <input type="checkbox"/> Other:
Designated Area List area(s) of the lab where this chemical is used and how the area	<input type="checkbox"/> Chemical fume hood <input type="checkbox"/> Lab bench top <input type="checkbox"/> Radioactive work area <input type="checkbox"/> Other (specify):
Special Requirements	<input type="checkbox"/> More than one person must be present

APPENDIX D

Laboratory Inspection Checklist

The purpose of this form is to assist in complying with the OSHA Laboratory Safety Standard. Self-inspections should be conducted by the Lab Supervisor at least one time/month and periodic formal inspections will be conducted by Environmental Health & Safety (EH&S) Department. If you have any questions or concerns regarding chemical safety in the laboratory, please contact CHO at 349-5094. This form should be kept in the laboratory where it is readily accessible.

Building: _____ Department: _____ Inspector: _____

Lab Number: _____ Contact: _____ Date: _____

LABORATORY INSPECTION:

- ___ Exits are lighted and clear of obstruction.
- ___ Work area is free of debris and in good condition.
- ___ Inventory of all chemicals is maintained and updated annually for review.
- ___ Food or drink not allowed in laboratory.
- ___ Food items used for experiments are clearly labeled as such
- ___ Hand washing facilities are provided inside the lab.
- ___ Eye Wash Station/Safety Shower present and in working order
- ___ Safety Data Sheets (SDS formerly MSDS) are readily available, location of electronic database, MSDSonline®.
- ___ Labels on chemical containers are legible and firmly secured.
- ___ Labels identify the degree of hazard.
- ___ Chemicals are stored according to compatibility.
- ___ Corrosive chemicals are stored below eye level.
- ___ Flammable storage cabinets are provided for all flammable liquids.
- ___ Explosion proof refrigerators are provided for cold storage of flammable liquids.
- ___ Gas cylinders are properly secured.
- ___ Extension cords are not used in place of permanent wiring.
- ___ UL listed/FM approved equipment is provided.
- ___ Electrical cords and equipment are protected against chemicals and temperature exposure.
- ___ Fume hoods are not used for storage.
- ___ Proper Personal Protective Equipment must be used in all laboratories.
- ___ Standard Operating Procedure (SOP) for the lab is available for review.
- ___ Emergency numbers and evacuation procedures are posted in conspicuous locations in the lab.

COMMENTS: _____

APPENDIX F

STUDENT & EMPLOYEE REVIEW OF TRAINING

All laboratory personnel must be able to answer the following questions upon request by the CHO or other safety personnel.

This form should be maintained by the Laboratory Supervisor/Responsible faculty.

ROOM # _____ BUILDING _____

- Do you know what the Chemical Hygiene Plan is and where it is located?
- Do you know what Safety Data Sheets are and where they are located?
- Do you know where the Standard Operating Procedures are for the lab?
- Do you know what to do if there is a chemical spill?
- Do you know the location of and how to use the emergency eyewash/shower?
- Do you know what Permissible Exposure Limits are and where to locate them for the chemicals you work with?
- Do you know how to recognize the presence or release of the chemicals used in your area?
- Do you know the health hazards associated with the chemicals you use?
- Do you know the signs and symptoms associated with exposure to the chemicals in your lab?
- Do you know the measures (work practices, emergency procedures, Personal Protective Equipment, etc.) you can take to protect yourself from the hazards associated with the chemicals used in your lab?
- Do you know the location of the chemical inventory in your lab?

Trainer/Laboratory Supervisor: _____ (print name)

_____ (signature)

Date _____

Trainee/Laboratory Personnel: _____ (print name)

_____ (signature)

Date _____

APPENDIX E: TOXIC AND REACTIVE HIGHLY HAZARDOUS CHEMICALS

Below is a list of chemicals which present a potential for a catastrophic event at or above the threshold quantity

