Version 2.2

CHEMICAL HYGIENE PLAN

Frostburg State University

Review and Approval Authority

Prepared and Edited by:

_____	_____
Chemical Hygiene Officer	Date

Reviewed and Approved by:

_____	_____
Chair - Chemical Hygiene Committee	Date
_____	_____
University Safety Officer	Date
_____	_____
Dean	Date
_____	_____
Provost	Date

Approved as FSU Policy:

_____	_____
President	Date

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Frostburg State University Policy on Occupational Exposure to Hazardous Chemicals

Approved by the President (Date)

A. Purpose.

This is a statement of the official University policy to establish the process for compliance with the Occupational Safety and Health Administration (OSHA) regulation "Occupational Exposure to Hazardous Chemicals in Laboratories." 29 CFR Part 1910.1450. This policy governs the implementation of procedures, equipment, and work practices that will protect employees and students from health hazards presented by hazardous chemicals.

B. Policy.

Frostburg State University (FSU) is dedicated to providing safe and healthy laboratory, studio and workshop facilities for students and employees, and complying with federal and state occupational health and safety standards. Instructors, supervisors, faculty, staff and students all share responsibility for minimizing their exposure to hazardous chemical substances which, for purposes of this policy, shall be defined as chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic systems, and agents which damage the lungs, skin, eyes, or mucous membranes.

The Chemical Hygiene Plan shall be implemented in all academic laboratories, studios and workshop facilities at Frostburg State University where hazardous chemicals are handled or used under all of the following conditions:

1. Chemical manipulations are performed in containers designed to be easily and safely manipulated by one person;
2. Multiple chemical procedures or chemicals are used; and
3. Demonstrably effective laboratory practices and equipment are available and in common use to minimize the potential for employee and student exposure to hazardous chemicals.

The Chemical Hygiene Plan shall be reviewed and evaluated for its effectiveness at least annually by the Chemical Hygiene Committee, and updated as necessary.

General Principles and Practices

It is the general policy of this institution to minimize the health risk associated with hazardous chemicals. To achieve this goal, the following general principles and practices will be followed:

A. Minimize Hazardous Chemical Exposure

1. Proper identification of all hazardous chemicals using proper labels.
2. Use as few hazardous chemicals as possible. This will be especially true concerning hazardous chemicals used in experiments within student laboratories. The level of student laboratory experience should be of primary importance in selecting experiments using hazardous chemicals.
3. The minimal amount of a hazardous chemical should be stored. When ordering hazardous chemicals, if possible, order only the amount that will be used within a two-year period.
4. Proper safety equipment such as fume hoods, safety goggles, gloves, and lab aprons/lab coats will be used to minimize hazardous chemical exposures.
5. Techniques that minimize hazardous chemical exposure will be developed and implemented. Procedures that result in direct contact with hazardous chemicals such as smelling, touching, etc, will be prohibited.
6. As a general policy, laboratory chemicals will be treated as if they might be hazardous and reasonable care should be employed to limit unnecessary exposure to them.

B. Avoid Underestimation of Risks

A common error that occurs when working with chemicals is to underestimate the risks associated with them. Reading the material safety data sheets provided with the chemicals can minimize this error. Material safety data sheets for all chemicals will be easily accessible to all personnel working with laboratory chemicals. Policies that encourage the reading of these sheets will be implemented when possible. If there are uncertainties associated with a chemical, the chemical will be treated as hazardous.

C. Provide Adequate Ventilation

Use proper ventilation equipment with all hazardous chemicals that give off harmful vapors. If proper ventilation equipment cannot be provided, the use of that hazardous chemical is prohibited. If during a procedure or experiment, the odor of a hazardous chemical becomes noticeable, the hazardous chemical will be contained until it is determined what is causing the problem before proceeding with the procedure.

D. Minimizing Hazardous Chemicals Exposure Procedures

Procedures (Standard Operating Procedures, SOP) will be developed that will outline steps to be taken to minimize hazardous chemical exposure to all workers in the vicinity before starting any new experiment or procedure that has hazardous chemicals associated with them. These procedures should be in writing and on file with the chemical hygiene officer. It will be made known to all personnel working with or in the vicinity of the hazardous chemical. The section **Standard Operating Procedure for Hazardous Chemicals** will outline the requirement for these procedures.

E. Annual Inventory of Hazardous Chemicals

On a yearly basis all hazardous chemicals will be inventoried to update amounts and locations.

F. Permission to Use Hazardous Chemicals

Prior approval in writing from the department chair is required for any individual planning to obtain and use hazardous chemicals that are known carcinogens, reproduction toxins, high acute toxicity or are acute environmental hazard. If proper safety equipment to use that hazardous chemical is not available, permission will be denied. A copy of the approval letter will be sent to the Chemical Hygiene Officer.

Definition of Terms Used in This Plan

Employee means an individual receiving compensation by the University, working in an academic laboratory, studio or workshop environment that may be exposed to hazardous chemicals in the course of his or her assignments.

Student means an individual that as part of their assigned course work may be exposed to hazardous chemicals while working in a designated academic laboratory, studio or workshop.

Laboratory Supervisor means any individual that is employed by the University to supervise employees or students working in an academic laboratory, studio or workshop. This would include the instructor of record for a course or laboratory associated with a course, research director employed by the university, or laboratory manager employed by the university.

Individual means any one that may be exposed to hazardous chemicals in the course of his or her work in or around the laboratory environment.

Laboratory Facilities means academic laboratories, studios or workshop at Frostburg State University where there is a potential that hazardous chemicals are handled or used.

Duties and Responsibilities:

Responsibilities

President
Provost
Dean
Chemical Hygiene Officer
Chemical Hygiene committee
Department Chairs
Laboratory Supervisors (Research and Student Laboratory Course Supervisors)
Individual Researchers and Laboratory Users

A. University President

1. Appoint a qualified Chemical Hygiene Officer to develop and coordinate administration of the FSU Chemical Hygiene Plan;
2. Ensure sufficient time and resources are available to the Chemical Hygiene Officer to develop and coordinate administration of the FSU Chemical Hygiene Plan.

B. Provost

Ensure that the Chemical Hygiene Plan is implemented and updated on an annual basis.
Ensure that sufficient time and resources are available to the Chemical Hygiene Officer to develop and coordinate administration of the FSU Chemical Hygiene Plan.

C. Dean of Liberal Arts & Sciences

Ensure that the Chemical Hygiene Plan is implemented and updated on an annual basis.
Ensure that sufficient time is available to the Chemical Hygiene Officer to develop and coordinate administration of the FSU Chemical Hygiene Plan.
Evaluate the work of the Chemical Hygiene Officer annually.
Appoint a Chemical Hygiene Committee.
Approve in writing all donations of chemicals by outside agencies

D. Chemical Hygiene Officer

1. Prepare the Chemical Hygiene Plan with annual review and revisions as needed;
2. Distribute Chemical Hygiene Plan through the chairs to all affected departments.
3. Provide consultation, worksite monitoring (sampling), advisory assistance and information concerning use of hazardous materials processes or agents;

4. Investigate, document and report to the Chemical Hygiene Committee, significant chemical exposure or contamination incidents;
5. Coordinate with the University Safety Officer for collection and disposal of hazardous chemical wastes;
6. Direct periodic safety audits to determine regulatory compliance, and recommend action to correct conditions generating release of hazardous chemicals;
7. Coordinate with department chairs to provide training to all laboratory supervisors concerning:
    a. Provisions of the Chemical Hygiene Plan;
    b. Contents of the OSHA standard and its appendices;
    c. Permissible exposure limits (PELs) for OSHA regulated substances or recommended exposure limits if no PEL is listed;
    d. Methods and observations used to detect the presence or release of a hazardous chemical;
    e. Physical and health hazards of chemicals in the work area;
    f. Measures to protect employees from chemical hazards;
    g. Signs and symptoms associated with hazardous chemical exposure; and
    h. Location of reference materials on the hazards, safe handling, storage and disposal of hazardous chemicals.

E. Department Chairs shall:

1. Ensure all individuals in the department are following the chemical hygiene plan.
2. Ensure appropriate laboratory Standard Operating Procedures (SOP's) are developed and followed.
3. Ensure that MSDS sheets are obtained, maintained and assessable to all individuals associated with hazardous chemicals within their departments.
4. Approve all hazardous chemical requests.
5. Assign storage area to laboratory supervisors within their department.
6. Assign an inventory manager for the department, and insure that an annual inventory for all hazardous chemicals is performed.
7. Evaluate and assess Laboratory Supervisors on implementation of the Chemical Hygiene Plan within their laboratories.
8. Ensure training is provided to all laboratory supervisors to include but not limited to:
    a. Provisions of the Chemical Hygiene Plan;
    b. Contents of the OSHA standard and its appendices;
    c. Permissible exposure limits (PELs) for OSHA regulated substances or recommended exposure limits if no PEL is listed;
    d. Methods and observations used to detect the presence or release of a hazardous chemical;
    e. Physical and health hazards of chemicals in the work area;
    f. Measures to protect employees from chemical hazards;
    g. Signs and symptoms associated with hazardous chemical exposure; and

h. Location of reference materials on the hazards, safe handling, storage and disposal of laboratory chemicals.

F. Laboratory Supervisors shall:

1. Implement all provisions of the Chemical Hygiene Plan for all facilities under their control;
2. Assume all responsibility for all hazardous chemical substances in all facilities under their control to include safe handling, proper storage and adequate security.
3. Prepare SOPs relevant to safety and health considerations to be followed in all facilities under their control whenever laboratory work involves the use of hazardous chemicals;
4. Ensure that facilities, equipment, and materials are adequate for their intended use;
5. Ensure unapproved hazardous chemicals are not used in any facility under their control.
6. Train all individuals working in their laboratory in regards to the specific practices and provisions contained in the laboratory SOP; and
7. Comply with necessary documentation requirements, and ensure that individuals working in their laboratory comply with the requirements of the SOPs.

G. Chemical Hygiene Committee shall:

1. Review and if necessary modify the Chemical Hygiene Plan.
2. Provide technical guidance for implementation of campus policy concerning chemical and biological safety.
3. Provide annually a written report concerning the implementation of the plan to the Dean of Liberal Arts & Sciences.

H. University Health Center shall:

Coordinate and direct appropriate medical consultations and examinations to employees who develop signs or symptoms associated with hazardous chemical exposure; and to employees in work areas where significant exposure to hazardous chemicals may have resulted from incidents such as spills, leaks, and explosions.

Maintain medical records relating to consultations, examinations and medical surveillance as required by law.

Report possible instances of hazardous chemical exposure to the Chemical Hygiene Officer.

Coordinate with the Chemical Hygiene Officer any additional chemical exposure requirements stipulated for an individual by the consulting physician.

I. Individual Researchers and Laboratory Users shall:

Adhere to the requirements of the Chemical Hygiene Plan and SOPs.
Complete all safety-training requirements and comply with documentation procedures.
Report all workplace injuries, chemical exposure incidents or unsafe conditions to their laboratory supervisor as soon as possible.
Provide the following information to the University Health Center from the attending physician for any examination or consultation associated with a chemical related incident that are made available by the University.
Any recommendation for further medical follow-up
The results of the medical examination and any associated test:
Any medical condition which may be revealed in the course of the examination which may place the employee at increase risk as a result of the exposure to a hazardous chemical found in the workplace;
A statement that the employee has been informed by the physician of the results of the consultation or medical condition that may require further examination or treatment;
The written opinion shall not reveal specific findings or diagnosis unrelated to occupational exposure.

Identification of Hazardous Chemicals

For the purposes of this Chemical Hygiene Plan, a hazardous chemical will be defined using the OSHA laboratory standard as "a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees." Hazardous chemicals include carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system and agents which damage the lungs, skin, eyes or mucous membranes.

A. Any laboratory course supervisor and /or research supervisor that uses hazardous chemicals in their laboratories have certain responsibilities for the management of these hazardous chemicals, including:

1. Inventory of all hazardous chemical substances that are used in their assigned facilities;

2. Maintenance of the labels on incoming containers of hazardous chemicals to ensure that they are not removed or defaced;

3. Maintenance of any Material Safety Data Sheets (MSDS) that are received with incoming shipments of hazardous chemicals, and ensuring that the MSDS sheets are readily accessible to employees and students; and

4. Determination of whether chemical substances, which are developed in the laboratory, are hazardous chemicals within the definition of this Chemical Hygiene Plan. If the chemical substance is a byproduct for which the composition is unknown, the substance should be deemed to be a hazardous chemical.

B. Also, laboratory course supervisors and /or research supervisors are responsible for identifying the following hazardous chemicals, which are required to be used only in an area specially designated for such use:

1. Select carcinogens: Any substance, which meets one of the following criteria:
   It is regulated by OSHA as a carcinogen; (29 CFR 1910 subpart Z)
   It is listed under the category, "known to be carcinogens," in the Annual Report on Carcinogens published by the National Toxicology Program (latest edition);
   It is listed under Group 1 ("carcinogenic to humans") by the International Agency for Research on Cancer (IARC) Monographs (latest edition); or
   It is listed in either Group 2A or 2B by the IARC, or under the category, "reasonably anticipated to be carcinogens" by NTP, and causes statistically significant tumor incidence in experimental animals in accordance with criteria specified in the OSHA laboratory standard.

Reproductive toxins: Chemicals, which affect the reproductive capabilities, including chemicals, which are mutagenic and teratogenic;

Acute toxins; and

Unknowns: Chemicals which are synthesized in the laboratory and which are byproducts for which the composition is unknown.

C. Information concerning the health effects of chemical substances can be located in the following reference sources:

1. Material Safety Data Sheets (MSDS) available through:

   Laboratory Supervisors, University Chemical Hygiene Officer at x4091, via email at rlarivee@frostburg.edu, University safety Officer at x4897
   Vendor, manufacturer or distributor. (MSDS sheets must be provided at the time of initial purchase by the vendor, manufacturer or distributor without charge. A nominal fee may be assessed for additional copies.)

2. Registry of Toxic Effects of Chemical Substances

3. National Toxicology Program

4. International Agency for Research on Cancer

Laboratory Facilities

A. Fume Hoods

Laboratory fume hoods are the most important components used to protect employees and students from exposure to hazardous chemicals and agents used in the laboratory. Functionally, a standard fume hood is a fire and chemical resistant enclosure with one opening (face) in the front with a movable window (sash) to allow user access into interior. Large volumes of air are drawn through the face and out the top to contain and remove contaminants from the laboratory.

Laboratory fume hoods are not meant for either storage or disposal of chemicals. If a hood must be used for storage, in order to provide adequate ventilation for flammable chemicals, for example, it must not be used for laboratory experiments or transfer of chemicals. In that event, it must be used only for storage.

Laboratory activities that may release airborne contaminants above the Permissible Exposure Limit (PEL) or Thresholds Limit Value (TLV) concentrations must be carried out in the fume hood. Also, if laboratory activities produce potentially hazardous vapors or gaseous substances, the laboratory activities should be conducted in the fume hood.

In most cases, the recommended face velocity is between 80 and 100 feet per minute (fpm) when the hood sash is in the open position.

Fume hoods should be positioned in the laboratory so that air currents do not draw fumes from the hood into the room.

The exhaust stack from a fume hood shall be in a vertical-up direction at a minimum of 10 feet above the adjacent roofline and so located with respect to openings and air intakes of the laboratory or adjacent buildings to avoid reentry of the exhaust into the building. (ANSI/AIHA Z9.5 – 1992)

Fume hoods or other local ventilation devices should be used when working with any appreciably volatile substance with a TLV of less than 50 ppm. All biohazard and chemical fume hoods will be inspected quarterly and certified by properly trained University Maintenance Personnel. Any hood not passing inspection must be taken out of service immediately and not be used until such time as the hood has passed inspection. It is the responsibility of the University to purchase the parts and replace the unit in a timely fashion so as not to endanger the health and well being of employees and students.

B. Ventilation

1. General laboratory ventilation should not be relied on for protection from exposure to hazardous chemicals. A rate of 4 - 12 room air exchanges per hour should be the accepted standard when local exhaust systems, such as hoods, are used as the primary method of control.

2. Laboratory airflow should not be turbulent and should flow continuously throughout the laboratory.

3. Any alteration of the ventilation system should be made only if thorough testing indicates that employee and student protection from airborne toxic substances will continue to be adequate.

4. Exhaust from air from the laboratory through fume hoods should be vented directly to the outside.

C. Flammable Storage

1. Chemicals with a flash point below 93.3 °C (200 °F) should be considered "fire hazard chemicals". Any chemical whose MSDS sheet or label states "Flammable" is in this category.

2. Fire hazard chemicals in excess of 500 mL will be stored in a flammable material storage area, safety cans, or in storage cabinets designed for flammable materials.

3. Flammable materials should be stored in a flammable liquid storage cabinet or other appropriate location. When transferring significant quantities of flammable liquids from one container to another, it is particularly important that the container be properly grounded to prevent accidental ignition of flammable vapors and liquids from static electricity or other sources of ignition. Large quantities of flammable chemicals stored outside cabinets should be in flameproof storage cans, which conform to NFPA guidelines. NFPA 30, Flammable and Combustible Liquids code, and NFPA 45, Fire protection for Laboratories Using Chemicals, and/or the applicable local fire codes should be followed.

D. Electrical

All electrical outlets should have a grounding connection accommodating a three-prong plug.

All laboratories should have circuit breakers readily accessible. Laboratory workers should know how to cut-off electricity to the laboratory in case of emergency.

Laboratory lighting should be on a separate circuit from electrical outlets.

All electrical outlets should be checked for continuity after initial occupancy or whenever electrical maintenance or changes occur.

If electrical equipment shows evidence of undue heating, it should be immediately unplugged.

Installed ground-fault circuit interrupters (GFCIs) as required by code to protect users from electrical shock, particularly if an electrical device is hand held during a laboratory operation.

Equipment with 2 prongs, non-polarized plugs, will not be used in laboratory facilities.

General Laboratory Safety Equipment

The University will ensure that adequate emergency equipment is available in the laboratory and inspected periodically to ensure that it is functioning properly. All employees and students should be properly trained in the use of each item. Emergency equipment items that will be available include: eyewash station, fire extinguisher of the appropriate type, safety shower, telephone for emergencies, fire alarm system, spill kits, and identification signs.

A. Safety Equipment Specifications

Multipurpose fire extinguishers should be available in the laboratory. A multipurpose, ABC, fire extinguisher, can be used on all fires EXCEPT for class D fires.

Every eye wash station will be capable of supplying a continuous flow of aerated, tepid, potable water to both eyes for at least 15 minutes. The valve should remain in the open position without the need to hold the valve. (ANSI Z358.1-1990)

Safety showers should be capable of supplying a continuous flow of tepid potable water for at least 15 minutes. The shower should have a quick-opening valve requiring manual closing. (ANSI Z358.1-1990)

Eye wash stations and safety shower stations shall be located so they will be accessible within 10 seconds. (ANSI Z358.1-1998)

Laboratories in which hazardous substances are being used will have spill control kits tailored to deal with the potential risk associated with the materials being used. If there is no immediate danger to employees or students, containment should be accomplished by spill pillows, towels, rolls, inert absorbents, neutralizing agents, or other devices.

Each Laboratory will be equipped with a heat sensor and smoke alarm.

B. Proper Usage

1. Hoods
   a. Hood sashes will be kept closed when individuals are not using the hood. For all procedures performed within the hood, hood's sashes should remain as low as possible so face velocities will be as high as possible.
   b. Proper airflow will be checked before using the EverWatch face velocity meter attached to the hood. The face velocity must be over 60 feet per minute if hazardous chemicals are to be used in the hood. Any time the hood's flow falls below 60, all work with hazardous chemicals must stop and the

hazardous chemicals must be placed into sealed containers until the hood's air flow once again is above 60 feet per minute.

c. Hood airflow will remain operational at all times in laboratories where hazardous chemicals are being used on a regular basis.
d. Hoods will not be used for storage for anything except hazardous chemicals and the equipment used with them.

2. Eye Wash Stations
   a. Access to eye wash stations will be kept clear.
   b. Eye wash stations will not be used for any other purpose.
   c. Eye wash stations will be turned on for 5 seconds or more on days the laboratory is used to flush out the system.
   d. Eye wash heads must be brought down to its lowest position so maximum water flow is obtained.
   e. Effective treatment is rinsing off the hazardous chemicals with large quantities of gentle flowing tempered water to the eye for 15 minutes or longer. Be sure contact lenses are removed. Hold the eyelid away from the eyeball and have the person move their eye back and forth to flush out as much of the compound as possible.

3. Emergency Showers
   a. Access to shower stations will be kept cleared.
   b. To operate shower, pull chain down.
   c. Effective treatment includes removing all contaminated clothing if any and rinsing off the hazardous chemicals with large quantities of water for 15 minutes or longer. In removing contaminated clothing, be careful not to cause additional skin exposure to the chemical. Be especially careful for the eyes in removing tee shirts and sweaters. If scissors are available, cutting off the garment may be more effective.

4. Fire Extinguishers

   Access to fire extinguishers will be kept cleared.

   Each laboratory is equipped with an ABC fire extinguisher. Selected laboratory employees will be trained on fire extinguishers and their proper use. Only trained individuals should use them.

5. Spill Kits

   Access to spill kits will be kept cleared.

   There are various types of spill kits stored within the laboratories. Each is used slightly differently. Selected laboratory employees will be trained on the different spill kits and their proper use. Only trained individuals should use them.

Standard Operating Procedure (SOP) for Hazardous Chemicals Guidelines

All laboratories working with hazardous chemicals will have an SOP that will outline the correct procedures in the use, disposal, decontamination, and designated working areas associated with any hazardous chemical used in the laboratory. This SOP will be in writing if anyone besides the laboratory supervisor uses the laboratory. All individuals working in the laboratory will have a copy of this SOP; they will be trained in the proper handling procedures of hazardous chemicals used in that laboratory; they will follow and implementing those procedures at all times while working in the laboratory.

A. Hazardous Chemical Safety Planning and Guidelines

1. Known hazards of chemicals being considered for usage must be identified. As a minimum, obtain the MSDS sheet before ordering the chemical and study the hazards associated with them.

2. Whenever possible, use the most non-hazardous chemicals available for the procedure. Consult with colleagues or perform a literature search if necessary to obtain more information.

3. If hazardous chemicals must be used, use the smallest quantity possible.

4. Be sure the plan identifies the proper safety equipment and procedure that will reduce unnecessary exposure.

5. For highly toxic chemicals, define a plan to confine the compound to the smallest workspace possible. Be sure the work area designated is labeled properly. Plan on how to clean all glassware and equipment after usage to minimize contamination.

6. Mandate that the work area is kept clean to avoid accidents and spills.

7. Plan ahead for hazardous waste disposal. Contain all hazardous chemical waste in a suitable container that is marked properly. A disposal plan must be part of the SOP.

8. Have a plan for accidents and spills. It is better to have a plan of action before an accident than to come up with one during the accident.

B. Student Laboratory Experiments

Any individual responsible for developing student laboratory experiments that include hazardous chemicals will observe the following additional procedures:

Procedures outlining the dangers of chemicals, their proper usage and disposal will be included as part of the student's experimental handout. Procedures outlining accident and spill procedures will be included as part of the instructor's experimental procedures.

All precautions will be taken so as to minimize the exposure of hazardous chemicals to students. These will include:
Using the proper equipment such as hoods, safety glasses, gloves etc.,
Using proper techniques such as no mouth pipeting, avoiding direct contact of chemicals to skin, etc.
Students will be trained to use proper procedures handling hazardous chemicals and will follow them at all times while working in the laboratory.

The level of student experience should be of primary importance in selecting laboratory experiments using hazardous chemicals. Lower level and introductory laboratories will use hazardous chemicals only when strictly required as part of a mandatory curriculum. If hazardous chemicals are required in the experiment, students will perform the minimum amount of handing. As student laboratory experience improves, the use and handling of hazardous chemicals may increase. It is the instructor's responsibility to insure procedures are at an appropriate level for students.

The Material Safety Data Sheets (MSDS) will be obtained by the instructor for all laboratory chemicals used in student's laboratory experiments and will insure they are available in the laboratory when the experiments are being performed.

The Student Experimental Laboratory Review Sheet will be filled out and reviewed by a the Department Chair or a representative assigned in writing to insure all likely hazards have been examined and proper precautions outlined. This sheet will be submitted to the chair of the department and will be retained until the experiment is eliminated or changed. A second copy will be placed in the laboratory for all instructors to review prior to performing the experiment. If a safety problem with the experiment is identified during the lab, the instructor will take immediate corrective action. If they are unsure what corrective action to take they will contact the laboratory supervisor or department chair as soon as possible for further instructions. The instructor will attach in writing to the Student Experimental Laboratory Review Sheet comments on any safety problems encountered during the performance of the laboratory experiment. The laboratory supervisor will take appropriate actions and if necessary update the review sheet for that laboratory experiment and resubmit a copy to the chair of the department.

C. Additional Considerations for Research

Scientific research is an important part of FSU institutional mission. By its very nature research involves performing new and different procedures. These new procedures entail a certain amount of risk as one ventures into the unknown. It is the policy of this institution to minimize whenever possible those risks connected with hazardous chemicals associated with science research. The primary factor in assessing the risks associated with chemicals in a new procedure is the level of the researcher's experience. The more experienced the researcher, the more capable they should be of identifying chemical hazards. Also associated with academic scientific research and a very important part of this institution's mission are developing researchers who are capable of doing independent work. As researchers develop experience and confidence, they should be able to develop their own independent procedures. It is the objective of this chemical hygiene plan to balance the need for research independence and a safe chemical environment. This will entail determining the level of expertise of the researcher and the amount of guidance required. For this institution we will categorize four basic levels of experience associated with research.