CHEMICAL name	CAS*	TQ**
Acetaldehyde	75-07-0	2500
Acrolein (2-Propenal)	107-02-8	150
Acrylyl Chloride	814-68-6	250
Allyl Chloride	107-05-1	1000
Allylamine	107-11-9	1000
Alkylaluminums	Varies	5000
Ammonia, Anhydrous	7664-41-7	10000
Ammonia solutions (>44% ammonia by weight)	7664-41-7	15000
Ammonium Perchlorate	7790-98-9	7500
Ammonium Permanganate	7787-36-2	7500
Arsine (also called Arsenic Hydride)	7784-42-1	100
Bis(Chloromethyl) Ether	542-88-1	100
Boron Trichloride	10294-34-5	2500
Boron Trifluoride	7637-07-2	250
Bromine	7726-95-6	1500
Bromine Chloride	13863-41-7	1500
Bromine Pentafluoride	7789-30-2	2500
Bromine Trifluoride	7787-71-5	15000
3-Bromopropyne (also called Propargyl Bromide)	106-96-7	100
Butyl Hydroperoxide (Tertiary)	75-91-2	5000
Butyl Perbenzoate (Tertiary)	614-45-9	7500
Carbonyl Chloride (see Phosgene)	75-44-5	100
Carbonyl Fluoride	353-50-4	2500
Cellulose Nitrate (concentration >12.6% nitrogen)	9004-70-0	2500
Chlorine	7782-50-5	1500
Chlorine Dioxide	10049-04-4	1000
Chlorine Pentafluoride	13637-63-3	1000
Chlorine Trifluoride	7790-91-2	1000
Chlorodiethylaluminum (also called Diethylaluminum Chloride)	96-10-6	5000
1-Chloro-2,4-Dinitrobenzene	97-00-7	5000
Chloromethyl Methyl Ether	107-30-2	500
Chloropicrin	76-06-2	500
Chloropicrin and Methyl Bromide mixture	None	1500
Chloropicrin and Methyl Chloride mixture	None	1500
Cumene Hydroperoxide	80-15-9	5000
Cyanogen	460-19-5	2500
Cyanogen Chloride	506-77-4	500
Cyanuric Fluoride	675-14-9	100
Diacetyl Peroxide (Concentration >70%)	110-22-5	5000

Diazomethane	334-88-3	500	
Dibenzoyl Peroxide	94-36-0	7500	
Diborane	19287-45-7	100	
Dibutyl Peroxide (Tertiary)	110-05-4	5000	
Dichloro Acetylene	7572-29-4	250	
Dichlorosilane	4109-96-0	2500	
Diethylzinc	557-20-0	10000	
Diisopropyl Peroxydicarbonate	105-64-6	7500	
Dilaluroyl Peroxide	105-74-8	7500	
Dimethyldichlorosilane	75-78-5	1000	
Dimethylhydrazine, 1,	1-57-14-7	1000	
Dimethylamine, Anhydrous	124-40-3	2500	
2,4-Dinitroaniline	97-02-9	5000	
Ethyl Methyl Ketone Peroxide (also Methyl Ethyl Ketone Peroxide; concentration >60%)	1338-23-4	5000	5000
Ethyl Nitrite	109-95-5	5000	
Ethylamine	75-04-7	7500	
Ethylene Fluorohydrin	371-62-0	100	
Ethylene Oxide	75-21-8	5000	
Ethyleneimine	151-56-4	1000	
Fluorine	7782-41-4	1000	
Formaldehyde (Formalin)	50-00-0	1000	
Furan	110-00-9	500	
Hexafluoroacetone	684-16-2	5000	
Hydrochloric Acid, Anhydrous	7647-01-0	5000	
Hydrofluoric Acid, Anhydrous	7664-39-3	1000	
Hydrogen Bromide	10035-10-6	5000	
Hydrogen Chloride	7647-01-0	5000	
Hydrogen Cyanide, Anhydrous	74-90-8	1000	
Hydrogen Fluoride	7664-39-3	1000	
Hydrogen Peroxide (52% by weight or greater)	7722-84-1	7500	
Hydrogen Selenide	7783-07-5	150	
Hydrogen Sulfide	7783-06-4	1500	
Hydroxylamine	7803-49-8	2500	
Iron, Pentacarbonyl	13463-40-6	250	
Isopropylamine	75-31-0	5000	
Ketene	463-51-4	100	
Methacrylaldehyde	78-85-3	1000	
Methacryloyl Chloride	920-46-7	150	
Methacryloyloxyethyl Isocyanate	30674-80-7	100	
Methyl Acrylonitrile	126-98-7	250	
Methylamine, Anhydrous	74-89-5	1000	
Methyl Bromide	74-83-9	2500	
Methyl Chloride	74-87-3	15000	
Methyl Chloroformate	79-22-1	500	
Methyl Ethyl Ketone Peroxide (concentration >60%)	1338-23-4	5000	5000
Methyl Fluoroacetate	453-18-9	100	
Methyl Fluorosulfate	421-20-5	100	
Methyl Hydrazine	60-34-4	100	
Methyl Iodide	74-88-4	7500	