1. Undergraduate Student Research

    a. This level of researcher has very little research experience, and will require the most guidance by the laboratory supervisor.

    b. The laboratory supervisor will determine and obtain all chemicals used in the research by the students along with the MSDS sheet for each chemical. The student will be issued a copy to read and the student with the laboratory supervisor will go over the sheet to insure they understand the hazards associated with all chemicals they are using.

    c. The laboratory supervisor is responsible to insure that the student thoroughly understands all the procedures they are to perform and the safety precautions that must be taken. The supervisor is also responsible to insure that the student is capable of performing procedures safely and is following all university safety regulations. A copy of the chemical hygiene plan will be made available to all students researchers working in the lab.

    d. The laboratory supervisor must be with the student when procedures requiring hazardous chemicals are performed the first time. They must be in the immediate vicinity whenever the students are using hazardous chemicals, and students will not work in lab alone if hazardous chemicals are being used.

2. Graduate Student Research

This level of researcher has some research experience depending on their background. They are usually more experienced with laboratory procedures, but often have incomplete understanding. They may not always recognize hazardous conditions. This level will require close guidance by the laboratory supervisor especially during the initial stages of their training. As their skill level increases, the research supervisor should give the student more independence.

The laboratory supervisor will determine and obtain all chemicals used in the research by the students along with the MSDS sheet for each chemical. The student will be issued a copy to read and understand. The student will consult with the laboratory supervisor with items they are unsure of.

The laboratory supervisor is responsible to insure the student understands all the procedures they are to perform and the safety precautions that must be taken. The supervisor is also responsible to insure the student is capable of performing the procedure safely and is following all university safety regulations. A copy of the chemical hygiene plan will be made available to all students working in the laboratory.

The laboratory supervisor must be in the vicinity when procedures requiring hazardous chemicals are performed the first time. They must be in the area or available for immediate contact whenever the students are using hazardous chemicals. As a standard policy, students should always insure someone responsible is in the immediate vicinity and is aware they are working in lab using hazardous chemicals.

3. Research Associates

This level of researcher has research experience but may lack knowledge in some areas depending on their background. They are usually experienced with laboratory procedures. This level will require minimal guidance by the supervisor. This level of researcher should recognize hazardous conditions and take the proper precautions.

The laboratory supervisor will insure the MSDS sheets are available in the laboratory for chemicals being used in the research.

The laboratory supervisor is responsible to insure the research associate is following university safety regulations and the chemical hygiene plan. A copy of the chemical hygiene plan will be made available to all individuals working in the lab.

The laboratory supervisor should insure they can be contacted whenever someone is working in his or her lab. As a standard policy, any one working in a lab

should always insure someone responsible is in the immediate vicinity and is aware they are working in lab using hazardous chemicals.

4. Research Supervisor/Faculty

This is the highest level of researcher. It is expected that this individual understands all the hazards associated with all chemicals in his or her laboratory. They will seek additional guidance from the chemical literature for the latest safety information and keep abreast of all safety issues within their area.

They should recognize hazardous conditions and take the proper precautions to insure hazardous chemical exposure is minimized in their laboratory.

The laboratory supervisor will insure the MSDS sheets are available in the laboratory for all chemicals in their laboratory.

The laboratory supervisor is responsible to insure anyone working in their lab is following university safety regulations and the chemical hygiene plan. They will have a copy of the chemical hygiene plan and a copy will be made available to all individuals working in the lab.

The laboratory supervisor is responsible for all individuals working in his or her lab. As a standard policy, they will arrange with the chair of the department a method by which they can be contacted in case of an emergency in their laboratory.

The laboratory supervisor is responsible to insure that all laboratory workers using hazardous chemicals will notify a responsible individual in the immediate vicinity that they are working in lab using hazardous chemicals.

Medical Consultation and Examinations

As part of the university policy to provide a safe working environment to all employees and students working with hazardous chemicals, the following procedures to obtain medical consultations and examinations will be employed.

A. Employees and/or students will be referred for medical consultation, examination, and/or surveillance (as appropriate to the circumstances) whenever:

1. An individual develops signs or symptoms associated with a hazardous chemical to which the individual may have been exposed in the laboratory;

2. An event takes place in the work area to create a likelihood of hazardous exposure. Examples of events or circumstances which might result in hazardous exposure include:

   A spill or leak which rapidly releases a hazardous chemical in an uncontrolled manner;
   Direct skin or eye contact with a hazardous chemical;
   Symptoms such as headache, rash, nausea, tearing, irritation or redness of eyes, irritation of nose or throat, dizziness, loss of motor dexterity or judgment which disappear when the employee is removed from the exposure area and which reappear when the employee returns to working with the same hazardous chemical;
   Two or more individuals in the same laboratory work area exhibit similar symptoms; or
   Exposure monitoring indicates exposures above regulated or recommended limits.

B. The University has established procedures for responding to job-related injuries and compensation for them. These procedures should be followed in the event of an exposure due to the use of hazardous chemicals in the laboratory. (See FSU Employee Safety and Risk Management Manual) In addition, the following procedures will be used for incidents of hazardous chemical exposure.

1. The following information will be provided at the time that an individual is referred for medical consultation and/or examination:

   Identification of the chemical(s) to which the employee or student may have been exposed.
   Description of the conditions under which the exposure occurred, including any quantitative exposure data, if available.
   A description of the signs and symptoms of exposure that the employee or student experienced, if any.
   A copy of the MSDS sheet of the hazardous chemical the individual was possibly exposed to.

To help organize the above information, the Laboratory Supervisor will complete the Hazardous Chemical Incident Report at the time of the incident. A copy of this report will be given to health care provider as soon as possible. A second copy will be attached to the Supervisor's Report of Injury. A copy of the Supervisor's Report of Injury and Hazardous Chemical Incident Report will be given to the Department Chair.

If an employee is referred to a physician due to a chemical exposure incident, it is the responsibility of the employee to obtain a written report from the consulting physician concerning their exposure. This report must be provided to the University Health Center. The physician's report(s) should indicate ONLY the specific findings of diagnoses related to occupational exposure and should include the following information:

Any recommendation for further medical follow-up;
The results of the medical examination and any associated test(s);
Any medical condition which may be revealed in the course of the examination which may place the employee at increased risk as a result of exposure to a hazardous workplace; and
A statement that the employee has been informed by the physician of the results of the consultation or medical examination and any medical condition that may require further examination or treatment.

4. All incidents of hazardous exposure (including disposition) will be reported to, and documented by, the Chemical Hygiene Officer. If no further assessment of the incident is deemed necessary, the reason for that decision should be included in the documentation. If the event is determined to require an investigation, the Chemical Hygiene Officer will initiate a formal exposure assessment. The purpose of an exposure assessment is not to determine whether there was a failure to follow proper procedures, but to identify the hazardous chemical(s) involved and determine whether an exposure might have caused harm to an individual. An exposure assessment may include the following items:
   Interviews with the employee and complainant (if different);
   Obtaining the following information:
   - Names of chemicals which may be involved
   - Other chemicals used by the individual
   - All chemicals used by others in the immediate area
   - Other chemicals stored in the immediate area
   - Symptoms exhibited or claimed by the individual
   - Comparison of symptoms with those referenced in the Material Safety Data Sheet for each involved chemical
   - Observation of control measures and personal protective equipment in use during the event
   - Notation of any on-site exposure monitoring performed previous to or during event

   c. Monitoring or sampling the air in the area for suspect chemicals; and

d. Determinations of whether the current control measures were adequate during the time of the incident.

Chemical Procurement, Distribution and Storage Procedures

A. Procurement of Hazardous Chemicals

The only individuals permitted to make a requisition for a hazardous chemicals for laboratory usage are laboratory supervisors and science faculty with the approval of their department chair. It is the chair's responsibility to insure the requestors have the sufficient background to safely handle hazardous chemicals and that the proper safety equipment is available.

Prior to making a request for hazardous chemicals, the following procedures must be accomplished by the requestor.

a. A current MSDS sheet for the hazardous compound must be obtained. A copy of most chemical's MSDS sheet can be found on line using the World Wide Web. Should assistance be needed, contact the Chemical Hygiene Officer.

b. Once the hazards associated with a compound are known, procedures for handling the compound safely must be determined. If the compound is to be used by other personnel in the laboratory, these procedures must be written and a copy furnished to all individuals who will use the compound.

c. All equipment required for handling hazardous compound safely must be obtained and on hand.

d. A copy of the department chair approval letter identifying the hazardous chemicals to be ordered and a copy of their MSDS sheets will be sent to the Chemical Hygiene Officer.

For all initial requests of hazardous chemicals, the following information will be obtained to fill out the Hazardous Chemical Request form.
Chemical name
Catalog and catalog number
Amount to be purchased
Catalog purchase price
Copy of the MSDS sheet
Storage Location
Responsible Individual
Approximate Annual Amount to be Used
Storage Safety Information
Handling Safety Information
Hazard Information for the NFPA Label (See Appendix IX.)
Purpose i.e., research, student laboratory course, demonstration, others

The request will be submitted to the department chair who will authorize the purchase of the request.

The authorized request will be forwarded to the laboratory manager/procurement agent for final processing and purchase. This individual will insure that the manufacturer sends a current MSDS sheet to the University.

B. Distribution of Hazardous Chemicals

1. All purchase orders come through the University Central Receiving. Labels on the shipping container will identify all packages containing hazardous chemicals. Central receiving personnel will perform an initial inspection to insure the content of the package are not leaking by looking for signs of leakage or odors being given off. If there are no signs of leakage, the package will be delivered using normal procedures to the requesting department laboratory manager/procurement agent. If central receiving personnel determine the content of the package is leaking, they will immediately place the package into a plastic garbage bag and seal the bag as carefully as possible to make it air tight. The package will then be kept safely away from personnel. Receiving personnel will then immediately contact the department laboratory manager/procurement agent that requested the compound. The laboratory manager/procurement agent will contact the individual who requested the compound for further instructions. It is the requester's responsibility to insure that the package and hazardous chemical are disposed of in accordance with University policies.

2. The department laboratory manager/procurement agent will inventory the hazardous chemical package and deliver the package to the department Inventory Manager along with the Hazardous Chemical Request Form.

3. Each department will have an Inventory Manager. It is the responsibility of this individual to perform the following tasks.

    a. Place the hazardous chemical on the master chemical inventory list along with the following information.
        Amount purchased
        Date received
        Storage Location
        Responsible Individual
        Approximate Annual Amount to be Used
        Storage Safety Information
        Handling Safety Information
        Hazard Information for the NFPA Label

b. Deliver the compound to the responsible individual with the proper labels identifying:
   - Date Received
   - Storage Location
   - Responsible Individual
   - Storage Safety Information
   - Handling Safety Information
   - Hazard Information for the NFPA Label

C. Storage of Hazardous Chemicals

The EPA defines storage as the holding of hazardous waste for a temporary period pending treatment, disposal or further storage. Hazardous chemicals that are being used on a regular basis for some scientific purpose are not considered being "stored" by the EPA. Compounds that sit on the shelf for extended periods of time (180 days or more) without being used at all are defined as being stored by the EPA. The University is only allowed to store a certain amount of hazardous waste. To insure this amount is not exceeded, the following procedures will be followed.

1. It is the policy of the University to store as few hazardous chemicals as possible. Only those hazardous compounds that can be safely stored with the facilities and equipment available are authorized. Only those hazardous compounds needed for student laboratory courses, used for demonstration purposes, or are required for ongoing research will be authorized for storage.
   a. Only actively used hazardous chemicals can be stored. Hazardous chemicals not used for more than two years must be disposed of unless the chair of the department gives permission in writing for each hazardous chemical being stored. This permission will be given only in cases where valid reasons for the extension can be shown.
   b. All hazardous chemicals will be assigned to a responsible individual. This individual is responsible for the proper safe storage of the hazardous chemical.
   c. Hazardous chemicals will be stored in designated areas only. The chair of the department will assign storage areas to authorized personnel in writing. Storage areas within the department not assigned will automatically be assigned to the chair of the department. Research areas, which are used by multiple departments, will be sectioned off and assigned to a responsible individual from the department using the section. Sections assigned to no department cannot be used to stored hazardous chemicals.
   d. The chair of the department is responsible to insure that an annual inspection of all storage areas of all hazardous chemicals in their department. The responsible individual of the hazardous chemicals cannot perform this inspection for their assigned areas. A written report of all uncorrected deficiencies will be given to the chair of the department. The

chair will take the appropriate action to insure that the deficiencies are corrected within a reasonable time frame.

2. The following procedures and guidelines are to used in storing hazardous chemicals.
   a. All hazardous chemicals must be stored in location that can be secured.
   b. A proper sign indicating the type of hazardous chemical being stored must identify all hazardous chemical storage locations.
   c. No hazardous chemicals will be stored in drawers.
   d. The preferred storage for hazardous chemicals will be properly identified cabinets with doors.
   e. Additional precautions must be taken for the following hazardous conditions:

Flammable	Store in proper Flammable storage container
Volatile	Container must be ventilated to the outside or placed in a cabinet secured inside a ventilation hood. Compound can also be stored in a proper refrigerator to reduce vapors.
Corrosive	Store in a corrosive proof cabinet
Explosive	Store away from other hazardous chemicals in an area where the least amount of damage can occur in case of an explosion
Radioactive	This University does not have a license to store radioactive material so no radioactive material can be stored at this time.
Incompatible	Never store incompatible chemicals next to each other (See Appendix VII.)

   f. The responsible individual must check the MSDS sheets for storage requirements for all hazardous chemicals.

D. Inventory Procedures

To maintain the location and usage of hazardous chemicals, the following inventory procedure will be implemented.

1. All laboratory chemicals in the department will be inventory on an annual basis. This inventory will include:
   Chemical name
   Location
   Current amount in container
   Estimate annual amount used
   Other actions such as disposal or transfer

2. The responsible individual the chemical is assigned to will insure the inventory for assigned chemicals is performed accurately.

3. The inventory manager will issue a computer disk containing a list of chemicals assigned to the responsible individual. Using the program provided, the inventory update will be performed. A copy of this inventory will remain with the responsible individual. The original updated copy will be returned to the inventory manager.

Environmental Monitoring

A. OSHA has established "Permissible Exposure Limits" (PELs) for laboratory employees' exposures to certain regulated substances. It is University Policy that no employee or student will be exposed to hazardous chemicals above the Permissible Exposure Limits. To insure this, all student laboratory managers will implement procedures that will minimize hazardous chemical exposure. By liberal use of chemical fume hoods, glove boxes, proper safety clothing, gloves, etc., the PEL levels of hazardous chemicals should not be exceeded. This will permit the University to eliminate the need for environmental monitoring.

PEL's are specified in the OSHA regulation 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances. In addition, PEL's are usually indicated on the MSDS sheet. If PEL's cannot be obtained for a hazardous chemical, the Chemical hygiene Officer will assist in making recommendations.

In addition to the PEL's, some hazardous chemicals have the following restrictions that also will be met.

Eight-hour time weighted average (TWA)
The average concentration to which an individual may be exposed to a particular chemical for up to eight hours per day, five days per week.

Short Term Exposure Limit (STEL)
The average concentration to which an individual may be exposed to a particular chemical for up to fifteen minutes per day.

Ceiling (C)
The maximum concentration to which an individual may be exposed to a particular chemical at any time.

Threshold Limit Values (TLV)
These are eight-hour time-weighted average inhalation exposure limits recommended by the American Conference of Governmental Industrial Hygienists.

B. Often, a notation of "Skin" is printed with an exposure limit. This indicates that skin absorption of that chemical occurs readily which would contribute to an individual's overall exposure.

C. Should defined procedures fail to keep the hazardous chemicals below the PEL's, use of the hazardous chemical must be discontinued or monitoring procedures must be initiated.

1. The department responsible for the student laboratory course or the research manager performing the work must provide the method and equipment for performing the monitoring that meet OSHA monitoring requirements. The Chemical Hygiene officer is responsible for making determinations regarding the requirements for area and/or personal exposure monitoring.

2. Monitoring individual exposure will be initiated whenever there is reason to believe that exposure levels to any chemical substance regulated by a standard routinely exceed the action level (or in the absence of an action level, the PEL) for an OSHA-regulated substance for which there are exposure monitoring and medical surveillance requirements. Examples of conditions that warrant initial monitoring include:

   Whenever an individual in the lab develops signs or symptoms associated with a hazardous chemical to which the individual may have been exposed in the laboratory.

   When odors from hazardous chemicals can be detected on a regular basis.

   When spills, leaks, explosions or other occurrence resulting in the likelihood of a hazardous chemical exposure take place in the work area.

3. If initial monitoring indicates PEL's levels have been exceeded, periodic monitoring will be performed in accordance with a program determined by the Chemical Hygiene Officer. The Chemical Hygiene Officer will provide assistance in determining methods to reduce hazardous chemical exposure. When proper procedures have been initiated and proven effective, the Chemical Hygiene Officer will discontinue the monitoring program.

4. The Chemical Hygiene Officer will perform area and/or personal exposure monitoring at the request of any laboratory supervisor or laboratory worker. The requesting individual and laboratory supervisor will be provided written notification of monitoring results within 15 working days after receipt of monitoring results by the University.

5. Where initial monitoring discloses employee exposure over the action level (or in the absence of an action level, the PEL), the exposed employee must be provided with personal protective equipment, unless engineering controls are available as a feasible means of controlling exposure.

Laboratory Maintenance and Inspections

A. Fume Hood Inspections

The procedure for inspecting Fume Hoods for proper operation will be performed as follows.

Whenever hazardous chemicals are used within the fume hood, the individual performing the experiment in research labs or the instructor in student labs will insure the fume hood is operating properly. The EverWatch face velocity meter attached to the hood will be check to insure the hood has proper air flow velocity. In most cases, the recommended airflow face velocity is between 80 and 100 feet per minute (fpm) when the hood sash is in the open position (18 inches). Under no condition will hazardous chemical be used if hoods face velocity is below 60 feet per minute.

On a monthly basis the laboratory supervisor will insure fume hoods in their labs are operating properly. This inspection will be performed using the Everwatch face velocity meter attached to the hood. The door of the hood will be raised to its open operational position as specified by the manufacturer (18 inches), air flow in feet per minute will be measured and recorded on the FSU Fume Hood Inspection Tag.

On a semiannual basis, University Physical Plant maintenance personnel trained in performing fume hood inspection will inspect all hoods being used.

a. These inspections to insure the hoods are functioning properly will include but not limited to:
   Proper Air Flow
   Calibration of the EverWatch face velocity meter
   All utilities are operating properly
   Hood's door operating correctly
   Lights and electrical system operating properly
   Check weekly airflow measurements

b. Inspection personnel will notify the laboratory supervisor of the date and time of inspection to insure no hazardous chemicals are being used during the inspection.

c. A written record of inspection will be kept on file with the University Safety Officer.

On an annual basis, qualified personnel will certify all hoods.

If a fume hood is not operating properly, it will not be used. A sign will be placed on the hood to indicate it is out of service and cannot be used. The university building maintenance office will be notified immediately to initiate repairs.

B. Eye Wash Stations

The procedure for inspecting eye wash stations for proper operation will be performed as follows.

Whenever hazardous chemicals are to be used within the laboratory, the laboratory workers will insure the eye wash station is operating properly. They will flush the system and check for any problems.

On an annual basis, University Physical Plant maintenance personnel trained in performing eye wash station inspections will inspect all eye wash stations.

a. These inspections to insure the eye wash stations are functioning properly will include but not limited to:
   Proper water flow
   Levers and valves are operating properly
b. A written record of inspections will be kept on a tag attached to the eye wash station.

If an eye wash station is not operating properly, it will not be used. A sign will be placed on the station to indicate it is out of service and cannot be used. The university building maintenance office will be notified immediately for repairs. Temporary eye wash bottles must be obtained till repairs are completed if the laboratory is to be used.

C. Safety Showers

The procedure for inspecting safety showers for proper operation will be performed as follows.

On a semiannual basis, department personnel trained in performing safety showers inspections will inspect all safety showers.

a. These inspections will insure the safety showers are functioning properly which will include but not limited to:
   Proper water flow
   Flushing the lines
   Levers and valves are operating properly
b. A written record of inspections will be kept on a tag attached to the safety showers.

If a safety shower is not operating properly, hazardous chemicals cannot be used in the laboratory. A sign will be placed on the door of the laboratory to indicate the shower is out of service and cannot be used. The university building maintenance office will be notified immediately for repairs.

Personal Protective Equipment

It is the responsibility of the laboratory supervisor to insure appropriate safety and emergency equipment to protect employees and students from the hazardous chemicals available and used in the laboratory. Protective apparel shall be compatible with the required degree of protection for the substances being handled.

As a minimum, laboratory aprons or coats, eye protection, and non-permeable gloves are considered standard equipment and will be readily available to all personnel working in the laboratory.

Any experiment that involves hazardous chemicals, the heating of chemicals or glassware, vacuum or high-pressure systems, shall require the use of chemical splash safety goggles. The goggles also serve to reduce dust and fumes from reaching the eye. All eye protection devices should conform to ANSI Standard Z87.1-1989. Eyeglasses, even with side shields, are not acceptable protection against chemical splashes. Chemical splash safety goggles should be used as the standard protective eyewear. Such goggles should fit the face surrounding the eyes snugly to protect the eyes from a variety of hazards.

Contact lenses are not necessarily prohibited in the laboratory. If contact lenses are permitted, chemical splash goggles must be worn at all times.

Full-face shields protect the face and throat. They must be worn for protection when there is a greater risk of injury from flying particles and harmful chemical splashes. A full-face shield should also be worn when an operation involves a pressurized system that may explode or an evacuated system that may implode. For full protection, safety goggles must be worn with the face shield.

Standing shields should be used when there is a potential for explosions, implosions, or splashes, or when corrosive liquids are used. Goggles should be worn whenever using a standing shield.

Lab coats or aprons worn in the laboratory should offer protection from splashes and spills. They should be easy to remove in case of an accident, and should be fire resistant.

When gloves are required, it should be remembered that no one kind of glove is suitable for all situations. The MSDS should be consulted for information regarding the proper type of gloves to be used.

Records

It is necessary to retain certain records on individuals working with hazardous chemicals. These records include the following categories, personnel illness and injury information, individual training, chemical inventories, safety equipment maintenance, waste disposal, MSDS and hazardous chemicals exposure.

A. Personnel Illness and Injury Records

The University Office of Human Resources will establish and maintain for each employee records of any medical consultations and/or examinations including medical tests results or written opinions by attending physicians concerning any injuries or illnesses due to hazardous chemicals. These records will be kept in accordance with 29 CFR 1910.20.

The University Safety Officer will establish and maintain for each employee records of any monitoring and measurements performed involving exposure to hazardous chemicals. These records will be written and retained on file in accordance with 29 CFR 1910.20.

B. Personnel Training Records

The University Safety Officer will establish and maintain for employees records of any training associated with this Chemical Hygiene Plan and OSHA hazardous chemical standards. These records will contain the following information:

- Date of training
- Individual performing the training
- Duration of the training session
- Outline of the training given
- List of personnel in attendance and their signatures

Training records for graduate student laboratory assistance will be established and maintained by the department the graduate student is assigned to. These records will contain the following information:

- Date of training
- Individual performing the training
- Duration of the training session
- Outline of the training given
- List of personnel in attendance and their signatures

C. Chemical Inventory Records

The Chemical Hygiene Officer will establish and maintain a chemical inventory for all chemicals used in university laboratory facilities. This inventory will be updated on an annual basis. This inventory will contain

- Chemical name
- Date Received/Made
- Storage Location
- Responsible Individual
- Annual Usage

D. Safety Equipment Inspections

The University Safety Officer in conjunction with the Chemical Hygiene Officer will establish and maintain the safety equipment inspection records as indicated below. These records will consist of quarterly inspection of

Fume Hoods
Safety Showers
Eye wash Stations
Chemical Spill Kits
Fire Extinguishers
Fire Alarms
Emergency telephones

E. Waste Disposal Records

The University Safety Officer will establish and maintain a file of all chemicals that are disposed of by outside agencies.

F. MSDS

The Chemical Hygiene Officer will establish and maintain a file of MSDS sheets for all chemicals bought with university funds to be used in university's laboratories.

G. Monitoring Hazardous Chemicals Exposure Records

The Chemical Hygiene Officer will establish and maintain a file of all monitoring programs initiated by him whenever there is reason to believe that exposure levels to any chemical substance regulated by a standard routinely exceed the action level (or in the absence of an action level, the PEL) for an OSHA-regulated substance for which there are exposure monitoring and medical surveillance requirements.

Signs and Labels

A. Signs

For the safety of all personnel working in FSU laboratories, it is important to know the identity of all laboratory chemicals and the hazards chemical being used so proper precautions are used in that laboratory. It is also important to identify locations where these chemicals are used and stored. Another important requirement is to identify individuals to be contacted in case of an emergency associated with a laboratory. To accomplish these tasks the following procedures will be followed:

Each laboratory will have the name of the laboratory supervisor and at least one other individual who knows the content and procedures being used in that laboratory along with a contact telephone number posted on the outside of the entrance door of the laboratory facility.

Inside the laboratory, cabinets that are used to store hazardous material will be identified with a sign indicating the type of chemical hazard being stored in the cabinet. Also any areas within the laboratories where highly toxic chemicals are used will be identified.