Methyl Isocyanate	624-83-9	250	
Methyl Mercaptan	74-93-1	5000	
Methyl Vinyl Ketone	78-94-4	100	
Methyltrichlorosilane	75-79-6	500	
Nickel Carbonyl (Nickel Tetracarbonyl)	13463-39-3	150	
Nitric Acid (94.5% by weight or greater)	7697-37-2	500	
Nitric Oxide	10102-43-9	250	
Nitroaniline (para Nitroaniline)	100-01-6	5000	
Nitromethane	75-52-5	2500	
Nitrogen Dioxide	10102-44-0	250	
Nitrogen Oxides (NO; NO ₂ ; N ₂ O ₄ ; N ₂ O ₃)	10102-44-0	250	
Nitrogen Tetroxide (also called Nitrogen Peroxide)	10544-72-6	250	
Nitrogen Trifluoride	7783-54-2	5000	
Nitrogen Trioxide	10544-73-7	250	
Oleum (65% to 80% by weight; also called Fuming Sulfuric Acid)	8014-95-7		1,000
Osmium Tetroxide	20816-12-0	100	
Oxygen Difluoride (Fluorine Monoxide)	7783-41-7	100	
Ozone	10028-15-6	100	
Pentaborane	19624-22-7	100	
Peracetic Acid (concentration >60% Acetic Acid; also called Peroxyacetic Acid)	79-21-0	1000	
Perchloric Acid (concentration >60% by weight)	7601-90-3	5000	
Perchloromethyl Mercaptan	594-42-3	150	
Perchloryl Fluoride	7616-94-6	5000	
Peroxyacetic Acid (concentration >60% Acetic Acid; also called Peracetic Acid)	79-21-0	1000	
Phosgene (also called Carbonyl Chloride)	75-44-5	100	
Phosphine (Hydrogen Phosphide)	7803-51-2	100	
Phosphorus Oxychloride (also called Phosphoryl Chloride)	10025-87-3		1000
Phosphorus Trichloride	7719-12-2	1000	
Phosphoryl Chloride (also called Phosphorus Oxychloride)	10025-87-3		1000
Propargyl Bromide	106-96-7	100	
Propyl Nitrate	627-3-4	2500	
Sarin	107-44-8	100	
Selenium Hexafluoride	7783-79-1	1000	
Stibine (Antimony Hydride)	7803-52-3	500	
Sulfur Dioxide (liquid)	7446-09-5	1000	
Sulfur Pentafluoride	5714-22-7	250	
Sulfur Tetrafluoride	7783-60-0	250	
Sulfur Trioxide (also called Sulfuric Anhydride)	7446-11-9	1000	
Sulfuric Anhydride (also called Sulfur Trioxide)	7446-11-9	1000	
Tellurium Hexafluoride	7783-80-4	250	
Tetrafluoroethylene	116-14-3	5000	
Tetrafluorohydrazine	10036-47-2	5000	
Tetramethyl Lead	75-74-1	1000	
Thionyl Chloride	7719-09-7	250	
Trichloro (chloromethyl) Silane	1558-25-4	100	
Trichloro (dichlorophenyl) Silane	27137-85-5	2500	
Trichlorosilane	10025-78-2	5000	
Trifluorochloroethylene	79-38-9	10000	
Trimethoxysilane	2487-90-3	1500	

APPENDIX G

Laboratory Chemical Waste Label

<h1>CHEMICAL WASTE</h1>		
Initiated by: _____		Ext.: _____
Start date: _____		End date: _____
Building: _____		Room #: _____
Contains the following:		

<input type="checkbox"/> Non-hazardous	<input type="checkbox"/> Hazardous:	Physical state:
	<input type="checkbox"/> Flammable	<input type="checkbox"/> Solid
	<input type="checkbox"/> Corrosive	<input type="checkbox"/> Liquid
	<input type="checkbox"/> Reactive	<input type="checkbox"/> Gas
	<input type="checkbox"/> Toxic	
EHS use only:		
Date collected: _____		Collector: _____
ID code: _____		
When this container is full, complete the Chemical Waste Collection Request Form on the CCU Forms Page and submit it online to EHS. If you have any questions, please call 843-349-2770.		
State and federal laws prohibit improper handling and disposal.		

APPENDIX I

Important Contacts:

EMERGENCIES:	843-349-2911 or X9911
Poison Control Center:	800-222-1222 or 800-922-1117
CCU Police Department:	843-349-2177 X2177
Conway Medical Center:	843-347-7111
Job Related Injuries-report to:	Compendium@877-709-2667
Environmental Health & Safety:	843-349-2770
Chemical Hygiene Officer: CHO@coastal.edu	843-349-5094
Emergency Management:	843-349-5088
CCU Fire Marshall:	843-349-6563
Risk Management:	843-349-6559
Human Resources:	843-349-2036