Location signs for safety showers, eyewash stations, other safety and first aid equipment, and exits will be posted.

Warnings at areas or equipment where special or unusual hazards exist will be posted.

Emergency telephone numbers of the following agencies will be posted on the laboratory door inside the laboratory. This list will have the following emergency numbers:

Local Hospital Emergency Room
Fire Department
Local Hazmat Team
Chemical Hygiene Officer

This notice will also have the location of the MSDS sheets for all chemicals in that laboratory.

B. Labels

For the safety of all personnel working in our laboratories, it is important to know the content of containers being used in that laboratory. This information is not only for safety reasons, it necessary for good science. The most common mistake in any laboratory is mixing the wrong chemicals together, and unlabeled containers only exacerbate that problem. It also makes sense to identify the location where these chemicals are stored for good laboratory housekeeping. To accomplish these tasks the following procedures will be implemented.

1. Labels showing content will be on displayed for all containers found in the laboratory. This requirement will be for all containers including waste containers, distilled water bottles, solvent bottles, laboratory chemicals bottles etc. Emptied bottles being stored for future use will have no labels.

2. If the container content is hazardous a label containing the following information will be displayed on the container:
    - Content Name
    - Concentration
    - Date Received/Made
    - Storage Location (room, cabinet and/or shelf number)
    - Responsible Individual
    - Storage Safety Information
    - Handling Safety Information
    - Hazard Information for the NFPA Label

3. If the container content is non-hazardous a label containing the following information will be displayed on the container:
    - Content Name
    - Concentration
    - Responsible Individual
    - Date Received/Made
    - Storage Location (building, room, cabinet and/or shelf number)

4. Manufacturer's labels and safety labels on containers cannot be removed or deformed.

Spills and Accidents

Hazardous Chemical Spills

Hazardous spills of chemicals that will cause immediate harm to individual and equipment are always a potential risk in the laboratory. These chemical spills can be divided into two types, spills on individuals and spills that involve objects only.

A. Spills on Individuals

For spills on individuals, federal law requires immediate attention. The time from the spill to effective treatment can be no more than 10 seconds.

Effective treatment includes removing all contaminated clothing if any and rinsing off the hazardous chemicals with large quantities of water for 15 minutes or longer. For spills covering large areas of skin, use of the safety shower is required. In removing contaminated clothing, be careful not to cause additional skin exposure to the chemical. Be especially careful for the eyes in removing tee shirts and sweaters. If scissors are available, cutting off the garment may be more effective.

For large spills immediate medical attention will be required. To obtain Emergency Medical Personnel, dial 9911. To obtain additional help, dial 911 for Campus Police.

It is important to identify as accurately as possible the name of the hazardous chemical(s) and give that information to medical personnel.

For small area spills on personnel, flowing water from laboratory faucets will suffice to remove chemical. Examine the skin for signs of burns or irritation. If there are any signs of irritation, it would be advisable to have the individual obtain medical attention. In either case, the MSDS sheets are obtained to determine if there are delayed effects that need to be addressed.

A Hazardous Chemical Incident Report will be completed within 24 hours of any spills where personnel are exposed to hazardous chemicals. The Laboratory Supervisor will initiate this report and copies of this report will be given to the appropriate department chair, the Chemical Hygiene Officer and the University Safety Officer.

Emergency Action for Large Spills on Individuals Summary

Get the individual to the emergency shower immediately.
Remove all contaminated clothing carefully.
Rinse the chemical off all affected areas for at least 15 minutes.
Call emergency personnel Dial 9911 for off campus EMT.
Call Campus Police at 911for additional emergency help.
Identify by name if possible the chemical spilled.

Obtained the MSDS sheet for the compound.

B. Splashing of Hazardous Chemicals Into the Eyes

1. For chemical splashes into the eyes, federal law requires immediate attention. From the time of the spill to effective treatment can be no more than 10 seconds.

2. Effective treatment is rinsing off the hazardous chemical(s) with large quantities of gentle flowing tepid water to the eye for 15 minutes or longer. Be sure contact lenses are removed. Hold the eyelid away from the eyeball and have the person move their eye back and forth to flush out as much of the compound as possible.

3. For all eye injuries, immediate medical attention will be required. The identity of the compound and the MSDS sheet for the compound need to be obtained for medical personnel.

4. A Hazardous Chemical Incident Report will be completed within 24 hours of any spills where personnel are exposed to hazardous chemicals. The Laboratory Supervisor will initiate this report and copies of this report will be given to the appropriate department chair, the Chemical Hygiene Officer and the University Safety Officer.

5. Emergency Action for Splashes of Chemicals Into the Eyes Summary
    a. Get the individual to the emergency eye wash immediately
    b. Flush the eye with large quantity of tepid gentle flowing water
    c. Rinse the chemical off all affected area for at least 15 minutes
    d. Seek medical attention (Dial 911 to contact Campus Police)
    e. Identify the chemical if possible
    f. Obtained the MSDS sheet

C. Hazardous Chemical Spills

1. For any chemical spill, the objective will be to limit the damage to both personnel and equipment. However, the first priority in all spill situations is safety of personnel.

2. There are a number of scenarios that can be envisioned associated with hazardous chemical spills.

    a. It is possible that the compound will give off noxious fumes. These fumes may come from the compound or from the compound reacting with various materials found in the laboratory.

    b. Another possibility is the damage due to the corrosive action of the spilled compound.

3. In all cases, the first action is to alert and remove all personnel from the area. If any personnel have been contaminated by the spill, follow the procedures for spills on personnel, but be sure to use an area that is safe from the spilled compound(s) and its/their vapor(s).

4. If the spill can be safely and quickly contained, by shutting doors etc., that will be the next priority. You will then notify the Campus Police by dialing 911.

5. The identity of the spilled compound(s) must then be determined. Once identified, the MSDS sheet(s) needs to be obtained.

6. A Hazardous Chemical Incident Report will be completed within 24 hours of any spills where personnel are exposed to hazardous chemicals. The Laboratory Supervisor will initiate this report and copies of this report will be given to the appropriate department chair, the Chemical Hygiene Officer and the University Safety Officer.

7. Large Spills of Hazardous Chemicals Procedures Summary
    a. Notify everyone in the laboratory of the spill and have them leave the area
    b. Insure no individual has been contaminated by the spill, if so take appropriate action
    c. Contain the spill if possible
    d. Notify Campus Police by dialing 911
    e. Identify the chemical if possible
    f. Obtained the MSDS sheet

Training and Information

It is the responsibility of all individuals in the laboratory to play an active role in maintaining a safe working environment by following prescribed safety procedures and reporting any problems or noncompliance with policies to the laboratory supervisor. To perform this task effectively, training is vital. Any individual working with hazardous chemicals or working around hazardous chemicals need to be properly trained. Any individual who does not understand a policy or procedure must consult the laboratory supervisor till procedures are clarified prior to working with hazardous chemicals. To achieve this goal, the following procedures will be followed.

A. All individuals working with or around hazardous chemicals will be provided with information and training regarding the hazards of the chemicals in their laboratory and/or work area. As a minimum they will be informed of:

    1. The contents of the OSHA standard and its appendices;

    2. The content, location and availability of the Chemical Hygiene Plan;

    3. The permissible exposure limits (PELs) for OSHA regulated substances or recommended exposure limits if no PEL is listed;

    4. The methods and observations used to detect the presence or release of a hazardous chemical;

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

    6. The measures employees can take to protect themselves from chemical hazards, including specific procedures to be used;

    8. Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory; and

    9. The location of known reference material on the hazards, safe handling, storage, and disposal of chemicals found in the laboratory.

    10. Specific actions to be taken when there are chemical spills or other emergencies related to the possible release of hazardous chemicals.

B. Training of laboratory supervisors and department chairs in general laboratory safety and the provisions of the OSHA laboratory standard's requirements shall be conducted by the FSU Chemical Hygiene Officer (or designee) during training

sessions scheduled through the Dean of CLAS or through special arrangement with Department Chairs. This training will be required on an annual basis.

C. The Laboratory Supervisors will be responsible for training of all laboratory employees and students as to specific operations, safety equipment, emergency procedures, and proper chemical use that apply to their laboratory. Documentation of laboratory-specific training provided by the Laboratory Supervisor will be maintained within each department and laboratory. This training will be given on an annual basis or when new procedures requiring hazardous chemicals will be initiated.

D. The Department of Human Resources is responsible for the training of all FSU employees outside of Academic Affairs who are required as part of their duties to enter laboratories or studios that contain hazardous chemicals. This would include maintenance and housekeeping personnel. The Dean of CLAS will identify those laboratories and studios of concern. The Department of Human Resources is also responsible for maintaining as part of the employee's permanent record documentation of general laboratory safety and chemical hygiene training conducted by its office for all maintenance and housekeeping personnel working within laboratories or studios containing hazardous chemicals. This training will be required on an annual basis.

E. Students involved in laboratory activities will receive training in laboratory safety. The extent of student training should be based on the course level, the laboratory facility, department policies, the level of chemical handling and potential exposure to hazardous chemicals.

1. Safety training should include but not limited to:
    a. Potential dangers associated with a laboratory
    b. Material Safety Data Sheets and their purpose
    c. Personal Protective Equipment
    d. Laboratory Safety Equipment
    e. Emergency Procedures
    f. The importance and the use of labels
    g. General Chemical Handling Procedures
    h. General Safe Laboratory Procedures

2. All laboratory or studio courses that require students to use laboratory or industrial chemicals as a mandatory part of the course will be required to give students a written copy of the regulations and safety procedures they are to follow. In addition, students will be required to sign a statement stating:
    a. They were given the safety training
    b. They understand the safety procedures outlined
    c. They know the procedure concerning the Material Safety Data Sheets
    d. They agree to follow the safety procedures
    e. Consequences for not following the published safety procedures

3. A sample copy of the safety regulations and agreement sheet can be found in Appendix XI and X.

4. As appropriate, students will be made aware of any additional safety requirements for a particular laboratory or procedure that may not have been covered in the initial briefing. It is also highly recommended for instructors to review safety procedure with students prior to procedures that have more risks involved. Also, as a teaching institution, it is very important for our students to understand the safety requirements they will be expected to follow once they enter into the industrial work environment. Presenting safety material is an important part of our mission and should be performed in a professional manner. Safety needs to be an integral part of our laboratory/studio curriculum.

F. All new employees that are required to work around or with hazardous chemicals will meet with the chemical hygiene officer prior to performing any work with hazardous chemicals. At this time, they will receive a copy of the chemical hygiene plan and be informed of its content. It is the laboratory supervisor's responsibility to train any individual working in their laboratory.

General laboratory Procedures

A. General

The design of the laboratory facility will provide sufficient space for safe work by the number of persons to be in the laboratory. Exit doors will be clearly marked and free of obstructions to permit quick, safe escape in an emergency.

Only persons with proper qualifications and training will use laboratory facilities. The number of individuals working in the laboratory shall not exceed the number of laboratory stations available.

Staff and students will follow the Chemical Hygiene Plan and laboratory's standard operating procedures to minimize their health and safety risks.

It is prudent to minimize all chemical exposures, because most laboratory chemicals present hazards of one type or another. Employees and students will follow general precautions for handling all laboratory chemicals. Specific guidelines for some chemicals, such as those found in the appropriate MSDS sheets, will also be followed.

Employees and students should not underestimate the risk, and exposure to hazardous substances should be minimized. The decision to use a particular substance will be based on the best available knowledge of each chemical's particular hazard and the availability of proper handling facilities and equipment.

Substitutions, either of chemicals or experiments, will be made where appropriate to reduce hazards without sacrificing instructional objectives. When the risk outweighs the benefit and no substitute is available, then the experiment, procedure, or chemical should be eliminated.

Chemicals should not be accepted from a supplier unless its corresponding MSDS sheet accompanies it, or an MSDS sheet from that supplier for that chemical is already on file. All MSDS sheets should be accessible to employees at all times. Employees should be trained to read and use the information found on MSDS sheets.

Generally, textbooks, laboratory manuals, and other instructional materials designate the safety precautions needed for a particular laboratory activity. However, total reliance on such publications to provide complete and accurate information is not advisable. Employees and students should consult additional references, including MSDS sheets, before undertaking an unfamiliar activity.

B. Individuals in laboratories

Eating, drinking, gum chewing, application of cosmetics, manipulation of contact lenses, or other such activities are prohibited in any laboratory identified as using hazardous chemicals.

Individuals in the laboratory must conduct themselves in a responsible manner at all times. This means that horseplay, throwing items, and pranks are prohibited.

Employees and students should not work alone in the lab or chemical storage area unless other employees are in the vicinity and are able to provide assistance if required.

"Wafting" to test chemical odors should only be done with extreme caution and when only specifically directed to do so in the written experimental procedure. Also, chemicals should never be tasted.

Never pipette by mouth. Always use a bulb or other device for suction.

Do not force glass tubing into rubber stoppers. Lubricate the glass and hold the tubing with a cloth towel as the tubing is inserted into the stopper.

Dress appropriately for laboratory work. Avoid loose or baggy clothing and dangling jewelry. Confine or tie back long hair. Sandals or any open toed shoes are not permitted in the laboratory.

Remember hot glass looks like cold glass, and glass remains hot for a long time. Determine if an object is hot by bringing your hand close to the object but do not touch the object.

Careful storage and handling procedures should be used to avoid glassware breakage. In the event of breakage, protection for the hands should be worn when picking up the broken pieces. Small pieces should be swept up with a brush and pan. Broken glass should be separated from other waste by placing it in a special container marked Broken Glass. Broken glass contaminated with hazardous chemicals must be treated as hazardous waste.

The quantities of flammable liquids used on open benches in the laboratory will not exceed the amount that can be consumed in one day.

C. Student Laboratories

1. Students must read lab directions ahead of time and follow all verbal and written instructions.

2. Students will only perform authorized experiments.

3. Students will report all accidents or injuries to the instructor at once, no matter how trivial it may seem. The student should be sent to Brady Health Center for the treatment of cuts, burns, accidental ingestion of chemicals, or inhalation of fumes.

4. Students will only work in a laboratory or chemical storage area under the direct supervision of a laboratory supervisor.

D. Housekeeping Practices

1. All laboratory areas must be kept clean and contain only those items needed for the task at hand.

2. Place all wastes in appropriate, segregated receptacles that are properly labeled.

3. Sinks are to be used only for disposal of water and those solutions designated by the instructor. Other solutions must be placed in the appropriate labeled waste container.

4. Tabletops are to be swept clean and washed at the end of the lab activity.

5. Clean up all chemical spills as soon as they occur. Chemicals and cleanup materials should be disposed of correctly.

6. Never block access to emergency equipment, showers, eyewashes, or exits.

7. Store chemicals and equipment properly. Chemicals should not be stored in aisles, on the floor, in stairwells, on desks, or laboratory tables.

8. Before leaving the laboratory, turn off services (gas, electricity, water).

9. Keep all cabinets and drawers closed when not in use to avoid catching and bumping hazards.

10. Floors should be cleaned daily.

E. General Procedures for Handling Hazardous Chemical

There are various physical properties associated with hazardous chemicals that inherently make them more dangerous. For example, compounds that are volatile give of hazardous vapors that can be absorbed by the lungs through inhalation as well by the skin. These compounds require additional precautions.

Volatile Hazardous Chemicals (Used in hoods only.)

When a PEL or TLV value is less than 50 ppm or 100 mg/m^3, the user should use it in an operating fume hood, glove box, vacuum line, or other device equipped with appropriate traps. If none is available, no work should be performed using the chemical.

If a PEL, TLV, or comparable value is not available, the animal or human median inhalation lethal concentration information, LC_{50}, should be used as a guideline. If that value is less than 200 ppm or 2000 mg/m^3 when administered continuously for one hour or less, then the chemical should be used in an operating fume hood, glove box, vacuum line, or other device equipped with appropriate traps. If none are available, no work should be performed using that chemical.

Examples of highly toxic volatile chemicals (acute or chronic) that were commonly used in the past are benzene, chloroform, formaldehyde, bromine, carbon disulfide, carbon tetrachloride, cyanide salts, and hydrofluoric acid.

Highly Flammable Chemicals (Used in hood when ever possible.)

a. The University will define Class 1A liquids as highly flammable chemicals. Class 1A liquids have a flashpoint of less than 73 ° C and a boiling point of less than 100 ° C.

b. Fire hazard chemicals in excess of 500 mL should be stored in a flammable solvent storage area, safety cans, or in storage cabinets designed for flammable materials.

c. Flammable materials should be stored in a flammable liquid storage cabinet or other appropriate location.

d. When transferring significant quantities of flammable liquids from one container to another, it is particularly important that the container be properly grounded to prevent accidental ignition of flammable vapors and liquids from static electricity or other sources of ignition.

e. Large quantities of flammable chemicals stored outside cabinets should be in flameproof storage cans, which conform to NFPA guidelines. NFPA 30, Flammable and Combustible Liquids code, and NFPA 45, Fire protection for Laboratories Using Chemicals, and/or the applicable local fire codes should be followed.

f. Examples of highly flammable chemicals are diethyl ether, acetone, pentane, petroleum ether, acetaldehyde, and ligroines.

3. Highly Reactive Chemicals (Used with safety shield or in hood.)

Reactivity information may be given in manufacturers' MSDS sheets and on labels. The most complete and reliable reference on chemical reactivity is the current edition of *Bretherick's Handbook of Reactive Chemical Hazards.* A reactive chemical is one that:

- Is described as such on the label, in the MSDS, or by Bretherick.
- Is ranked by the NFPA as 3 or 4 for reactivity.
- Is identified by the Department of Transportation (DOT) as an oxidizer, an organic peroxide, or an explosive (Class A, B, or C).
- Fits the Environmental Protection Agency definition of reactive in 40 CFR 261.23.
- Is known or found to be reactive with other substances.

Reactive chemicals should be handled with all proper safety precautions, including segregation in storage. Mixing even small quantities with other chemicals should only be done with appropriate personal protection and precautions.

Examples of commonly encountered highly reactive chemicals are ammonium dichromate, nitric acid, perchloric acid, hydrogen peroxide, and potassium chlorate, azides, organic nitrates, and acetylides.

4. Highly Corrosive Chemicals and Contact Hazard Chemicals

Corrosive, allergen, and sensitizer information is provided in manufacturers' MSDS sheets and on labels.

A corrosive chemical is one that:

- Fits the OSHA definition of corrosive in 29 CFR 1910. 1200
- Fits the EPA definition of corrosive in 40 CFR 262.22 (has a pH greater than 12 or a pH less than 2.5)
- Is known to be reactive to living tissue, causing visible destruction, or irreversible alterations of the tissue at the site of contact.

A contact - hazard chemical is an allergen or sensitizer that:
Is so identified or described in the MSDS or on the label.
Is so identified or described in medical or industrial hygiene literature.
Is known to be an allergen or sensitizer.

Corrosive and contact hazard chemicals will be handled with all proper safety precautions, including wearing safety goggles, using gloves tested for the absence of pinholes and known to be resistant to permeation or penetration by the chemical, and wearing a laboratory apron or laboratory coat.

Examples of highly corrosive chemicals are hydrochloric, sulfuric, nitric, phosphoric, and perchloric acids (all acids greater than 1 Molar concentration), and potassium hydroxide (either solid or in aqueous solution greater than 1 Molar concentration).

5. Reproductive Toxins (Used in marked areas only.)

A reproductive toxin refers to chemicals which affect reproductive capabilities including chromosomal damage (mutations) and which effect fetuses (teratogenesis).

A reproductive toxin is a compound that:
Is described as such in the applicable MSDS or label.
Is identified as such by the Oak Ridge Toxicology Information Resource Center (TIRC), (615) 576-1746.

They should be handled only in a hood and when satisfactory performance of the hood has been confirmed.

Skin contact should be avoided by using gloves and wearing protective apparel.

Persons using such substances should always wash hands and arms immediately after working with these materials.

Unbreakable containers of these substances should be stored in a well ventilated area and will be labeled properly.

Examples of reproductive toxins are organomercurial compounds and ethidium bromide, carbon disulfide, xylene, toluene, benzene, mercury, lead compounds, ethyl ether, vinyl chloride.

6. Select Carcinogens (Used in marked areas only.)

a. Select carcinogen means any substance, which meets one of the following criteria:
    It is regulated by OSHA as a carcinogen
    It is listed under the category, "known to be carcinogens," in the National Toxicology Program (NTP) Annual Reports on Carcinogens.
    It is listed under Group 1 "carcinogenic to humans" by the International Agency for Research on Cancer Monograms (IARC).
    It is listed in either Group 2 A or 2 B by IARC or under the category "reasonably anticipated to be carcinogens" and causes statistically significant tumor incident in experimental animals under set criteria of exposure.

All work with these substances should be conducted in a designated area, such as a fume hood, glove box, or a portion of a laboratory designated for use of chronically toxic substances. Such a designated area should be clearly marked with warning and restricted access signs.

Any procedure that may result in a generation of aerosols or vapors should be performed in a hood whose performance is known to be satisfactory.

Gloves and other protective apparel should be properly worn in order to avoid skin contact. Any protective clothing should be removed before leaving the designated area and placed in a labeled container. Hands, arms, and neck should be washed after working with these materials.

Select carcinogens should be stored in unbreakable containers in a ventilated area with controlled access. All containers should be labeled with the identity and hazard of the substance. Immediately upon completion of the project, all unused reproductive toxin should be disposed of following standard hazardous waste disposal procedures.

Examples of select carcinogens are benzene, nickel metal dust, vinyl chloride, and formaldehyde.

Appendix I

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2. Annual Report on Carcinogens, National Toxicology Program U.S. Department of Health and Human Services, Public Health Service, U.S. Government Printing Office, Washington, DC, (latest edition).

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8. NIOSH/OSHA Pocket Guide to Chemical Hazards. NIOSH Pub. No. 85-114, U.S. Government Printing Office, Washington, DC, 1985 (or latest edition).

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5. Scientific Apparatus Makers Association (SAMA), Standard for Laboratory Fume Hoods, SAMA LF7-1980, 1101 16th Street, NW., Washington, DC 20036.

D. Information on Availability of Referenced Material:

1. American National Standards Institute (ANSI), 1430 Broadway, New York, NY 10018.

2. American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103.

Appendix II
Emergency Telephone Numbers

Allegany County (FIRE - POLICE - RESCUE) - 24 hour # If chemicals are involved, be sure to indicate that on the initial call.	9-911
FSU Emergency (FIRE - POLICE - RESCUE) - 24 hour # If chemicals are involved, be sure to indicate that on the initial call.	911
University Safety Officer (Main Office) (Industrial Hygiene, Hazardous Waste Management, Fire Protection, Hazard Communication, Safety Education)	4897
Chemical Hygiene Officer (Program Consultation and Administration)	4091
Biological Safety (Biological Safety, Regulated Pathogen Consultation)	
Office of Human Recourses (Injured Workers Records)	4105
Workers' Compensation Office	4398
Facilities Management Work Control (Repair of Facility Equipment Deficiencies, e.g., fume hoods, emergency eyewashes, ventilation, etc.)	4125
Local Hospital Emergency Room (Memorial Hospital)	301 723-4100

Appendix III

FSU Policy Concerning Fire Emergencies In Buildings Containing Hazardous Chemicals

FIRE EMERGENCY

A fire emergency exists when an uncontrolled fire or imminent fire hazard occurs in any building containing hazardous chemicals, liquids, solid or gases. A fire emergency also exists when there is a spontaneous or abnormal heating of any materials e.g. chemicals, liquids or gases. An uncontrolled release of combustible or toxic chemicals, liquids or gases from chemicals being used in lab conditions or used under an exhaust hood system will also be treated as a fire emergency.

FIRE EMERGENCY ACTION

Upon discovery of evidence that a fire emergency exists in a prep-room, a chemical storage room, or in a working lab the individuals accomplish, or start actions to alert the occupants of the building and evacuate in a safe and orderly manner.

Sound the building fire alarm system. Activate the building fire alarm system and shout a warning and knock on office and classroom doors while evacuating the building. The occupants must be alerted to the fire emergency by the ringing of the fire alarm and the knocking on the doors. Shut off all machinery and or equipment that may have been used. If time allows, place lids or caps on containers of chemicals being used. Leave the room immediately at the sound of the fire alarm system. The teaching faculty shall stop teaching and direct the class to the nearest clear exit.

Follow the Fire Evacuation Procedures for your specific group e.g. faculty, staff, students in Academic/Classroom Buildings. The staff working in the building at the time of the emergency will assist in the evacuation. When safely out of the building call the University Police and give the necessary information.

When the University Police Dispatcher answers the phone give as much specific information as possible including your name, department, building, room and what type of activity was the room used for. Remember a phone call must be made to the University Police because the building fire alarm system is not connected to the local fire department. All fire emergency in buildings containing hazardous chemicals or not must be reported to the University Police.

When activated, all fire alarms must be viewed as a working fire. When the alarm is heard, evacuate the building immediately. Shut off machinery, close windows, shut doors and walk to the nearest clear exit. All Faculty, staff, students and visitors must

evaluate immediately. Do not stop when you get to the door. Walk away from the building and out of the path of the university police and emergency vehicles.

The University Police will call "all clear" when the fire emergency is over. Do not go into the building until the "all clear" is sounded. Copies of the Faculty, Staff, Students in Academic and Administrative Buildings by calling x4897.

Appendix IV

Emergency Medical Procedures

Several times a year individuals are injured or become ill in the course of normal activities. Unfortunately, it is not possible to give detailed instructions for every conceivable situation. The purpose of this section is give faculty, staff and students general guideline procedures to follow.

A. Life Threatening Situations

1. These are situations where an individual is so seriously ill or injured that the need for immediate advanced medical care is obvious. Examples of serious illness or injuries of this nature include (but are not limited to) an individual who is not breathing or responding, profuse bleeding, etc.

2. For these cases the following procedures will be taken:

   a. Contact directly Allegany County Civil Defense at 9-911. Not all campus phones are able to obtain outside lines to Allegany County Civil Defense. In those cases University Police will respond to the above number. They will contact Allegany County Civil Defense for you.

   b. If you contact Allegany County Civil Defense (9-911) directly, contact University Police at 4222 immediately afterward. They will be able to provide additional support and /or first–aid.

B. Non-Life Threatening, Non-ambulatory Situations

1. These are situations where an individual is; responding but the response is limited or incoherent, unable to walk, etc., but the person is breathing and there is no evident of serious injury such as profuse bleeding.

2. For these cases the contact directly University Police at 4222. They will be able to evaluate the situation and contact the proper emergency personnel or provide additional support and /or first–aid.

C. Ambulatory Situations

1. These are situations where an individual is able to respond coherently and is able to walk, but has some type of illness or injury that needs some medical attention.

2. For these cases, the individual has the right to refuse medical care. Should the individual decide to obtain medical care following the injury, he/she will be referred to the local hospital emergency room located in Cumberland MD. An individual may choose to go to the local hospital emergency room at any time following the injury. The University does not provide transportation to the local emergency room.

Appendix V

Waste Deposal

COORDINATION OF HAZARDOUS WASTE DISPOSAL
In an attempt to achieve compliance with existing laws and regulations governing the storage, transportation, and disposal of hazardous waste, the Office of Human Resources Safety Office has put into place the procedures outlined below. By following these procedures, you will aid the University, your department, and yourself in achieving compliance with the laws governing these matters. These procedures will be updated as developments warrant.

HAZARDOUS WASTE DISPOSAL PROCEDURES
Proper disposal of waste chemicals is a continuing concern across the nation. The Office of Human Resources Safety Office manages a Controlled Hazardous Substances Waste Management Service for the campus community, which is in accordance with all applicable Federal and State guidelines. The following procedures are designed to make this service work smoothly and efficiently for all involved parties.

All requests for disposal services should be submitted in writing to the Office of Human Resources Safety Office.

All chemicals or chemical product waste, regardless of how innocuous it may be considered, shall NOT BE POURED DOWN THE DRAIN or DISCARDED IN THE TRASH unless prior permission has been obtained by reviewing the Material Safety Data Sheet and contacting the Safety Office.

All waste must be placed and stored in compatible glass, metal, or heavy plastic containers with a vapor seal lid. The department responsible for generating the waste is responsible for supplying the waste removal container. Used reagent containers are permissible as long as the original label is removed or sufficiently defaced (if no longer appropriate). Under no circumstances are corrosive materials, such as acids and alkalis, to be placed into a metal container. When in doubt, review the Material Safety Data Sheet for disposal procedures.

Each waste container is to be labeled WASTE. Also, on this label should be written the date of first accumulation and exact contents. Chemical names should be fully written. Abbreviations or structural formulas are not acceptable. Labels with general wording such as "organic waste" are UNACCEPTABLE. If a container holds a mixture of chemicals, the appropriate percentage represented by each chemical must be clearly indicated on the label. The amount of water within the container shall also be noted on the label. UNKNOWN CONTENTS ARE THE RESPONSIBILITY OF THE GENERATING DEPARTMENT. ANALYSIS COSTS FOR UNKNOWN(S) WILL BE CHARGED BACK TO THE GENERATING AREA.

Chemicals, which are used separately, should be collected separately as waste. IMPORTANT - Chemicals from different hazard classes should not be mixed together. The following are examples, not all inclusive lists:

NON-CHLORINATED SOLVENTS (methanol and ethyl acetate) with CHLORINATED SOLVENTS (chloroform and methylene chloride).
FLAMMABLES (ethanol, pyridine) with POISONS (cyanides, aniline) or CORROSIVES (sulfuric acid).
OXIDIZERS (nitric acid and sodium nitrate) with FLAMMABLES (acetone and toluene) or CORROSIVES (hydrochloric acid and chromic acid) or POISONS (aniline and mercuric acetate).

Adherence to this procedure may allow the departments to recycle some of this type of waste. All waste should be properly stored in the work place or labs (not in offices, hallways, classrooms, etc.) so that it is not mistaken for trash or used as virgin chemical. The temporary waste storage area should be labeled in a conspicuous manner so that Safety Office personnel can easily identify what is to be taken during the HAZMAT pickups.

Questions regarding any of the above can be directed to the Safety Office at ext. 4897.

SPECIFIC PROCEDURES FOR SCHEDULING A WASTE PICKUP

Emergency pickups will be made as required for materials posing an immediate life threatening hazard or potentially life threatening situation.
Regular chemical pickups will be made every 90 days.
Submit a list of materials to be picked up, complete with location and specific name information.
Chemicals will be picked up from the location where they are stored. Usually, laboratory personnel will be required to be present on the day of pickup unless prior alternate arrangements have been made.

HAZARDOUS WASTE CONTAINER LABELING
Under current State and Federal regulations, all containers of hazardous waste must have a label containing the words "hazardous waste" and the container's contents. "Hazardous Waste" pre-printed labels can be obtained by contacting the Safety Office at x4897. The generator of the waste must fill in the following information as indicated:

Accumulation start date: Month/day/year the first volume of waste was placed into the container.

Contents: Name of any chemical(s) placed in the container. The chemical name is required by law to be written in legible English (i.e. Methanol or Methyl Alcohol). Chemical formulae, symbols and abbreviations are not acceptable (i.e., MEOH, CH30).

It is essential that an accurate, up-to-date inventory be maintained of the chemical contents. In addition, if the contents consist of more than one chemical, estimated percentages must be included (i.e. Methanol (10%), Ethanol (80%), Pyridine (10%). If all the information cannot be included on this label, it is permissible to attach to the container a list of the chemicals, including percentages, along with the hazardous waste label. Where content is pre-printed on the sticker, write in "see attached list". If you have any questions, contact the Safety Office at x4897.

WASTE MINIMIZATION

Under the Reauthorization of the Resource Conservation and Recovery Act (RCRA), the U.S. Congress included the requirement that each generator of controlled hazardous substances (hazardous waste) provide a waste minimization program. The intent was to reduce waste disposal and assist in the preservation of land resources. Therefore, the following procedures have been incorporated at Frostburg State University to achieve compliance with the Waste Minimization requirement. If there are any questions, contact the Safety Office at x4897.

Only dispose of those items that are contaminated with chemicals (i.e., non-contaminated solid debris, water, etc. should be disposed of as nonhazardous waste). Empty chemical containers, except pesticides, can be disposed of in the same manner as non-hazardous refuse.

If chemicals are used separately, they should remain separate as waste.

Do not mix nonhalogenated solvents with halogenated solvents (if maintained separately), since these can be recycled for beneficial reuse.

Try to recycle old virgin chemicals. This can be accomplished by circulating fliers throughout the building/departments. Do not recycle ethers, dioxane, tetrahydrofuran or any other chemicals that form peroxides or become potentially explosive upon aging or other chemicals which have obviously deteriorated or which are in damaged containers.

Only purchase chemicals in the quantities you would realistically expect to use. Excess chemicals only add to the University's future disposal costs.

Only use containers that are comparable in volume to the amount of waste being generated (i.e., do not use a one gallon sized container for one pint of waste).

When appropriate, less hazardous substances should be utilized in experiments, etc. (i.e., carosafe/ethylene glycol for formaldehyde, detergent/water for chromic acid glass cleaning).

WASTE PAINTS AND SOLVENTS HANDLING AND DISPOSAL

Waste paints and paint related solvents could be hazardous to the environment and ground water systems, as well as a fire hazard, when handled improperly and disposed of incorrectly.

Determine if the paint is latex water based paint or is an oil-based paint. If the paint is latex based, it is not a hazardous waste. Latex water based paints may be disposed of in the normal waste disposal containers. The original container must be emptied of all liquids and paint products must be solidified. Open the latex water based container and allow the paint to solidify not just "skin over". Once the paint is solid throughout, it may be disposed of.

Oil based paints and solvents are hazardous waste and must be disposed of properly through the Office of Human Resources Safety Office. Oil based paints and solvents such as turpentine, turpex, xylene, toluene, mineral spirits and like products should be collected in a bulk container (metal five gallon type) to minimize disposal cost.

The containers should be taken to a well-ventilated area, free from open flame, heat and sparks. It is the generator's (individual department) responsibility to bulk waste the oil based paints, solvents and by products. When bulk containers are full, call the Office of Human Resources Safety Office at x4897 for a scheduled HAZMAT pick up. The container shall be labeled with the type of contents.

Appendix VI
Additional Standards

Use of any of the following materials may be subject to specific occupational safety and health standards as shown:

Asbestos, tremolite, anthophyllite and actinolite	29 CFR 1910.1001
4-Nitrobiphenyl	.1003
alpha-Naphthylamine	.1004
4,4'-Methylene bis(2-chloroaniline)	.1005
Methyl chloromethyl ether	.1006
3,3'-Dichlorobenzidine (and salts)	.1007
bis-Chloromethyl ether	.1008
beta-Naphthylamine	.1009
Benzidine	.1010
4-Aminodiphenyl	.1011
Ethyleneimine	.1012
beta-Propiolactone	.1013
2-Acetylaminofluorene	.1014
4-Dimethylaminoazobenzene	.1015
N-Nitrosodimethylamine	.1016
Vinyl Chloride	.1017
Arsenic (inorganic)	.1018
Lead	.1025
Cadmium	.1027
Benzene	.1028
Cotton dust	.1043
1,2-Dibromo-3-chloropropane	.1044
Acrylonitrile	.1045
Ethylene oxide	.1047
Formaldehyde	.1048
4,4'-Methylenedianiline	.1050
Non-Asbestiform tremolite, anthophyllite and actinolite	.1101

These standards are not replaced by the Occupational Exposure to Hazardous Chemicals in Laboratories standard. Users of these materials areexpected to adhere to the provisions of all applicable substance-specific standards if employee exposure routinely exceeds the OSHA-mandated permissible exposure limit (or Action Level, if specified). Copies of these standards may be obtained from the Department of Environmental Safety.

Appendix VII
Incompatibility Table

The following list is to be used only as a guide. Specific incompatibilities are listed in the material safety data sheets. One may also wish to consult *Bretherick's Handbook of Reactive Chemical Hazards.*

Chemical	Incompatible with
Acetic acid	Chromic acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, permanganates
Acetylene	Chlorine, bromine, copper, fluorine, silver, mercury
Acetone	Concentrated nitric and sulfuric acid mixtures
Alkali and alkaline earth metals (such as powdered aluminum or magnesium, calcium, lithium, sodium, potassium)	Water, carbon tetrachloride or other chlorinated hydrocarbons, carbon dioxide, halogens
Ammonia (anhydrous)	Mercury (e.g., in manometers), chlorine, calcium hypochlorite, iodine, bromine, hydrofluoric acid (anhydrous)
Ammonium nitrate	Acids, powdered metals, flammable liquids, chlorates, nitrites, sulfur, finely divided organic combustible materials
Aniline	Nitric acid, hydrogen peroxide
Arsenical materials	Any reducing agent
Azides	Acids
Bromine	See chlorine
Calcium oxide	Water
Carbon (activated)	Calcium hypochlorite, all oxidizing agents
Chlorates	Ammonium salts, acids, powdered metals, sulfur, finely

	divided organic or combustible materials
Chromic acid and chromium trioxide	Acetic acid, naphthalene, camphor, glycerol, alcohol, flammable liquids in general
Chlorine	Ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gases), hydrogen, sodium carbide, benzene, finely divided metals, turpentine
Chlorine dioxide	Ammonia, methane, phosphine, hydrogen sulfide
Copper	Acetylene, hydrogen peroxide
Cumene hydroperoxide	Acids (organic or inorganic)
Cyanides	Acids
Flammable liquids	Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide, halogens
Fluorine	All other chemicals
Hydrocarbons (such as butane, propane, benzene)	Fluorine, chlorine, bromine, chromic acid, sodium peroxide
Hydrocyanic acid	Nitric acid, alkali
Hydrofluoric acid (anhydrous)	Ammonia (aqueous or anhydrous)
Hydrogen sulfide	Fuming nitric acid, oxidizing gases
Hypochlorites	Acids, activated carbon
Iodine	Acetylene, ammonia (aqueous or anhydrous), hydrogen
Mercury	Acetylene, fulminic acid, ammonia
Nitrates	Acids
Nitric acid (concentrated)	Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids and gases, copper, brass, any heavy metals
Nitrites	Acids

Nitroparaffins	Inorganic bases, amines
Oxalic acid	Silver, mercury
Oxygen	Oils, grease, hydrogen; flammable liquids, solids, and gases
Perchloric acid	Acetic anhydride, bismuth and its alloys, alcohols, paper, wood, grease, oils
Peroxides, organic	Acids (organic or mineral), avoid friction, store cold
Phosphorus (white)	Air, oxygen, alkalies, reducing agents
Potassium	Carbon tetrachloride, carbon dioxide, water
Potassium chlorate	Sulfuric and other acids
Potasssium perchlorate (see also chlorates)	Sulfuric and other acids
Potassium permanganate	Glycerol, ethylene, glycol, benzaldehyde, sulfuric acid
Selenides	Reducing agents
Silver	Acetylene, oxalic acid, tartaric acid, ammonium compounds, fulminic acid
Sodium	Carbon tetrachlloride, carbon dioxide, water
Sodium nitrite	Ammonium nitrate and other ammonium salts
Sodium peroxide	Ethyl and methyl alcohol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethylacetate, methyl acetate, furfural
Sulfides	Acids
Sulfuric acid	Potassium chlorate, potassium perchlorate, potassium permanganate (similar compounds of light metals, such as sodium, lithium)
Tellurides	Reducing agents

Appendix VIII
Sample Students' Safety Regulations

The chemical laboratory is probably one of the most potentially dangerous environments outside the automobile that you will fine on a collage campus. The potential for serious injury in the laboratory is very high. Why?

1. Most chemicals are toxic only at higher concentrations. The chemical laboratory however, is full of concentrated chemicals. For example selenium is an essential element for life, without it you would die. On the other hand, too much of it and again you will die. In nature, selenium is only found in very small quantities. In order to study the chemistry of selenium, it must be concentrated to very high levels. Only very small quantity of this concentrated selenium is necessary to cause serious health problems.

2. Many chemicals are very reactive and can cause explosions, fires, or serious bodily injury. Mixing of certain chemicals can be fatal. Many of these highly reactive chemicals can be found in all chemical laboratories. Unfortunately, it takes many years of study to know what chemicals are reactive, what combination of chemicals can be mixed safely, or the proper precaution required prior to mixing chemicals.

3. Many chemical solvents are flammable, and many chemical reactions require heat in the form of a flame to make them react. The potential for a fire in the laboratory is very high. Even the most experience laboratory technician will burn himself or herself with hot glassware.

4. Chemical spills in the laboratory are common. Gravity is always their waiting for us to slip up. These spills can be extremely dangerous. Just the broken glass can cause serious injuries; the addition of spilled chemicals only magnifies the magnitude of the injury.

5. There are still many unknown properties associated with chemicals. Many chemicals have not been fully investigated. There are still many questions that need to be answered.

With all these potential for hazards, how can we safely do chemistry in the laboratory? The answer is actually quite easy. The key to safety is maintaining control. It is only when control is lost that any situation becomes dangerous. By following some very basic rules in the laboratory, control can be maintained, many potential hazards can be minimized or eliminated, and the laboratory environment can be made safe to work in. It

is important that everybody follows these rules. As your knowledge of chemistry increases, the extent of these rules may change. The more experience students of chemistry will be allowed more freedom in developing and performing an experiment. It will however never diminish basic safety considerations or responsibility for others safety.

Basic Safety Rules

A Handling Chemicals

1. Treat all laboratory chemicals as toxic. Never allow direct contact of any laboratory chemical with any part of your body.
2. There is absolutely no tasting, ingesting or direct inhalation of any laboratory chemical. Laboratory chemicals that give off large quantity of vapors or are simply very odorous will be used only within a fume hood.
3. No eating or drinking in the laboratory. Many chemicals' vapors will deposit onto food items or dissolve in liquids. The potential of ingesting laboratory chemicals becomes very high. Placing cups of coffee on lab bench tops where laboratory chemicals may have been spilled is only an invitation to danger.
4. Wear proper clothing in the laboratory. The transferring of liquids will cause small amount of splattering. Clothing that covers your chest and stomach will reduce the direct contact of chemical's splashes. It would also be prudent to wear older clothing that you would not mind departing with or a laboratory apron or coat. Also, avoid bulky clothing or jewelry that might get caught on glassware or laboratory apparatus.
5. Most chemical spills or glass will fall on the floor eventually. Wearing shoes or sneakers that cover the top of your feet will reduce direct contact and/or injury due to broken glass. Sandals or flip-flops offer no protection for the top of your feet.
6. Latex gloves are provided for use for the more dangerous chemicals. If you are not sure how dangerous the chemical is, use them.
7. Your eyes are the most sensitive part of your body, and they are rather useful. To protect your eyes from direct contact of chemicals approved safety goggles will be worn. Only safety goggles that protect the eyes from direct spills from any direction will be allowed. Also, some chemical vapors can be absorbed by contact lenses and may cause damage to the contact lens. If you wear contact lenses, it is important you use the safety goggles.
8. All chemical containers must be labeled properly. Labels showing content will be on displayed for all containers found in the laboratory. This requirement will be for all containers including waste containers, distilled water bottles, solvent bottles, laboratory chemicals bottles etc. Emptied bottles being stored for future use will have no labels.

    a. If the container content is hazardous a label containing the following information will be displayed on the container:
    - Content Name

- Concentration
- Date Received/Made
- Storage Location (room, cabinet and/or shelf number)
- Responsible Individual
- Storage Safety Information
- Handling Safety Information
- Hazard Information for the NFPA Label

b. If the container content is non-hazardous a label containing the following information will be displayed on the container:

- Content Name
- Concentration
- Responsible Individual
- Date Received/Made
- Storage Location (building, room, cabinet and/or shelf number)

c. Manufacturer's labels and safety labels on containers cannot be removed or deformed.

B. Minimize fire dangers
   1. Avoid using flammable solvents near an open flame. If you must, keep the volume of solvent to a minimum, never more than 50 milliliters.
   2. Hair is flammable. If you have long hair, be sure to secure it so it does not come in contact with flames or laboratory chemicals.
   3. Keep all papers away from open flames.
   4. Use gloves when handling hot glass.

C. General Laboratory Safety
   1. Avoid dangerous activities such as throwing things or running in the laboratory. Be aware that there are others in the lab that might not be aware of your actions and you may startle them causing a spill.
   2. Give plenty of elbowroom to those handling chemicals. Bumping into someone as they are poring a chemical can cause a spill.
   3. Never perform an unauthorized experiment or procedure in the laboratory. Do only those experiments outlined in the lab notes or given by the instructor. If you wish to perform an experiment or procedure that you are not sure about or not directed to do, get permission or further direction from the instructor. When in doubt, ask.
   4. Only work in the laboratory with the permission of someone who has the authority to let you into the laboratory. As much as possible, you should always work with someone else in the lab.
   5. If you are performing a procedure that is relatively dangerous, be sure to let everyone in the lab know.
   6. If you not sure about a procedure, get help from someone before you do it.
   7. All accidents and spills must be reported to the instructor or supervisor.

8. Always wash your hand after leaving the laboratory environment.

D. Safety Equipment
   1. Every laboratory is equipped with a safety shower, eyewash station, fire extinguisher and a spill kit. Be sure you know where they are, when and how to use them.
   2. Fume hoods are present in every laboratory. All very dangerous chemicals will be stored in the hoods when out in the laboratory. Be extra careful when working at or near a fume hood.
   3. Waste containers will be provided for chemical waste and broken glassware. Never put any laboratory chemicals into a trash can or down the drain unless you have explicit direction from the instructor.
   4. Phones to call Campus safety are located at the end of each hall. Be sure you know the location of the nearest phone to the laboratory.
   5. Fire alarms are located at the end of each hall. Be sure you know the location of the nearest fire alarm to the laboratory.

E. In Case of a Fire
   1. If there is a fire in the laboratory, perform the following procedure:
      a. If the fire is small and can safely be extinguished, do so or have somebody else do so and notify the laboratory instructor of the incident.
      b. If the fire cannot be safely extinguish
         1) Get everyone out of the room
         2) Send someone to activate the fire alarm
         3) Send someone to call Campus Safety for help. (Phones are located in the hallways, dial 911.)
         4) Notify the laboratory instructor
         5) Exit the building
   2. If you hear the fire alarm while you are in laboratory
      a. Shut off the gas at your station if you are using it.
      b. Turn–off any electrical devices being used at your station
      c. Take all your personal items and exit the building
      d. Get with your instructor for further instructions

F. In Case of a Chemical Spill
   1. For a small spill notify the instructor for guidance.
   2. For a large spill of relatively non-toxic chemicals;
      a. Notify the workers around you of the spill and have them move out of the way.
      b. Notify the laboratory instructor and wait for further instruction.
   3. For large spills of toxic chemicals onto the floor;
      a. Notify the workers around you of the spill and have them move out of the building.
      b. Notify the laboratory instructor.
      c. Leave the building
   4. For large spills of toxic chemicals on an individual;

a. Notify anyone in the lab of the spill and they will move you toward the safety shower.
b. Once in the shower, remove all affected clothing.
c. Rinse affected area with large quantity of water.
d. Notify the laboratory instructor.

5. Chemicals splash into the eyes;
   a. Notify anyone in the lab of the spill in your eye and they will move you toward the eyewash station
   b. Inform them if you are wearing contact lenses, they must be removed.
   c. Flush the eye with large amount of water.
   d. Notify the laboratory instructor.

G. Material Safety Data Sheets

1. These sheets contain all known hazards associated with a chemical and are available for all chemicals stored within the department.
2. You can obtain these sheets for the chemicals you are working with in lab by notifying the laboratory instructor.
3. Also, the University Safety officer at Human Resources, Hitchins Building, can obtain these sheets.

Appendix IX
Sample Students' Responsibility Statement

I, the undersign, have received a copy of the Laboratory Safety Procedures. These safety procedures were explained to my satisfaction. I have located the emergency equipment available in the lab and have been given guidance as how to use them in case of an emergency. I have been instructed on emergency notification and alarm procedures and escape routes to use in case of an emergency. I have also been instructed on the availability and location of Material Safety Data Sheets. I understand these sheets will be made available to me upon request. I agree to follow these laboratory safety regulations as require by this course. I understand that failure to follow these regulations can result in my dismissal from the laboratory and will have a negative impact on my grade for this course.

Signature _____

Print Name _____

Date _____

Course and Section _____

Safety Instructor _____

In case of an accident, name, address and telephone numbers of who should be notified. (Optional)

_____

_____

_____

_____

Appendix X
FSU Chemical Hygiene Plan Forms

The following forms are to be used in associated with the Chemical Hygiene Plan.

Hazardous Chemical Incident Report (Individual)

Hazardous Chemical Incident Report (Supervisor)

Hazardous Chemical Incident After Action Report

Hazardous Chemical Request Form

Laboratory Experiment Review Sheet

Hazardous Chemical Incident Report
Frostburg State University

To be completed by individual exposed to hazardous chemicals

Name _____ Date _____

Home Address _____

_____

Circle One: Student Staff Faculty Other _____

Location of Exposure:

Building: _____ Room: _____

Date(s) of Exposure: _____

Body Area Affected:

Initial Symptoms/Date/Time:

Additional Symptoms/Date/Time:

Summary of Exposure:

Hazardous Chemical Incident Report
Frostburg State University

To be completed by individual exposed to hazardous chemicals and laboratory supervisor

Supervisors Name: _____ Date: _____

Title/Position: _____ Department:_____

Name of Exposed Individual: _____

Chemical(s) Involved:

Estimated Level or Nature of Exposure:

Exposure Duration:

What Immediate First Aid Was Given to Individual:

Other Personnel in Exposed Area:

Additional Comments of Incident:

Hazardous Chemical Incident After Action Report
Frostburg State University

To be completed by laboratory supervisor and Chemical Hygiene Officer

Supervisors Name: _____ Date: _____

Title/Position: _____ Department: _____

Name of Exposed Individual: _____

Nature of work being performed:

Education or experience level of expose individual:

Was the individual authorized to perform the work causing the incident? If not explain.

Was the individual following proper safety precautions? If not explain.

Steps taken to prevent further occurrence:

Hazardous Chemical Request Form
Frostburg State University

Requestor Department

Chemical Name:

Catalog and Catalog Number:

Amount: Catalog Purchase Price:

Storage Location:

Responsible Individual:

Purpose: (Circle One) Research Student Laboratory Course Demonstration Others

Nature of Use:

Copy of MSDS sheet must be attached.

Storage Safety Information:

Handling Safety Information:

Hazard Information for the NFPA Label:

Approved by Department Chair.

_____ _____

Department Chair Signature Date

Laboratory Experiment Review Sheet
Frostburg State University

Course Name and Number _____

Experiment's Name _____

List of all Chemicals in the Experiment

List of Procedures

Specific Precautions and Instruction for Handling Hazardous Chemicals

Specific Instructions for Hazardous Procedures

Individual Responsible for Experiment _____

Reviewer _____